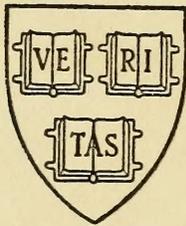


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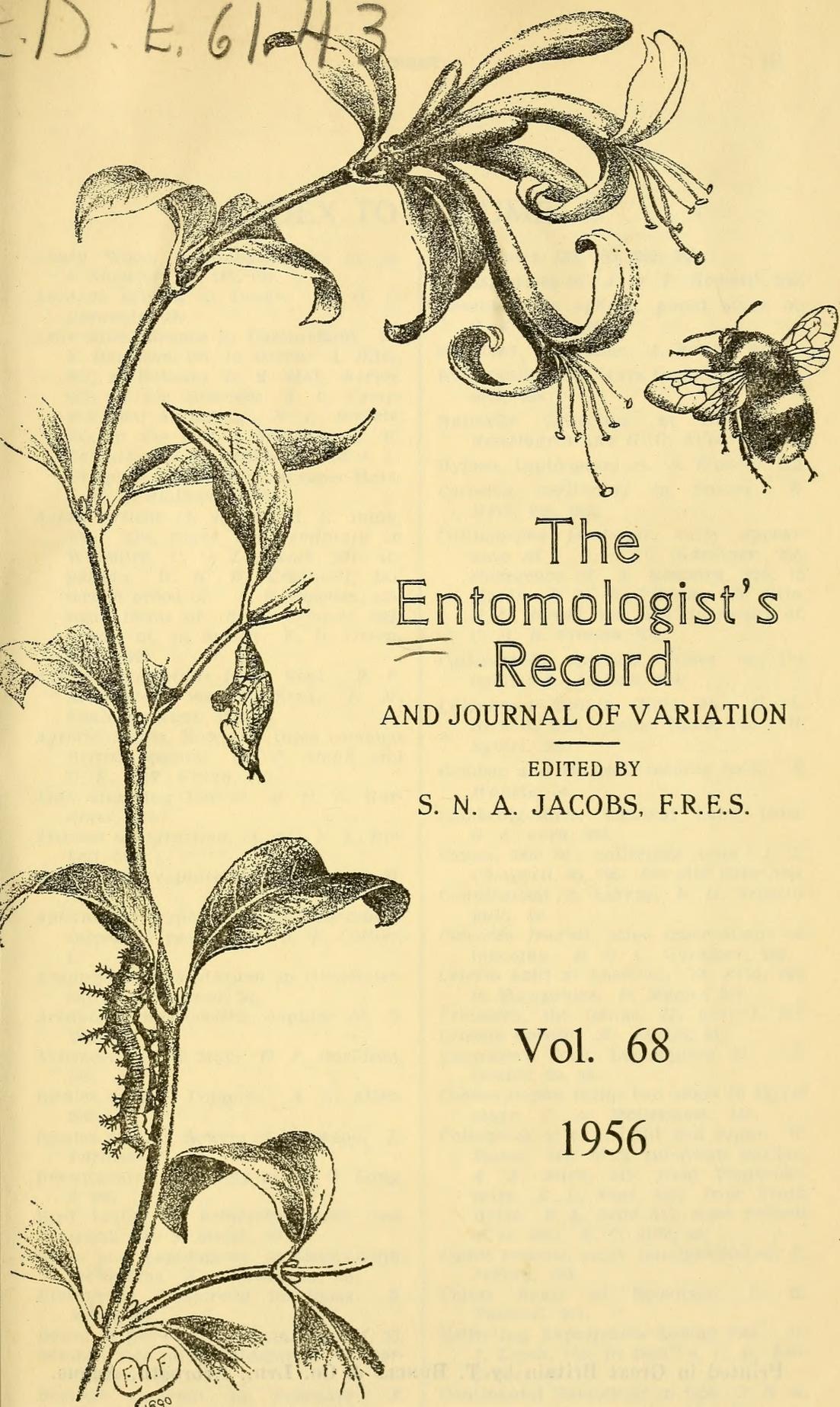


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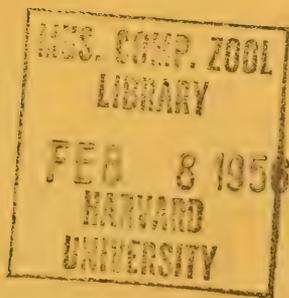
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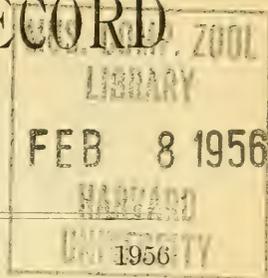
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15TH JANUARY



A Successful Rearing of *Aphantopus hyperantus* Linn. ab. *lanceolata* Shipp.

By A. E. COLLIER.

In Dr. Ford's book *Butterflies* there is a reference to Mr. Shepherd's experience of breeding *Aphantopus hyperantus* Linn. ab. *lanceolata* Shipp., but no mention is made of a brood being obtained from *lanceolata* parents, nor of the success or failure of such an attempt.

In 1952 my old friend, the late Sidney Castle Russell, captured a rather worn female in a locality which I had discovered during the previous winter. He was easily persuaded to cage her for eggs, though he was, as usual, humorously sceptical about the possibilities of results from F2 or F3 generations, never having succeeded in mating *A. hyperantus* in captivity.

In due course 58 eggs were laid, and C.R. successfully brought 54 larvae through the winter. In early spring he brought them indoors where, subsequently, they became sickly and began to die off at an alarming rate. On 21st May I took over 40 survivors, most of which recovered and produced 36 pupae by 15th June 1953. Typical ♂♂ began to emerge on 26th June, and by the 29th I had 20 ♂♂ and no ♀♀.

On 30th June two typical ♀♀ emerged and these were mated at about 3 p.m. B.s.t. on the same day.

During the next 5 days 10 more ♀♀ appeared, and these were all successfully mated.

By the 7th July I had 800 eggs, which I divided equally with Castle Russell. All the butterflies were then released in a secluded spot, where, I am glad to say, I have since seen several *lanceolata* on the wing.

The eggs began to hatch on 22nd July, but a count in mid-August revealed only 170 larvae, and many infertile eggs, or eggs in which there were dead larvae. C.R. was unlucky with his, owing to a severe attack of mildew, and failed ultimately to bring any survivors through the winter. My own results were poor, resulting in 127 pupae from which butterflies began to emerge on 16th June 1954. When the last insect emerged on 6th July the count was 56 ♂♂, of which 9 were *lanceolata*, and 71 ♀♀ of which 14 were *lanceolata*. I had expected 25 per cent. of aberrations, but obtained only 18.2 per cent., a disparity which may partly be explained by the fact that the *lanceolata* forms varied very greatly, particularly among the males, some being hardly recognisable, while others were of an extreme character. It is more

than possible that insects were released as type, which may have been barely recognisable forms of *lanceolata*.

After some difficulty, owing to cold and dull weather, I obtained matings between two *lanceolata* pairs, one of which produced 46 fertile eggs, and the other 36 eggs, all infertile. One successful union between a *lanceolata* ♂ and a typical ♀ produced a good clutch of fertile eggs. In 1955, from the *lanceolata* × *lanceolata* pairing, 35 imagines were obtained, all being true *lanceolata* of good, but not extreme, quality.

From the backcross there emerged only apparent types, all of which I assumed to be heterozygotes.

The foregoing results appear to confirm the fact that the character is a simple recessive but that it can at times be partially obscured by other factors.

The quality of the various broods was interesting.

F1. The imagines were not only typical but were uniformly dull and without any minor variation.

F2. The homozygotes varied from, practically type to extreme *lanceolata*. The heterozygotes and type were very variable, including many forms of ab. *cuneata* Gillmer, besides *pluripuncta* and large spotted forms.

F3. The *lanceolata* forms were more uniform and less extreme, while the heterozygotes were uninteresting.

Attempts were made to carry on the strain and, in spite of considerable lack of fertility, a small brood has been obtained from a homozygous pairing, and two good broods from backcrosses, *lanceolata* ♂♂ × heterozygous ♀♀. Although many pairings were obtained between heterozygous ♂♂ × *lanceolata* ♀♀ all the eggs laid were infertile.

Failure of a Mission

By RAYMOND F. HAYNES.

Since the publication of my previous article (March 1955) in this JOURNAL—"Does *Erebia epiphron* Knoch still exist in Ireland?"—I have now had the opportunity of a personal visit to two of the localities where the Small Mountain Ringlet was formerly recorded. Let me say from the outset that my mission proved singularly unfruitful; nevertheless a brief account of my expedition may be of some interest.

From the weather angle I could not dare have hoped for such a fine spell as was experienced almost everywhere during the first fortnight of July. Leaving Dublin on Monday, 4th July, I reached Westport in Co. Mayo the same evening and went on to a small town known as Newport some 9 miles further north. Tuesday, 5th July, dawned clear and very sunny with the promise of a fine, settled day, and naturally I lost no time setting out for Croagh Patrick, one of the few mountains on which *E. epiphron* is supposed to have been taken. After a long, tiring cycle ride I reached a public house known as Campbell's Bar on the Westport-Louisburgh road near Leckanvy. Leaving the road, I commenced the ascent and having passed a large, prominent statue of St Patrick the path soon became rough and stony but not too steep. The climb was performed in heat and blazing sunshine.

As soon as it seemed I had reached a high enough altitude, I assembled the net and set to work to comb all the spots I could find which might answer the description of "Birchall's grassy hollow" mentioned by C. Donovan in his "Macro-lepidoptera of Ireland". I looked in vain for "Birchall's little wooden hut erected for the benefit of pilgrims" but saw several rude, stone edifices beside the path which might by a great stretch of imagination be called shelters. Over all grassy hollows I kept a keen look-out for the little ringlet, but after about two hours' prowling it became obvious that further investigation was merely a waste of time. About the only insect I saw was a small micro, since identified as *Argyroploce schulziana* Fab. Unless I had come just a little too late, it seems remarkable to me that there was no sign of this mysterious butterfly, *if it is still there*. I'm beginning to think that it has disappeared along with certain other species of Birchallian origin in Ireland.

Although I had not originally set out that morning with the intention of becoming an amateur mountaineer; yet having climbed (as I reckoned) over 2000 feet, I could not resist the temptation to scale the last few hundred feet to the summit of Croagh Patrick. This last part, incidentally, is the only really stiff portion of the ascent. At the summit there is a small chapel. I was rewarded with a fine view from the mountain top with visibility stretching miles and embracing glimpses of Clew Bay, Achill Island and the Connemara hills. The descent was made by the same path but I did notice another way down in the opposite direction which I regret that I did not have time to investigate.

After this set-back in my efforts to re-record *E. epiphron* I decided to tackle the other mountain in this district upon which Kane caught the butterfly years ago—Mount Nephin. As I mentioned in my earlier account, the southern aspect of Nephin nearest to Foxford appears most unsuitable for the existence of the insect; so after careful study of an Ordnance Survey map I came to the conclusion that my best course was to start the ascent from a point on the Crossmolina-Beltra road near Ballynafulla. The day I chose for Nephin was Thursday, 7th July, and the weather turned out very humid, close and at first cloudy. It was quite a long ride from Newport to the foot of the mountain and the bad condition of the road did not help matters. From the spot where I began the ascent the climb was not too strenuous and after about an hour and a half I reached the summit. There were brief periods of fitful sunshine but although I searched very hard, never a trace I saw of the little Satyrid. There seems little doubt that some years ago a disastrous fire swept the mountain-side from top to bottom. I mentioned this in my other article and since then Mr. E. S. A. Baynes, who collects extensively in Ireland, has confirmed the report. However, this conflagration has certainly not obliterated all insect life from Nephin. I saw numerous *A. schulziana* and caught some good specimens of *Entephria caesiata* Schiff. (Grey mountain carpet moth). If the mountain ringlet has gone from Nephin the only likely remaining habitat in the district would be the Nephin Beg range of mountains further west but unfortunately much more difficult of access. To the best of my knowledge Nephin Beg has never been investigated.

During the week, I caught only one *Coenonympha tullia* Müll. (on the lower slopes of Nephin) and even this was very worn. I devoted one day to a visit to Achill Island, the largest island off the Irish coast. As the distance from Newport was considerable I regret to say that I was not able to spend very much time on the island. The surface is almost entirely covered with heather and turf bogs. Trees are very poor except for one single wood near Achill Sound. Insects seemed conspicuously absent but intensive collecting here, I feel sure, would produce some good results. There are three mountains on Achill which might even yield *E. epiphron* if thoroughly explored.

After a week spent in Co. Mayo, I travelled south to Killarney for the second part of my holiday. Never can I recall such a warm, almost rainless week for this part of Ireland. Butterflies seemed scarce but strangely enough I caught a fairly fresh female *C. tullia* near Lough Looscanough just outside the Windy Gap. Killarney is a very southern locality for this species and it usually occurs there in June. On a few occasions I did some night collecting and set up a paraffin vapour lamp amongst the trees in Torc Wood. *Abraxas sylvata* Scop. (Clouded Magpie) turned up in fair numbers; this locality is one of the very few in Ireland where this moth occurs. I was very fortunate to secure a reasonably fresh specimen of *Perizoma taeniata* Steph. (Barred Carpet), a very local geometrid moth. This little moth once on the wing very quickly becomes worn and almost unrecognisable. Another local moth obtained at light was *Chloroclystis debiliata* Hübn. (Bilberry Pug). In spite of hard scrutiny of old birch trees growing beside the Kenmare road, I failed to find any *Aegeria scoliaeformis* Borkh. (Welsh Clearwing), although I did spot one empty pupa-case. This species is one of the Killarney specialities I have yet to add to my collection and I also look forward to the day when I bring back home a White Prominent.

Butterfly Collecting at Digne, Basses Alpes, in 1954 and 1955

By G. HESSELBARTH and H. G. ALLCARD.

PART I. By H. G. ALLCARD.

During the winter of 1953-54 my interest in Digne as a collecting centre for butterflies was greatly strengthened by a paper by G. Lederer and Joseph Leinfest shown to me by Mr. P. Stocker, and early in 1954 Herr Hesselbarth of Diepholz, Hanover, and I decided to meet at Digne in July for a short collecting holiday.

We spent the early spring getting together all the information we could which would help us to make the most of the time available. Herr Schwarzbeck of Tiefenbach agreed to join us and it was finally decided that Herr Hesselbarth and Herr Schwarzbeck should travel to Digne at the beginning of July and that I should join them as soon as possible.

Digne is somewhat inaccessible from England when time is precious, but if one gets to Paris there is a suitable train leaving the Gare de Lyons at 23.00 hours, arriving at Grenoble at 7 a.m. and I finally decided to travel by this train. The wait of an hour at Grenoble

enabled me to enjoy a breakfast of rolls and butter and the delightful coffee of the Continent. From Grenoble a small mountain diesel train leaves at 8 a.m., travelling up and down through the superb scenery of the more westerly regions of the Hautes Alpes to Veynes where it reverses and runs down to Digne, crossing the Durance at Saint Auban. The journey takes $4\frac{1}{2}$ hours but the time passes pleasantly in the enjoyment of the scenery and, if one is lucky with the weather as I was, in identifying the numerous species of butterflies flying in the adjacent fields and along the banks of the railway. As the train drew into the station at Digne I saw my friends waiting on the platform to greet me, providing a climax to a most interesting journey and a prelude to a week's intensive collecting.

Digne, the capital of the province of the Basses Alpes, is a delightful town situated at the intersection of several valleys the chief of which carries the Blèone, a tributary of the Durance, but still a considerable river in its own right. Although we had almost continuous sunshine throughout our stay we did not find it too hot, the elevation of 652 metres keeps the temperature down and ensures cool nights. We had been advised to stay at the Central Hotel and any collectors who require clean and comfortable bedroom accommodation at a modest charge and who are prepared to go out for their meals, which are not provided at the Hotel, might advantageously give this hotel their consideration. The proprietor, Monsieur A. Ricavy, although not himself a collector, is interested in entomology and understands the peculiar ways of entomologists, and his local knowledge and eagerness to help add to the enjoyment of the stay.

As a collecting centre Digne is very well situated, so many types of country being easily accessible. On foot the collector can get busy with the net within ten minutes of the hotel in any direction, whilst by hiring a car he can readily reach the more specialised areas frequented by Parnassids and Erebias. The richness of the Digne fauna may be judged by the large number of species of Rhopalocera identified by us in such a short time as shown by the list appended at the end of this paper, totalling some 120 species of butterflies.

Herr Hesselbarth and myself confined our collecting to butterflies but Herr Schwarzbeck took full advantage of the great number of Zygènes to add to his collection of that family. To the specialist the interest of the area is still further augmented by the number of local races which have developed. *G. rhamni* has established a local race distinguished by its delicate colour and more pointed wings, *A. crataegi* is smaller than normal and the wings more lightly covered with scales, and *Parnassius apollo* has developed the local race *leovigildus* Fruh. The local *S. circe* is somewhat smaller than the Mediterranean race but is bright and strongly marked.

Having such a limited time at our disposal we quickly set about planning our campaign. There were only six whole days in which we could all collect together; La Colette, Le Barre des Dourbes, Mt. Cousson and the Montagne de Lure were all localities which would require a full day each and the remaining time could be filled in as the mood dictated.

The country round Digne is in many ways ideal. Except to the south-west there is practically no level ground and the mountains,

composed mainly of limestone, rise in a series of ridges to between five and six thousand feet, and their slopes, not all of which are precipitous, are covered with virgin forest. There is not too much pine and the forests are mainly mixed deciduous trees broken up by outcrops of rock and grassy slopes. The clearings are ablaze in the early summer with a mass of wild flowers which persist until well into July unless the season is a very dry one.

The exploration of the country calls for a considerable amount of walking and climbing, but the mountain air is so fresh, the scenery so varied and beautiful and the interest of the alpine flora so stimulating, that one returned to the Hotel in the evening feeling tired but not worn out and eager, after a bath and a meal, to sit over a drink discussing the day's successes and planning to-morrow's excursion.

When we parted company in Nice, my friends to collect in the Alpes Maritimes behind that town and myself to board a 'plane for Manchester, we expressed the wish that we should meet again the following year and collect together once more. Our wish proved possible of fulfilment and in July 1955 we met again at Digne at exactly the same time as in the previous year.

In 1954 we were without transport and in order to explore the regions beyond walking distance we had to hire a car. Although the charges were reasonable it meant keeping the driver waiting for eight or nine hours before we were ready to return and consequently we tended to concentrate on the more immediate neighbourhood.

In 1955, however, Herr Hesselbarth, with his wife and eldest son Gunther, made the journey from Quakenbruck to Digne by road and we had the great advantage of having his car to transport us to our collecting grounds. Last year I was not able to visit the Col d'Allos, but this year we made the trip and were able to collect some good Erebias and blues at the 7,000 foot elevation. The local race of *M. cynthia*, characterised by its small males, was in profusion although even at that height most of the butterflies were worn and past their best. Odd *C. phicomone* were flying rapidly up and down the slopes and gullies, many of which still contained veins of snow.

Collecting over the same ground in two successive years, at the same time of the year, proved a most interesting experience and gave us much food for thought and study. 1954 was a backward season and many of the butterflies, the large fritillaries, *G. cleopatra* and *rhamnii*, the second brood blues, the satyrids and apolloes, were fresh out and in full flight. 1955 had every indication of being a still more backward season, the winter had been long and cold and the early summer, except for a brilliant period in April, had been even colder and wetter than the previous year. The emergence of the large fritillaries and the White Admiral which heralds the end of June in England had not taken place and the reports from the South of England at the beginning of July were entirely negative. The whole of Europe except for the Mediterranean and the Iberian Peninsular had had similar weather. At Digne, however, things were entirely different, the season was much more advanced and many species past their best or completely over. The apolloes, found the second week in July in 1954, had disappeared in the lower localities at the same time in 1955 and although still plentiful at about 5,000 feet were worn and near the end of their flight.

The ascent of La Colette in 1954 provided a most interesting experience. We made the climb up the rather steep but short northern slope, pausing to rest and collect on the various ridges and open spaces, and having passed through the narrow wood on the summit found ourselves looking down on a clearing of several acres entirely carpeted with wild flowers of every colour and size. Above this carpet rose and fell a positive cloud of many hundreds of butterflies. This cloud was predominantly white in colour but sparkled with the bright yellow of *ramni*, *cleopatra* and *C. australis*, chequered with the darker colours of the larger fritillaries and satyrids. Close examination revealed numbers of blues, *icarus*, *bellargus*, *corydon*, *minima*, etc., flying from flower to flower.

In 1955, however, the scene was very different. In our ascent from the north we had marked the scarcity of butterflies, but we were not prepared for the scene on the southern slopes. The ground had been baked dry by the sun, only a smattering of the flowers still remained and few butterflies were about. This proved characteristic of the whole neighbourhood and it was only on the higher ground that collecting proved profitable.

The second brood *machaon* and *podalirius* which were just appearing at the end of the second week in July 1954 were no longer fresh at the same time in 1955 and it was difficult to find a specimen of *podalirius* which still had its tails intact. *P. alexonor*, which though scarce and ragged in 1954 was still flying, had been over a fortnight. We had in fact, through the sharp eyes of Mrs. Hesselbarth, found a half-grown larva on 10th July. The one incongruous note was *L. rivularis*—in 1954 this species was over and we only found a few specimens, all worn. In 1955, however, it was quite fresh though scarce but widespread. The much sought after fritillary *A. hecate* found in a number of localities the previous year was a very scarce butterfly in 1955. *G. cleopatra* and *G. ramni diniensis* common in 1954 were both scarce butterflies the following year; *A. crataegi* was over but we had been informed that it had not been at all plentiful this year.

On the credit side must be added our discovery of *Japygia cleanthe* on the Montagne de Lure. In 1954 we had diligently but unsuccessfully sought this butterfly, but this year we were lucky and were each able to obtain a fine series. The long length of high ground known as the Montagne de Lure is one of the best collecting areas within reach of Digne. Situated to the west of the latter town it rises so gradually from the valley of the Durance that it is difficult to realise that it reaches 6,000 feet.

The whole of the southern slopes except for the last few hundred feet are densely wooded with mixed deciduous and evergreen trees. An excellent road winds through the forest up to the refuge where the car can be left in safety. The pine trees bordering the road are infested with the nests of the larvae of *B. spini* looking like coconuts caught in the branches. From the refuge a well defined track crosses the range and eventually comes down at Valbelle. *Erebias*, apolloes and satyrids fly on each side of and across this track and it is possible to spend a very satisfactory collecting day without venturing on to the stone covered slopes or into the adjoining woods. Narrow grassy valleys running down into the forest proved profitable hunting grounds

and we were lucky in capturing a fine blotched and rayed variety of *A. niobe* and a solitary male of *H. virgaurae*, a species which we did not know occurred on this mountain.

As the sun sank towards the horizon we made our way back to the car, stopping for a much needed drink at the refuge café, and finally drove back to Digne tired but well satisfied with our excellent day's collecting. Our trip to Lure left us with only two more full days' collecting before I must leave my friends to make my way to Nice to catch an early 'plane to Paris and we decided to spend the first at the Col d'Allos and the last day at Les Mees.

The former locality is some 90 kilometres from Digne and meant almost five hours' driving for Herr Hesselbarth, but he counted this no deterrent and at 6 o'clock in the morning we set off in brilliant sunshine. Reaching Colmar we stopped for breakfast at the Hotel Vauban, to be served in the garden with strong hot coffee and, to our astonishment, toast and marmalade!

The Col d'Allos, a 7,000 foot high Pass, is closed by snow for the major part of the year but in July the grassy slopes above the wood are good localities for Erebias and mountain blues, fritillaries, *M. cynthia* being abundant but getting worn. *Colias phicomone* were flying rapidly over the slopes in the usual manner. It is worthy of note that while *P. apollo* was flying freely just above Allos, it disappeared completely at about 6,000 feet.

Our final day we spent at Les Mees, a village some 15 kilometres south-west of Digne and noted for its extraordinary rock formation known as the Capucins des Mees. The visit proved interesting but unprofitable, the season being much too advanced at its relatively low elevation in the Durance valley. Fritillaries were plentiful but worn and we wished that we had been there three or four weeks earlier.

One year thus proved a complement to the other and although we were unable to complete series started in 1954, we managed to collect other species scarce or entirely lacking in that year. More important, however, was the knowledge and experience gained regarding the habits of some of the butterflies and their reaction to the local climatic conditions. The many other factors governing their abundance or scarcity in apparently favourable years are largely veiled in mystery and a great deal more observation and study is necessary before we can forecast with any degree of accuracy.

The final identification of many of the insects was a long job occupying many of the winter evenings. The difficulty in separating some of the allied species being greatly increased by the numbers of local races which I referred to earlier in this account.

Herr Hesselbarth has a much more detailed knowledge of the continental species than myself and I will hand over to him to continue.

(To be continued.)

Collecting in Berwickshire, July-December, 1955

By A. G. LONG, M.Sc.

Having had good collecting at Gordon Moss on 24th June I made a return visit on 1st July. The evening was clear, cool and damp with a N.W. wind at first. Later there was a moon and the night was

never really dark. Prospects did not look promising at the start. Somewhat half-heartedly I treaced along the railway side and then put out my two m.v. light-traps. At dusk I took my net and strolled down through the thick birch bushes where the roe deer sometimes lurk, and near the railway I casually netted a black and white moth. On boxing it I immediately realised it was something new. It proved to be *Mesoleuca albicillata* L. When later I consulted Bolam's list I found that he had no record of this species for the Scotch border counties, his nearest locality being in Northumberland. This was a good start for an unpromising evening but, although I worked all night, I got little else worthy of note. *Xanthorhoe ferrugata* Cl. and *Pheosia tremula* Cl. came to the lamps. At first I could not understand the presence of *tremula* among birch, so later I searched for poplars and found them at the Earliston end of the Moss. A hedgehog came sniffing round one of my lamps and I had to roll it away. The treacle patches only averaged about eight to ten moths. Indeed from this date the attractions of treacle steadily declined until September. However, there were some beautiful fresh *Diarsia brunnea* Schf. which were worth keeping.

On Saturday, 2nd July, I should have visited the Isle of May with a party of ornithologists but the sea was too rough to make the crossing. Instead we visited Fast Castle on the Berwickshire coast, but it was impossible to do much more than spy out the land for intended visits in the future. On the following day we had a great thunderstorm and torrential rain; this heralded great heat and humidity and the amazing hot spell which never really broke for two full months. Conditions for night collecting became almost perfect and I could have set out almost every evening had this been otherwise possible. There was a great nectar flow from clover and possibly this accounted for the failure of the treacle to attract moths.

On 4th July I returned again to Gordon Moss. The track down into the Moss is very rough and overgrown and in attempting to turn my van in readiness for coming home I ran one rear wheel into a ditch. After lifting out the generator and laying one of my old collecting sheets under the wheel for greater purchase I still failed to get away. I had visions of being ditched for the night but providentially two sturdy schoolboys, who had seen me pass through the village of West Gordon, came down to watch the moth catching, and with their timely assistance the situation was retrieved and the old van came out on to dry land not much the worse.

After this I treaced, and worked my lamps all night and recorded sixty species. Among these I took two *Xanthorhoe designata* Hufn.—new to my county list, and *Plusia festucae* L., *Leucania comma* L., *Amathes triangulum* Schf., *Hyppa rectilinea* Esp., *Apatele leporina* L., *Cleorodes lichenaria* Hufn., and dozens of *Anaplectoides prasina* Schf. *Venusia cambrica* Curt. came to light again and it would therefore seem likely that birch is its foodplant in this locality. A single *Phalaena typica* L. was taken—a species which seems strangely uncommon in some of these more natural habitats.

Throughout the season I worked a home light-trap at Gavinton and it was interesting to return home after dawn and see what had been flying about one's doorstep. On 7th July *Pyrrhia umbra* Hufn.

appeared at this trap. There was also a swarm of small chocolate and white caddis flies which I identified as *Leptocerus albifrons* L.

On 8th July a sea mist came in but this did not stop the moths from flying. Forty-eight species came to my home trap including *Cleorodes lichenaria* Hufn. and *Dyscia fagaria* Thun. The latter must have travelled one to two miles from the nearest heather.

On 10th July I treaced along the Greenlaw Road beyond Polwarth and operated lamps at the Kyles Hill road-end. I netted a nice *Thyatira batis* L. flying along the roadside hedge at dusk. A treacle patch on a Scots Pine trunk produced a perfect female specimen of *Eurois occulto* L. This was the first and best of a long series taken this season. Altogether I recorded thirty-nine specimens of this insect between 10th July and 30th August from six well separated localities, viz. Kyles Hill, Gavinton, Oxendean Pond, Spottiswoode, Retreat and Bell Wood. These records suggest that the species is more common and more widely established in Berwickshire than was formerly supposed. I noticed that many of these specimens only came to my lamps late in the night. The following night I made a return visit to Kyles Hill but results were disappointing. However, as dawn was breaking, about 2.40 a.m., I heard a quail calling in the fields between Polwarth and Kyles Hill.

Between 13th and 20th July I was in the West Riding of Yorkshire and re-visited former collecting haunts near Hebden Bridge. The Hebden Water below the little Baptist Chapel at Blakedean was still as attractive as ever, the stream still tumbling over the boulders of millstone grit, graceful clumps of Mountain Shield Fern (*Thelypteris oreopteris*) growing on the steep slopes, and here and there a large *Aeshna* dragonfly hawking flies.

I motored back to Scotland on 20th July and was at Gordon Moss again on the 21st. After putting down my lamps and flex I was returning to the van just at dusk when I heard a strange noise. I thought that a bird must have flown into the van, but I could find nothing. Soon after—about 10.30 p.m., I discovered the cause when I saw a large water beetle (*Dytiscus marginalis* L.) circling the van roof like a little helicopter. Suddenly down it came with a smack and slid off the roof on to the bonnet. During the next half hour several more came and I could only guess that the reflection from the van roof must have resembled an inviting pool of water. This goes to prove how much these beetles migrate at night. Later I caught one in a m.v. trap along with large numbers of a small water boatman (*Corixa* sp.). I recorded fifty species of lepidoptera including *Plusia festucae* L., *Plusia bractea* Schf., and *Geometra papilionaria* L. (all abundant) and the first *Bombycia viminalis* Fab.

On 23rd July fifty-six species came to my home trap including *Xanthorhoe munitata* Hb., *Anaitis plagiata* L., and *Aleis jubata* Thun.

Sunday, 24th July, was a beautiful sunny day and I visited Jordan Law Moss near Spottiswoode—the former home of Lady John Scott who wrote the music to "Annie Laurie". I was with a botanist friend and we were pleased to find the Round-leaved Sundew (*Drosera rotundifolia* L.) in flower. I netted two rather worn specimens of *Coenonympha tullia* Müll. and one *Aphantopus hyperantus* L. without any rings. The Forestry Commission have ploughed deep trenches in the peat and planted young pines on the ridges between.

The night of 26th July was clear but the moon soon set and conditions were quite good. I went to Kyles Hill and ran a length of flex from the van down an old track by a dry stone dyke, a distance of about a hundred and fifty yards. I set one of my lamps on the bank level with the top of the dyke overlooking the heather moor on one hand and the mixed pine and birch wood on the other. Here I took my first specimen of *Trichiura crataegi* L. and also *Plusia interrogationis* L., *Thera firmata* Hb. and *Eupithecia goossensiata* Mab.

On 27th July I visited the home of friends at Spottiswoode and worked one of my lamps in their garden and the other just outside. Treacle was a failure—only one moth, *Thyatira batis* L., came to the bait and got caught with its wings. However, the lamps brought in fifty species including *Eurois occulta* L. and *Apamea furva* Schf. The hour before dawn seemed best and as daylight was breaking and the swallows twittering a nice specimen of *Anaitis plagiata* L. appeared. This species seems to be very widely distributed in the county.

On 29th July I visited the Bell Wood, Cranshaws. This was my first visit since 28th May when the temperature had fallen to freezing point. I treaced a long line of telegraph poles by the roadside and noted *Lycopodium clavatum* growing among heather. Myxomatosis had arrived since my last visit and in places the smell was very bad. The night was cool and starry and the temperature fell to 47° F. During the evening there was a good flight of *Hepialus sylvina* L. The commonest moth at treacle was *Amathes xanthographa* Schf. At light I took several *Colostygia salicata* Hb. and one *Euxoa tritici* L. which came just at dawn. Both these species were new to me. Others worthy of note were *Trichiura crataegi* L., *Lampra fimbriata* Schreb., *Eurois occulta* L., *Plusia bractea* Schf., *Geometra papilionaria* L. and *Anaitis plagiata* L. I also took a fine series of *Stilbia anomala* Haw. (all males). The Bell Wood is an interesting locality of scrubby birch wood on a steep rocky hillside facing south, the underlying strata being Silurian. It lies between the 800-900 ft. contours at the foot of Bothwell Hill which rises to over 1,300 ft. It is almost surrounded by heather moors and well isolated from any similar birch locality.

On 31st July I decided to re-visit the Retreat on the Whiteadder below Abbey St. Bathans. After treacing many oak trees and laying down my traps I found myself assisted by several boy scouts from the Merchiston Castle School in Edinburgh. One of the commonest species at light was *Alcis jubata* Thun. It came in scores and settled on the sheets and herbage all round the traps. I took several *Stilbia anomala* Haw. and *Venusia cambrica* Curt., *Eurois occulta* L., *Plusia interrogationis* L., *Phalera bucephala* L., *Pheosia gnoma* Fab., *Procus literosa* Haw., *Geometra papilionaria* L., *Eupithecia pulchellata* Steph., and *Thera firmata* Hb. In my home trap I took *Eurois occulta* L. and *Apamea furva* Schf.

August saw a continuation of the fine weather, but the drought began to have its effect. On 2nd August I was at Gordon Moss again. Treacle was almost a failure attracting only four common species in small numbers. At light *Bombycia viminalis* Fab. was very common. The number of *Geometra papilionaria* L. was down to eight whereas on my last visit (21st July) there were between thirty and forty at my lamps. I took the first Ear moths for the season and these proved

to be *Hydraecia oculea* L., also *Parastichtis suspecta* Hb., *Cirrhia icteritia* Hufn., *Celaena haworthii* Curt., *Sterrha biselata* Hufn., and *Eupithecia tenuiata* Hb. Just before dawn one specimen of *Hydraecia petasitis* Dbld. appeared in one of the traps; I was unaware of the presence of its foodplant and still have not seen it at this locality. During the round of my treacle patches I saw and heard three birds feeding among burr-reed in a wide ditch known to the local people as 'the stank'. I shone my torch on them and judged that they were water rails. They were lighter coloured than water hens, white under the tail, skulked with the head down, and made a very loud sharp alarm call.

On 3rd August I visited Penmanshiel Moss in daytime. Around the peat holes two species of dragonflies were very active. I caught a few and later identified them as *Aeshna juncea* L. and *Sympetrum danae* Sulz. Two larvae of *Cerura vinula* L. were found on sallows and we disturbed a short-eared owl.

On 4th August I re-visited the Bell Wood above Cranshaws. During the evening I received a courteous call from the water bailiff who was readily persuaded that my apparatus was intended to catch moths and not trout. At first the night was dark with some cloud but later it cleared and the full moon made it almost as light as day. The temperature dropped to 44° F. so I packed up before dawn after recording forty-six species. Among these was one fresh *Triphaena orbona* Hufn. and *Xanthorhoe munitata* Hb., *Trichiura crataegi* L., *Hydraecia oculea* L., *Stilbia anomala* Haw., *Pheosia gnoma* Fab. (all at light), and one *Apamea furva* Schf., at treacle. Coming home a gasket blew in the cylinder head of my van engine and I was left to run virtually on two cylinders. The old van chugged like a steam-roller and I began to wonder whether I should reach home. Fortunately most of the road was down-hill and I managed to get to the top of the Stony Moor approaching Duns in second gear. I left my van outside a garage at about 5.30 a.m. and walked the remaining three miles to Gavinton none the worse for the exercise.

At Gordon Moss on 9th August I again took a single *Hydraecia petasitis* Dbld. very late in the night. The temperature at first dropped to 40° F. and then the sky clouded over and the temperature rose to 51° F. There was a great flight of *Cirrhia icteritia* Hufn. with some beautiful pale lemon-yellow forms. Treacle was a failure with only one *Triphaena pronuba* L. and one *Amathes xanthographa* Schf. However, when putting on my treacle I heard a marsh tit. This is the most westerly point in Berwickshire at which I have recorded this bird. It is apparently absent from the rest of Scotland. I also almost trod on a rabbit with myxomatosis, the first time I had seen it at Gordon.

During the early part of August things became very dry and doubtless this delayed some emergences. In my home trap I took *Bombycia viminalis* Fab. for the first time (5th and 11th).

The night of 12th August was pitch dark with low cloud and fine drizzle. I worked my lamps from dusk to dawn at Kyles Hill and recorded sixty-two species. These included four *Eurois occulta* L. very late in the night, five lovely fresh *Aporophyla lutulenta* Schf., several fresh *Amathes castanea* Esp. all of the grey form, *Bombycia viminalis* Fab., *Plusia festucae* L., *Diarsia dahlii* Hb., *Stilbia anomala* Haw.,

Xanthorhoe munitata Hb., *Agrotis ipsilon* Hufn. and *Lithomoia solidaginis* Hb. Curlews and lapwings heralded the dawn which came very gradually. In my home trap I discovered moths in tremendous numbers including *Eurois occulta* L., *Thera firmata* Hb. and *Venusia cambrica* Curt. together with a plague of sexton beetles.

Pleased with these results at Kyles Hill I visited the same spot again the following night, 13th August. Again conditions were excellent—dark, warm, calm, with the temperature never below 52° F. As I was putting out my lamps a roe deer bounded away into the pine wood, while a large *Aeshna* dragonfly was working to and fro along the dry stone dyke at the edge of the moor, catching its supper in the declining rays of the sun. Treacle was an absolute failure but the lamps brought in more *Lithomoia solidaginis* Hb. and *Aporophyla lutulenta* Schf.—lovely fresh specimens, one of which had sooty black underwings. I also took *Geometra papilionaria* L., *Trichiura crataegi* L., and *Amathes glareosa* Esp. On this date I began to notice that certain species seemed to be producing a second brood, e.g. *Apatele rumicis* L., *Ecliptopera silaceata* Schf. and *Mamestra brassicae* L.

On 18th August I searched the vicinity of Gavinton for pupae of *Gortyna flavago* Schf. and found nine inside ragwort stems. I noticed that the larva makes an exit hole for the moth but leaves the epidermis intact so that the 'hole' is not obvious from the exterior.

On 19th August I re-visited Kyles Hill at night but the only additional species of note was *Amathes agathina* Dup. I took a good series of *Lithomoia solidaginis* Hb. and now feel sure that it must be indigenous at this locality. Returning home at dawn I paused to admire the view across the Merse, a view which reminds me of the Weald as seen from the top of the Sussex Downs. Fifteen miles to the south-east lay the mouth of the Tweed and the North Sea glinting in the first rays of the rising sun. From this hill at night one can see the Holy Island light flashing off the Northumbrian coast. The hill itself, like the Dirringtons, consists of a reddish porphyry—an intrusive igneous rock which has withstood denudation better than the surrounding old red sandstone and hence its superior elevation at the present, commanding a view right across the Tweed valley to the Cheviots.

On 20th August a single *Lithomoia solidaginis* Hb. appeared in my trap at Gavinton and another on the 25th. I also recorded second brood specimens of *Notodonta dromedarius* L. both at Gavinton (21st Aug.) and Gordon Moss (26th Aug.).

Rain fell on 21st August and on the 22nd we had thick sea mist or 'haar' while England and Wales sweltered with temperatures in the eighties. At night I went to Duns Castle Lake and operated my lamps from 9.30 p.m. to 3.30 a.m. I treaced many trees round the lake but might as well have saved my energy and treacle. It was extremely dark with the mist, and all the trees were dripping wet. During the night some birds of unknown species circled high up over the lamps making harsh calls not unlike gulls. I judged they were terns lost on migration. I took twenty-five species of moths including *Nonagria typhae* Thun.

The warm weather soon returned and on the night of 23rd August the temperature never fell below 59° F. I took a second-brood specimen of *Drepana falcataria* L. along with *Atethmia xerampelina* Esp. in my Gavinton trap. The Pyralid *Nomophila noctuella* Schiff. also came to light both at Gavinton and at Kyles Hill.

On 24th August I visited Pease Bay and walked down the coast towards Siccar Point—a spot made famous by the visit of James Hutton the geologist, who wrote the "Theory of the Earth" in 1795. There were many *Satyrus semele* L. on the wing and I was pleased to find the hemlock water dropwort (*Oenanthe crocata* L.). At night there was another great flight of moths. I found four *Eurois occulta* L. in my home trap, one second brood specimen of *Pterostoma palpina* Cl. and one *Deuteronomos alniaria* L. The most interesting catch, however, was one *Deuteronomos erosaria* Schf. This was new to me although the species was taken last century by John Anderson at Preston. Later I took three more at the Retreat.

The following night (25th Aug.) was equally good and I took a specimen of *Nonagria typhae* Thun. off a lamp standard in Gavinton.

On 26th August I re-visited Gordon Ness. Treacle yielded very little. At first the night was warm and there was a good flight of moths up to about 1 a.m. Then the temperature dropped to 40° F. and the flight stopped. In the first hour or so there was a great flight of *Deuteronomos alniaria* L. and *Cirrhia icteritia* Hufn. I recorded forty-two species, the most interesting being *Oporinia filigrammaria* H.-S. and *Xanthorhoe designata* Hufn. I also noted the first *Agrochola circealis* Hufn.

At Oxendean Pond on 27th August I took two more *Xanthorhoe designata* Hufn. *Eurois occulta* L. was still in evidence and I was able to get eggs from fertile females. The following night I took an *occulta* at Gavinton street lamps. The last specimen of the season came to my home trap on 30th August and looked quite fresh.

On 3rd September I visited the Retreat and treaced the oak trees. It was a fine, warm, slightly moonlight night with a S.W. breeze, the sort of night to keep any moth hunter out of his bed. At last the treacle began to pay dividends. The first moth I took was one I had been searching for, *Anchoscelis helvola* L.—perfect and fresh—but it was the first and the last. I used to get this moth frequently at Todmorden in Yorkshire, but in Berwickshire it has eluded me. However, I was glad to confirm the old records made last century even if I failed to get a series. Three worn specimens of *Triphaena orbona* Hufn. and one worn *Mormo maura* L. came to treacle; as usual, the Old Lady was near water. The best captures, however, were several fresh *Aporophyla nigra* Haw. at light along with *Deuteronomos erosaria* Schf. and *Xanthorhoe designata* Hufn., both new locality records. It was a grand night with a total of thirty-two species.

On 7th September we had another warm night after a hot day; there was a half moon and I treaced roadside trees and telegraph poles between Gavinton and Nesbit Bridge over the Blackadder. Results were somewhat disappointing—thirty-seven moths of nine species. Among these I got my first *Peridroma porphyrea* Schf., later I took three more.

On 11th September schoolboys brought me a good specimen of *Macroglossum stellatarum* L. taken in Gavinton, and on the 16th a school-girl brought me a *Herse convolvuli* L. found in Duns Square. On this date a single *Dasypolia templi* Thun. appeared in my home trap at Gavinton, later I took eight more at Gordon Moss (23rd).

On 18th September I tried my lamps at Elba on the Whitadder and treaced oak trees. I recorded twenty-three species including *Axylia putris* L. (at light) and *Aporophyla nigra* Haw. (at treacle). A specimen of *Tiliacea citrargo* L. came to my home trap.

The season was now drawing to a close but still held some surprises. Between 20th and 23rd September I took four *Omphaloscelis lunosa* Haw., a species new to me. Friday, 23rd September, saw me at Gordon Moss again. Treacle was almost a failure, most patches being blank. The temperature fell to 36° F. after sunset but after midnight it rose to 46° F. Between 8 p.m. and 9 p.m. there was a great flight of *Deuteronomos alniaria* L. I counted at least thirty-eight. The next most abundant moth was *Citria lutea* Strom. and I got a good series of *Oporinia autumnata* Bork. by walking about with a Tilley lamp in one hand and a net in the other. The most interesting catch was *Dasypolia templi* Thun.—eight specimens at intervals all through the night. I also took one *Agrochola lota* Cl. shortly before switching off at 5.10 a.m. after running the generator for nine hours. This proved my last of twelve visits to Gordon Moss this season.

On 7th October I went to Oxendean Pond and lit my lamps about 6.45 p.m. I ran the generator for six hours. At first it was very dark but a half moon rose later. A fox came and barked on the other side of the pond. Later an otter came up the burn from the Whitadder calling all the time. I heard it plunge into the pond and scatter the wild ducks. Later it worked down the roadside where there are tall thick salallows. I shone my torch on it and its eyes glowed pink. It made a low growl and disappeared up the path towards the pond. Twenty-two species of moths came to my lamps, including a nice series of *Colotois pennaria* L. and *Chloroclysta siterata* Hufn. along with some very dark banded forms of *Thera obeliscata* Hb.

My last excursion using the m.v. lamps was made on 11th October to Kyles Hill. Sixteen species were recorded including *Poecilocampa populi* L. (both sexes) and *Peridroma porphyrea* Schf.

During the last half of October I went over my collection of Ear moths and prepared genitalia mounts. I found three species present. The most numerous species in my collection proved to be *Hydraecia lucens* Fréyer which I had taken at Kyles Hill, Gavinton and Duns Castle. *Hydraecia oeculea* L. however is very widely distributed as I have recorded it from Gordon Moss, the Retreat, Bell Wood, and Gavinton. *Hydraecia crinanensis* Burr. appears more local and scarce as I have only had it from Gordon Moss and Kyles Hill.

The month of November was also marked by spells of very mild weather and numbers of *Phlogophora meticulosa* L. came to street lamps. Thus on 12th November I counted eleven at rest near lamp standards in Duns. The last one I saw was on 2nd December.

One new record which was kindly communicated to me by Dr. D. A. B. Macnicol and Mr. E. C. Pelham-Clinton of Edinburgh was *Caloculpe undulata* L., two specimens being taken at Gordon Moss on 18th July. I find now that the county list of "macros" which I have prepared from all sources known to me stands at 391 species of which I have been able to collect 290 species. Of the latter, 20 species were not recorded by the old collectors.

A Year in the Army — Military Moth-Hunting

By A. J. SHOWLER, M.Sc.

With a year of my National Service completed and the season almost ended, it seems a suitable time to sum up the life of a lepidopterist in the Army. To commence then.

On 4th November 1954 I found myself for the first time in the N. Yorks. health resort of Catterick, and a strange blank in my diary suggests that during the following month my mind was filled with things other than moths. After this, however, I passed to my trade training regiment and found things considerably more congenial and conducive to moth-hunting, though the only insects to be found during a fairly mild December were a few *Operophtera brumata*.

1955 opened very mildly, but heavy snow fell towards the end of the month, to clear in February and then to return in even greater severity before finally leaving us early in the following month. March 12th was a glorious spring day and after cycling up Wensleydale and down Garsdale to the Lakes, the first moths of the year, two *Erannis* (?) spp. were seen around street lamps in Ambleside. Returning the next day, snowdrop (*Galanthus*) and crocus were in flower, and many birds in full song, but at the top of Kirkstone Pass and the head of Swaledale 5-7 foot drifts were still melting by the roadside in hot sunshine.

The following week-end was again sunny but a little colder when I visited Stainforth. One *Phigalia pедaria* ♂ was taken from a tree trunk near Masham on the return journey on 20th March. The traditional first day of Spring opened with a snowstorm, but the sun appeared later. The 25th was a dull warm day and *Alsophila aescularia* males were noted in Catterick Camp and at Hauxwell nearby.

Sports afternoons provided a good opportunity for cycling and also for insect-collecting, except that there seemed to be no insects in N. Yorkshire. Thus on 29th March, although most of the snow had melted on the Buttertubs Pass, nothing but the usual peewits and curlews were to be seen (and heard). The following day was also gloriously sunny, and out on the Moors above Wensleydale (on the range) the curlews were again much in evidence. On 31st March female flowers were noticed on the hazels (*Corylus*) at Scotton, close to the camp. The week-end of 2nd-3rd April was spent at Wallasey searching for *Nyssia zonaria*, but owing to heavy rain none were found.

On 7th April the willows were just in flower as I left for home for Easter. In the South, spring flowers were well out and on 8th chiffchaffs were heard near Meopham in Kent, followed the next day by cuckoos; the first *Gonepteryx rhamni* were on the wing on the same day. On the 11th *Pieris rapae* and *Aglais urticae* could be seen at Ide Hill and some *Orthosias* were seen around lamps at Shooters Hill, London, in the evening. Back at Catterick the next day and I was wallowing on a warm but windy evening. *Orthosia stabilis*, *O. incerta*, *O. gothica* and *Conistra vaccinii* were taken. This unfortunately was the last night on which good weather and freedom coincided, and very little more was taken or seen on the willows when visited. A week-end at home (23rd-24th April) showed things to be much more advanced in the South and several *Cyenia mendica* already emerged from pupae I had obtained.

April 27th was a cold day and I visited Mr. J. P. Robson at Barnard Castle. Walking along the Tees I was shown a locality for *Erynnis tages*, a rare butterfly in Durham. Although *Ectropis bistortata* had been out two days earlier, none were seen on this occasion. Nevertheless, I had some very interesting specimens given me before I left.

The first butterflies observed in the North were two *Pieris rapae* near Ripon on 30th April, nineteen days after being noted in Kent. *Xanthorhœ fluctuata* appeared at camp on 1st May and *P. brassicae* was flying near York on the 7th; but then a cold spell arrived. Consequently on 15th May the camp Field Club found themselves on Stainmore in snow, hail, heavy rain and an icy wind. Only the ornithologists enjoyed themselves.

May 22nd was warm, and one *Xanthorhœ munitata* was taken at West Witton. Then on the descent into Swaledale a number of *Eupithecia sobrinata* larvae were beaten from juniper.

By this time my training was over, and I found myself in the more congenial countryside of Droitwich, Worcs. At home for Whitsun, *Callophrys rubi*, *Euclidimera mi* and *Panemeria tenebrata* were among the species on the wing near Orpington, Kent. Returning to Droitwich by road (due to the rail strike) the first *Anthocharis cardamines* of the year was seen near Chipping Norton, Gloucs., on 30th May and in the evening *Asthena albulata* was taken at Droitwich. In the next few days *Xanthorhœ ferrugata*, *X. alternata*, *Bapta temerata* and *Spilosoma lutea* were noted in the neighbourhood.

Then I was posted to what seemed likely to be my final unit at Pirbright, Surrey. Here it was necessary to work in shifts in order to maintain a 24-hour working timetable. Evening and night shifts therefore provided a good opportunity for the study of the moths to be found in the locality. The camp provided a variety of good lights, both in and around our place of work, which proved attractive to insects. Many and varied too were the methods of capture of many moths by many willing helpers, and often during the summer I woke to find a box of insects by my bed.

Being located on heathland with a good growth of pine and birch, and also on the edge of a large area of deciduous woodland, insects occurring are chiefly characteristic of these habitats. The nearest chalk is that of the Hog's Back about $2\frac{1}{2}$ miles away. About 200 species have been noted from June to November, and these will be detailed by R. F. Bretherton in a future publication (of the S. Lond. Ent. & Nat. Hist. Soc.). Only the more interesting can be mentioned here.

Early June was rather cold, but moths were common, especially *Eupithecia vulgata*, *Lycophotia varia* and *Dyscia fagaria* ♂♂ among the heathland species, together with the expected commoners. On the 14th I took one *Horisme vitalbata* from a fence overhung with clematis at Clandon, while the following day a number of *Euphydryas aurinia* were seen within half a mile of the camp; most were worn. Butterflies were common the next day in the Alice Holt Forest, *Argynnis euphrasyne* still being fresh. At light that night *Polia tineta* and *Perconia strigillaria* appeared for the first time. Both were subsequently very common. *Stauropus fagi* was seen first on 20th June the same day as *Deilephila elpenor* caused a sensation by appearing in the station. A visit to Box Hill on the 22nd surprisingly produced nothing. My one

Hyloicus pinastri was found at rest on one of our transmitters on the 26th June when *Cybosia mesomella* was seen for the first time. Of the other "Footmen", *Miltochrista miniata*, *Eilema complana*, *E. lurideola* and *E. griseola* all appeared later.

On 8th July I left for Scotland where I was successful in obtaining, among other things, *Zygaena exulans*. This has been described elsewhere (*Ent. Rec.*, 67: 316).

Back at camp on the 19th several battered captures were awaiting me, and plenty of moths were on the wing. Most common were *Philudoria potatoaria*, *Colocasia coryli*, *Malacosoma neustria* and *Lycophotia varia*; *Agrotis vestigialis* and *Mysticoptera seralisata* were worthy of note. On the 22nd July in the Alice Holt Forest, *Argynnis paphia*, *Limenitis camilla* and *Thecla quercus* were observed, and one *Apatura iris* was seen to float gracefully across the railway line, to disappear over the tree-tops. Another *iris* was noted at the Devil's Punchbowl on the 8th August, together with *Colias croceus*, the first of the year. *Gnophos obscurata* appeared at light that same night at camp. Then on successive nights came *Pachycnemia hippocastanaria*, *Lymantria monacha* and the "one that got away", *Parascotia fuliginaria*. *L. monacha* was subsequently common.

C. croceus was noted again at Byfleet, Surrey, on 1st September, but then, owing to mediocre weather and other commitments, there was little opportunity for observations during the remainder of the month. *Erannis defoliaria* appeared early on 1st October and on the 11th I was interested to count 64 *Scoliopteryx libatrix* settling down in their winter quarters—a disused pillbox on the North Downs near Abinger. On 13th October one *Graptolitha ornitopus* was taken from a pine trunk near Fittleworth, Sussex, and four *C. croceus* (one var. *helice*) were seen on the South Downs near Bury. By this time *Oporinia dilutata* and *Colotois pennaria* were the commonest moths at camp, with the "chestnuts" making a very poor showing. *Chesias legatella* appeared at times, as did *Eupsilia transversa*, *Thera firmata*, *Dryobotodes protea* and *Allophyes oxyacanthae* though none were common. The first *Poecilocampa populi* made its appearance on 5th November and by the following week was common; a female was taken at light by the deft use of a broom handle. *Brachionycha sphinx*, too, was seen twice on the 11th after only one previous appearance.

Here my observations were brought to a rude halt on being told that I had been posted to Cyprus; if any reader requires a list of the daggers and bullets of Cyprus please let me know.

An answer to one thought "on reading Dr. Ford's book 'Moths'"

By H. B. D. KETTLEWELL.

Your contributor, Mr. W. E. Minnion, whilst rising to a particular fly so skilfully cast by Dr. Ford in his book *Moths*, raised several points of interest in at least one of which I am able to help and correct him, if only as a personal vindication (Minnion, 1955). I have no wish, however, to enter that particular reserve dealing with the status of us collectors.

In regard to selection experiments in connection with Industrial Melanism, this experimenter (H.B.D.K.) most certainly regards them as only part of a series and would never be so foolish as to claim otherwise, any more than would Dr. Ford. The reference in Dr. Ford's book records work I undertook in 1953, and it is a great pity that Mr. Minnion had not had access to the whole paper which, though completed in 1954, is only appearing now in the next issue of *Heredity*. All his queries are answered in this. The most obvious of these must be the technique of releasing known numbers of the black and light forms of *Biston betularia* into a local population. In the last four years it has fallen to my lot to release over three thousand *betularia*, by day, by night and at dawn. I am convinced, as the result of this, that the normal resting place by day is on the larger boughs of such trees as oak and beech and also, but less frequently, on the trunks. Anyone interested can check this by releasing them at the first light of dawn and watching them subsequently. The trees chosen appear to be a random sample of those in a wood. Before finally settling, a most interesting behaviour pattern takes place. The insect walks about the trunk for a distance usually of less than a foot, and proceeds to turn a circle on its own axis and, whilst executing this, it clamps its wings against the bark in a series of flattening movements. I have little doubt that during this procedure it is receiving and comparing visual stimuli between its immediate background and the colour of its own tibial or circumocular tufts. I have repeatedly seen both *betularia* and *carbonaria* shift themselves into the optimum local positions available. To test this, I undertook a series of experiments now known as "the barrel test" (Kettlewell, 1955). A large barrel was carefully lined with alternate strips of black and white paper, all being the same roughness and consistency. Equal surface areas of black and white were, therefore, presented. The barrel stood in the open with good overhead light. The top was covered with glass. This then offered alternative backgrounds in its simplest, though highly artificial, form. Each evening six male *betularia*, three *typical* and three *carbonaria* were released inside and at daybreak their positions taken up were scored. All individuals overlapping boundaries, or sitting on the top or bottom of the barrel, were disqualified. A total of 198 *betularia* were released, 99 of each phenotype. Of these, 80 were disqualified for overlapping, and it is of interest that exactly half were of each form, so that one did not tend by habit to sit on the edges more than the other. I give below a table of findings:

BACKGROUND RECOGNITION IN *Biston betularia* L.

	Black (= <i>carbonaria</i>)	White (= <i>typical</i>)	Total
Black background ...	38	20	58
White background ...	21	39	60
	—	—	—
Total	59	59	118

From this it can be seen that 77 *betularia* chose correct positions (38 *carbonaria* and 39 *typical*) and 41 incorrect. The 2×2 table gives a $\chi^2_{(1)} = 10.9$, for which P is approximately 0.001. This result would, in fact, only occur by chance in one in a thousand experiments.

Nevertheless, it must be repeated with larger numbers and with different species before we can accept as definite the fact that insects are conscious of their immediate backgrounds, obvious as this must seem to all field naturalists.

I have been able to repeat the mark-release experiments on a large scale since 1953, and these include an extensive one in an unpolluted and heavily lichened wood in Dorset. The results of this will be published in the next few months. They confirm my original observations that birds are responsible for selective elimination of cryptic insects. With the help of Dr. N. Tinbergen, we have, in fact, been able to obtain a colour-film of no less than seven species of birds taking the dark and light forms of *betularia* from off the trees. This film does, in fact, show the whole technique of the experiment. It entirely refutes the doubts expressed by Allan (1955) as to whether birds prey selectively upon resting moths.

One further point: Mr. Minnion quotes a district where 85 per cent. of the *betularia* population are *carbonaria* and "with little or no soot contamination of tree trunks" and "where *typical* examples would certainly be less conspicuous on tree trunks than would *carbonaria*". We have been able to show by leaf washings that contamination takes place great distances from the industrial centres themselves (see also Walsh, 1955). It is, in fact, likely that the whole of the eastern half of England with the prevailing westerly wind is subject to "smoke fall-out," the lighter portion of pollution. The heavier part which descends, of course, immediately around the centres, is measured in tons per square mile per month. One of the earliest effects is the disappearance of lichens and their presence on tree trunks and boughs has been shown both in their total populations and in species numbers to be proportional to the distance from an industrial area (E. W. Jones, 1952). It is with the greatest surprise that I read Mr. Minnion's statements because for the *typicals* to be at an advantage it is necessary that lichens form a part of the tree flora and, in nearly all areas where the *betularia* figures, are as low as even 50 per cent. black, there is a dearth of lichens. The minute unicellular organisms, *Protocecci*, which cover the trees in these areas, and which are in no way connected with lichens, do not serve to give *typical betularia* any protection whatsoever. *Insularia*, however, can be exceedingly well hidden on these.

The figures which Mr. Minnion quotes for the particular area he refers to are *carbonaria* 85 per cent., *typical* and *insularia* 7.5 per cent. each. It is of interest to note that these frequencies are comparable to those found at the Cadbury Bird Reserve near Birmingham, which were *carbonaria* 85.03 per cent., *typical* 10.14 per cent. and *insularia* 4.83 per cent. (of 621 individuals, 1953). Each one of the 587 *typical* and *carbonaria* forms, which were released for observation, was scored for its camouflage efficiency on taking up its position. Only 2 per cent. of the *carbonaria* were judged conspicuous, but 85 per cent. of the *typicals*. Furthermore, the scoring for this particular experiment was more refined than these figures would lead us to believe. Each insect received, in fact, one of six possible markings and, in the majority of cases, one or more persons assessed separately the value attributed to each. There can be no possible doubt that in these oak woods *typical*

betularia at rest on the trunks and boughs were very much more conspicuous than the melanics. It would be most enlightening if Mr. Minnion repeated this simple experiment with the two forms in his particular woodland and, until this is actually done, the bland statement that "typical examples would certainly be less conspicuous on tree trunks than would *carbonaria*" cannot be accepted.

A review of this and other aspects of Industrial Melanism will be available in the December issue of *Discovery*, also in the spring issue of *The Times* 'Science Review' (number 19).

Lastly, I would like to take this opportunity of thanking Mr. Minnion and all the others who have helped me so much with *betularia* and other records.

Genetics Laboratory, Oxford, 12th November 1955.

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Luck and Coincidence

By Colonel S. H. KERSHAW.

For some years I have been helping with a survey, under Nature Conservancy, of some woods on the Buckinghamshire border which might prove suitable as nature reserves. On a routine visit to one of these, not far from Bletchley, I started out on 21st July. It was a wood in which a few years ago one might hope to see *euphrosyne*, *selene*, a score of *camilla*, five times that number of *paphia*, plenty of *aglaia*, a few *cydippe*, and, if you were lucky, some *M. aurinia*. Now, alas! *selene*, *aurinia* and *aglaia* have disappeared, at least for the time being, *cydippe* is very scarce, whilst *camilla* and *paphia* have about held their own.

I spent from 10.30 a.m. until 3.30 p.m. in the wood; it was a dull, warm day until 1.30 p.m. when the sun came out, but about half past eleven I saw a grand *camilla* ab. *nigrina* close to me. Handicapped by having a *paphia* in my net I was clumsy and missed it; it retired to a tree-top to think things over. It was pure black with a few tiny white spots.

At 1 p.m. I saw a *semi-nigrina*, with a continuous but very narrow white line, but it did not come near enough for a stroke.

I began to notice a marked difference in flight and general colour between *camilla* normal form and ab. *nigrina*; the former floated and soared and looked orange and black on the wing; the latter fluttered and dipped and looked slaty blue.

Naturally I stayed in the spot and had my sandwiches; the sun came out but nothing happened until 2.10 p.m., when my first *nigrina* drifted down and pattered about over bramble blossom. This time I made no mistake; it was a grand specimen with a lovely deep underside. I saw at least two other *nigrina* flying round a maytree, but they would not come down, and the sun went for keeps. I packed up and caught the bus home.

What was the reason for this concentration of *nigrina* in such a small area? Was it the lively warm sunny weather from 3rd July onwards which enabled the (to my mind) more delicate pupae of this variety to emerge successfully? The late Mr. Castle Russell once told me that he had seen some of his *camilla* pupae showing distinct signs of emerging as *nigrina* through the pupa-case, but all failed to emerge.

Next day I went to the wood again and met my first *cydippe* of the season, a male, and a female *tithonus* with extra spots on the forewings; I netted the latter and went on to look for more *nigrina*! Nothing was moving in the *camilla* line and the sun disappeared, but as I was moving bus-wards I saw a pair of *paphia in cop.*; the male was normal but the female had a quarter-inch band of silver round the outer margin of each hindwing. I netted them and they separated, when I was able to release the male and examine the female's top-side. Very dark, with the spots inside the margins much elongated and broadened at the external end into the shape of harpoon blades. Apart from her silver bands her underside was plain and drab, but she was in excellent condition. I set her for top-side. At the time I did not know how she had spent the previous evening; please remember also that she was *in cop.* when netted.

A very busy week followed and I could not visit the wood until the afternoon on 27th July. This time I was accompanied by J.B., a young but experienced entomologist. I soon saw a *nigrina*, flying high over the oaks, but it never came within reach, and I was just thinking of leaving to catch my bus when I saw my *semi-nigrina* again near the top of a tall maytree. Minutes ticked away and it *would* not come down . . . Finally I handed over to J.B. and sprinted for the bus, as I was being met by a taxi at my home stop.

J.B. rang me up later to say that he had not seen the *semi-nigrina* again but had taken a *nigrina*, unfortunately a poor specimen. I was in the wood by 11 a.m. next day and almost at once saw and netted a *semi-nigrina*; it was at least eight days old as an imago and still quite fresh!

Now to return to the female *paphia* var. Last week I was showing my season's catch to another friend (S.H.) and he at once recognised the insect, after asking whether it had a quarter-inch band of silver round the hindwings on the underside. That clinched its identity. Then he told me *his* story of the 21st July. Arriving just after I had left he had spotted a pair of *paphia in cop.* high in a tree; the male opened and closed its wings from time to time, but the female remained closed and S.H. could see a broad band of silver round her hindwings. He watched them for some time, but the pair did not move.

Now, S.H. is a very active, determined and patient man, but this pair of *paphia* eventually got to the end of his patience: he shinned up the tree, got into position for a sweep, and carefully freed his hand and net. At this moment either his foot slipped or a small branch gave way; at any rate the branch shook, and the *paphia* sailed off to a safer tree.

The pair were now on an outer branch of an unclimbable oak; but S.H. was far from beaten yet; he searched round and at last found a long enough stick, heavy and sufficiently rotten at the thin end for him to force the brass Y of his net into it. Once more he was in position for

a sweep . . . but just then the male *paphia* decided that it was time to make a move and he carried his lady-love up to the safety of a tall and even more unclimbable oak.

Apart from throwing a stick up on the chance of disturbing them there was nothing else to do, and he could not come next day. However, I am glad to say that on his way out of the wood (it was on 30th July), he took a grand ab. *nigrina* with a very fine underside. He had surely earned it and had not had my wonderful luck in being given two second chances.

Current Notes

Entomologische Berichten of 1st November carries an interesting article in English on the breeding of certain butterflies in captivity. W. Vestjens, the author, explains that previous records show that *Parnassius* and *Pieridae* are comparatively easy to mate in captivity, but that *Vanessids* are slightly more difficult; but successful cultures were raised in a large glass breeding-cage roughly 6' x 2' x 1' 9", and although no copulation was noted, fertile eggs were duly laid. Wild larvae had been raised to the pupa stage in smaller breeding cages, and pupae introduced into the large cage which was kept suitably humid by a bed of damp sphagnum moss above which was a platform covered with blotting paper.

The author notes that in all cases the time from oviposition to pupation was 19 days.

G. Van Minnen writes on stridulation by *Drepana* larvae which, the author states, produce a chirping sound by rubbing the abdomen on the leaf surface both when feeding and when walking.

Two interesting papers on Coleoptera will be dealt with, it is hoped, at a later date when a translation has been made.

The Annual Meeting of the South London Entomological and Natural History Society will be held at Pepys House, 14 Rochester Row, Westminster, at 6.30 p.m., on Thursday, 26th January. The agenda will include the Reports of Treasurer and Council, the election of officers and Council for 1956-7, and the President's Address. At this meeting members may bring forward any motion or ask any questions relating to the management of the Society without giving prior notice of their intention to do so. The President elect is Lieut. Colonel W. B. J. Manley.

Notes and Observations

A NOTE FROM BRADFORD.—During the last four years I have been operating a mercury vapour light-trap in my garden in the industrial city of Bradford, Yorks., surrounded by houses and a long way from open country. I have kept an accurate account of the number and species of all the macros, and a few surprises have turned up. Also I have operated the trap with a generator in the Selby district and in various parts of Kent, Hants, Dorset, Cornwall and Shropshire. The following observations were made in the city, and although they concern species well known to the country dweller one might not perhaps expect them to be present in such a great industrial area. Looking

over my four-year lists I find some surprising appearances at light of moths that must have been bred many, many miles away.

On 26th August 1955 I found a male *Heliothis peltigera* Schiff. in good condition among the contents of my m.v. light-trap. This species has not been recorded before in the Bradford Naturalists' Society's list and is mentioned only twice in G. T. Porritt's list of Yorkshire lepidoptera, in each case on the coast.

Two larvae of *Acherontia atropos* L. were brought by schoolboys to the Cartwright Hall Museum here on 1st August last. They were found in a potato field on the outskirts of the city. One was only half-grown and has since died, but the other was nearly full-grown and has since pupated.

One nearly full-fed larva of *Uelerio galii* Schiff. was also brought by a schoolboy to the Cartwright Hall Museum; it was found on 2nd September 1955 on *Epilobium angustifolium* growing near to the Bradford Grammar School and was identified by Mr. S. Jackson, assistant curator of the museum. He drew an excellent illustration of the larva for the local Press. Unfortunately, the larva escaped from its box and so also from local publicity!—J. BRIGGS, 15 Frimley Drive, Little Horton, Bradford. 19.xi.55.

EUROIS OCCULTA L. IN NORTHAMPTONSHIRE.—After five years of regular and continuous use of an m.v. moth trap in my garden, the above species was recorded for the first time this year. The dates are as follows: 30.vii.55, 16.viii.55, and 21.viii.55, a single specimen each time; all were males and of the typical grey form. *E. occulta* is mentioned in the Victoria County History for Northamptonshire, but I can find no trace of other records since those early days. No migratory species of note came my way this season, although August week was the only period when the trap was not in use.—P. J. GENT, 3 Irthlingborough Road, Wellingborough.

MARGARONIA UNIONALIS HÜBN. IN SUSSEX.—Further to my recent note which I thought would conclude the season's take, I must add that I took a second female *M. unionalis* in the m.v. trap on 11th November 1955 at this address.—G. E. L. MANLEY, Chalvington House, near Hailsham. 14.xi.55.

A NOTE FROM CORNWALL.—Operating my m.v. light-trap on the cliffs at Seaton Downderry near Looe, Cornwall, on the night of 5th/6th September last, I took a perfect male *Herse convolvuli* L. Among the other twenty-odd species of macros in the trap were one *Leucania vitellina* Hb. and one *L. l-album* L.—J. BRIGGS, 15 Frimley Drive, Little Horton, Bradford, Yorks. 19.xi.55.

INFORMATION ABOUT LOCALITIES.—There is one aspect of the note in the November *Record* (p. 297) on which you invite comment that seems to me to be frequently sadly neglected. If your correspondent requires information on the habits of certain insects, I can sympathise with him, but if he merely wants to be told what spots to go to for certain insects, that is a different matter: there seems to me to be far too much running round to certain localities which have been proved to be the haunts of the scarcer creatures. True enough, the collectors who visit these places

and find the objects of their desire are enlarging their own knowledge. There are also cases where an insect or plant has not been recorded for many years from certain places and it is desirable to check up and find whether it is still there, but this is rather different from your correspondent's case, I think.

How seldom one hears of anybody deliberately visiting an unknown spot in order to find out what really is there, yet the possibilities of such a course have been amply shown by the recent investigations of the Burren, while in botany, the discovery of *Diapensia lapponica* in Scotland is a perfect example of this kind of thing; this plant, previously unknown in Britain yet relatively plentiful in the district where it was found, remained undiscovered until quite recently merely because the area was considered to be too dull to be worth visiting, and it remained for an ornithologist to discover the plant. Even if such opportunities are infrequent, our knowledge of distribution would be greatly increased by more pioneer work of this sort.—F. FINCHER, Randan Wood, Woodcote, Bromsgrove. 24.xi.1955.

FURTHER RECORDS OF NYCTEROSEA OBSTIPATA FAB. AND MARGARONIA UNIONALIS HÜBN. AT WESTON-SUPER-MARE.—It may be of interest to record that further specimens of *N. obstipata* were taken in my moth-trap here on 7th and 29th September and 9th October and that a further specimen of *M. unionalis* was taken here on 6th September last.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 28.xi.55.

MOTHS AT WESTON-SUPER-MARE.—It may perhaps be worth while recording the following moths which were taken by me in my moth-trap here during August as all of them are not generally found in North Somerset:—*Perizoma taeniata* Steph., 6th August; *Actebia praecox* Linn., 12th August; *Eremobia ochroleuca* Esp., 12th August; *Colostygia salicata* Hüb., 17th August.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 28.xi.55.

PLUSIA CONFUSA STEPH. (GUTTA GUEN.) IN SURREY.—A fine specimen of this migrant moth came to the m.v. trap in my garden on the night of 30th/31st August. This appears to be the first record for Surrey, indeed the first English specimen away from or near the coasts of Essex and Kent. It is a quite distinctive species and could not be confused with any other British *Plusia*. There is an excellent illustration of it in Dr. Hoffmeyer's *De Danske Ugler*.—ROBIN MERE, Mill House, Chiddingfold, Surrey.

REGRETS AND RECOLLECTIONS.—Colonel Rossel's note under this title in the June number of the *Record* contains one error of identification and one conundrum.

The mention of *Acherontia atropos* as flying into a bivouac at Pagan in Burma is undoubtedly wrong as *atropos* is not found in India and Burma. The species must have been one of its two congeners, either *styx* or *lachesis*.

The conundrum is the identity of Mr. Macropoulo, the moth expert. I was, I think, acquainted at least by name with most of the serious collectors of Indian butterflies and moths, but I have never heard of this gentleman.—D. G. SEVASTOPULO, F.R.E.S., Mombasa. 5.xii.55.

CANNIBALISM IN LARVAE.—Mr. Sneyd Taylor's reference to *Heliothis armigera* in the June number of the *Record* confirms my own experience with the larva of this species, both in India and East Africa. I have sometimes been tempted to investigate the genetic relationship between the pinkish and greenish forms of the imago, as well as the causes determining the many larval forms, but have always been deterred by the thought of the myriads of boxes and jars such an investigation would require. So far as my experience goes, the larva of *peltigera*, which I have bred in England, is not a cannibal.—D. G. SEVASTOPULO, Mombasa. 5.xii.55.

SOME OBSERVATIONS ON PAPILIO MACHAON L.—Mr. Symes' note under this heading (1955, *Entomologist's Record*, 67: 220) shows that *machaon* differs little in habits, etc., from Indian and African members of the genus.

Apart from a single reference to the gregarious larvae of a West Indies species, so far as I know all *Papilio*-species have solitary larvae. This has certainly been my experience and, with one exception, all *Papilio* eggs that I have found have also been solitary. The exception is a small batch of eggs of *Papilio polytes* found in Calcutta, which I think must have been laid by a crippled or injured female. All the *Papilio* species I have bred have laid on both the upper and lower surface of the leaves and sometimes on young twigs. I have never seen a true green *Papilio* egg (I mean a green such as found in Sphingid eggs) but they have always been some shade of yellow, some species rather greener, others rather creamy. There seems no fixed rule regarding the eating of the empty egg-shell, in all the species I have bred I have had all degrees from complete consumption to nothing eaten at all. Cast larval skins are almost always eaten.

I have found that *Papilio* larvae very soon become accustomed to handling when kept in captivity and it is then very difficult to make them extrude the osmeterium. Full grown larvae reared from eggs very often have to be pinched quite hard with forceps before they will do so (I hasten to add that this harsh treatment was not inflicted for mere curiosity but in order to record the colour of the organ).

In my experience, the vertical position is the more usual for pupation, and I have found that a comparatively large proportion of larvae trying to pupate in a horizontal one fail to get the hooks of their cremaster properly entangled in the silk pad and dangle from the girdle as a result, usually producing crippled imagines.

Emergence from the pupa, both in India and Africa, usually takes place early in the morning.—D. G. SEVASTOPULO, F.R.E.S., Mombasa. 5.xii.55.

THE AUTUMN OF 1955 IN SOUTH WESTMORLAND.—In spite of very favourable weather the autumn has been disappointing. No species has appeared in its usual numbers and many have been very scarce. The weather in the autumn of 1954 was so atrocious that any comparison would be misleading, but to compare 1955 with 1953 the following species seen, in most cases frequently, in the latter year were not seen in 1955 at all:—*Agrotis segetum* Schiff., *Brachionycha sphinx* Hufn., *Rhizedra lutosa* Hüb., *Cönistra vaccinii* Linn., *C. ligula* Esp. and *Eupsilia transversa* Hufn. In 1953 counts of *Oporinia dilutata* Schiff, and

Erannis defoliaria Clerck frequently were between 100 and 200 per night (once or twice even higher), while this year nothing remotely like that has occurred in spite of many calm, mild nights with weather conditions closely similar to those in the autumn of 1953. One feels impelled to blame the cold and bleak weather in May for this shortage. The severe weather of February and March would hardly account for it, for insects were then still in hibernation; but a period of spring-like weather lasting for a fortnight or more in the latter half of April had brought hibernation to a close, and one feels that the damage was done when this spring-like weather was followed by a whole month of bleak and most inhospitable conditions. Snow lay thickly here on the morning of 16th May and the ground was covered again on 16th October, exactly five calendar months later; but whereas the snowfall of 16th May was an extreme instance of the type of weather prevailing throughout the month, that of 16th October was simply the result of an isolated and brief outburst of cold conditions. It served, however, as a forcible reminder that the summer is very short in these parts!

Fortunately, however, there have been a few brighter spots. First, two specimens of *Dasypolia templi* Thunb. came to the m.v. trap, one on 20th September and the other on 31st October. This species has seldom been recorded from Westmorland, although the nature of the country would seem suitable for it. Actually the only other records known are: (1) Kendal, one at light, 1897; (2) Windermere, one at light in 1910 and one on 16th October 1925; (3) Grange-over-Sands, one at light, 11th April 1895. This last record is of course strictly in the Furness district of Lancashire, but it belongs geographically to Westmorland. Next, two specimens of *Nycterosea obstipata* Fab. came to m.v. on 11th October and one more the following night. Lastly, quite a few *Peridroma porphyrea* Schiff. turned up between 22nd September and 23rd October. This species is very erratic in its appearance here and one assumes that, like *N. obstipata*, they represented a small invasion. But it surely looks as if *D. templi* must be resident.—Rev. J. H. VINE HALL, Hutton Roof Vicarage, Westmorland. 12.xii.55.

PLUSIA ACUTA WALKER IN BERKSHIRE.—On the morning of 6th November I found in my light trap here a *Plusia* strange to me, which has been identified by Mr. A. L. Goodson as *Plusia acuta* Walker, an inhabitant of Africa south of the Sahara.

Since Baron de Worms also found a specimen of this moth in his light trap at Horsell on the same morning, it seems that an immigration of this insect arrived in this country early in November. There was a severe thunderstorm with heavy rain during the night of 5th/6th November.

It may be of interest to record the weather conditions during the week ending 6th November. They were fairly stable over Western Europe and North Africa during that period. The surface air in this country was all arriving from the Atlantic, except on the night of 5th, when it just crossed Northern Spain. Wind speeds were moderate. The wind at 10,000 feet was more southerly during the period, with a bearing of 240° at 45 knots; this would have crossed Northern Spain.

The winds over the Mediterranean and North Africa during all the week were bearing 270° and only about 10 knots or less.

A direct flight from North Africa under these conditions would have been an arduous undertaking, but if this insect could have come from Northern Spain it would have taken only about 17 hours, not allowing for its speed of flight.—R. SAUNDBY, Air Marshal (Retd.), Oxleas, Burghclere, near Newbury, Berkshire.

LEPIDOPTERA OF THE INNER HEBRIDES.—I have been reading the *Record* for November and much appreciate "N.L.B.'s" kind remarks on my list of the Canna macrolepidoptera, published in the *Scottish Naturalist*, Vol. 66, Part 2 (1954). The reason my list is not a comprehensive one is that I prefer to relate it to the collection in my cabinet, which I have been making here for over 17 years, or to insects I have seen myself but not captured (e.g. *M. stellatarum*).

However, I am puzzled by "N.L.B.'s" references to Harrison's reports of *agathina*, *haworthii*, and *lutea* from this island. Harrison's original report, so far as his Canna material is concerned, is contained in Vol. XI of the *Proc. Univ. Durham Phil. Soc.*, published in 1938, which includes species he found on his last visit to Canna, which took place in 1937. *A. agathina* does not occur on this list; *haworthii* is reported as "a few on the island of Soay only"; *lutea* as "casually captured on Rhum and Eigg." (Query: how does one capture moths casually: either one is looking for them or one isn't).

A similar difficulty occurs in the case of *C. rubi* which, in the same article referred to, is stated *not* to have been found on Canna by Harrison, but is included in his list in the *Record* for May 1955; this, however, can only be on the basis of my report in the *Entomologist* of July 1951, or the *Scottish Naturalist* article.

I captured a single specimen of *agathina* in Barra in 1936, and several specimens of *haworthii* there the same year and in 1937. Both species, and *lutea*, were taken on Canna this summer in the moth trap, during a season when catches in the trap were exceptionally heavy. Over 3,000 specimens were taken in this way last August, more than in any preceding whole year. I hope before long to write up my 1955 Collecting Notes for you. More than a dozen new species have been added to my *Scottish Naturalist* list.—J. L. CAMPBELL, Isle of Canna. 17.xii.55

Fifty Years Ago

(From *The Entomologist's Record* of 1905).

DISASTER IN THE ALPS.—The first [visit to Arolla] ended in a perfect holocaust. Following on four or five days' hard work, in which Dr. Chapman and I had amassed a splendid lot of specimens by day, and in setting which every spare moment had been utilised in the early morning and late afternoon, an intelligent mule-driver, in spite of repeated warnings that my large collecting-box and setting-case were insecurely packed, managed to let the setting-case fall down a steep and rocky mule-path, smashing it entirely, and then, to mend matters, carefully put the boards loosely into the box with the set insects. Practically every specimen taken at Arolla was mangled into dust, and not until the man had disappeared, and we were anxious, at Evolène, to know how the specimens had travelled did we learn the hopeless ruin that had befallen our labour. To attempt to describe the condition of my mind

on that never-to-be-forgotten midnight ride down to Sion (for a hurried and peremptory return was necessary so far as the doctor was concerned) were futile. Thoughts of scraps of the wings of burnets, blues, whites, Erebias, Setinas, fritillaries, broken and bent pins, in huddled confusion under the heel of loose setting-boards, created such demoniacal desires in my heart as I have rarely been possessed of, and till this present the mere mention of that night has been taboo with everyone cognisant of it; some 1,200 perfect alpine lepidoptera, besides long series of bred and captured insects that were on the boards when we journeyed up, these went down in one fell moment to endless ruin and perdition.—J. W. TUTT.

Lepidoptera at Chandler's Ford, Hants

By B. GOATER.

(Continued from page 314.)

- **A. xanthographa* Schiff. Very common.
- **Axylia putris* L. Common.
Anaplectoides prasina Schiff. I have seen one once in Cranbury Park
- **Triphaena comes* Hübn. Fairly common.
- **T. pronuba* L. Very common.
- **T. ianthina* Schiff. Very common.
- **T. interjecta* Hübn. Not common.
- **Lampra fimbriata* Schreber. Fairly Common.
- **Cerastis rubricosa* Schiff. Fairly common.
- **Phalaena typica* L. One at light, 22nd August 1953.
- **Mamestra brassicae* L. Fairly common.
- **Melanchra persicariae* L. Common.
- **Polia hepatica* Cl. (*tincta* Hübn.). One at light, 28th June 1951.
P. nitens Haw. One at light, 4th July 1953.
- **P. nebulosa* Hufn. Common.
- **Diataraxia oleracea* L. Very common.
- **Ceramica pisi* L. Very few.
Hada nana Hufn. Scarce.
- **Hadena trifolii* Hufn. Fairly common.
- **H. w-latinum* Hufn. Common.
- **H. suasa* Schiff. Scarce.
- **H. thalassina* Hufn. Few.
- **H. contigua* Schiff. Few at light.
- **H. serena* Schiff. Fairly common.
- **H. bicurris* Hufn. Found wherever the foodplants occur. Fairly common at light.
- **H. cucubali* Schiff. Few.
- **H. lepida* Esp. One at light, 2nd June 1951.
- **Orthosia gothica* L. Common.
- **O. miniosa* Schiff. Not common; only two at light.
- **O. cruda* Schiff. Often very common.
- **O. stabilis* Schiff. Very common.
- **O. incerta* Hufn. Common.
- **O. munda* Schiff. Usually common. Only one at light.
- **O. advena* Schiff. Single specimens at light, April 1952 and 1953.
- **O. gracilis* Schiff. Fairly common.

- **Panolis flammea* Schiff. Not common.
- **Heliophobus anceps* Schiff. One at light, 30th June 1951.
- **Tholera popularis* Fab. Common.
T. cespitis Schiff. Very scarce.
- **Leucania pallens* L. Common.
- **L. impura* Hübn. Common.
- **L. pudorina* Schiff. I have record of two specimens only.
- **L. comma* L. Fairly common locally.
- **L. lithargyria* Esp. Common.
- **L. conigera* Schiff. Uncommon.
- **Cucullia chamomillae* Schiff. Very few at light.
- **C. umbratica* L. Fairly common.
C. verbasci L. Larvae sometimes on Mullein in gardens.
- **C. asteris* Schiff. Only two records.
Brachionycha sphinx Hufn. Status uncertain. I have taken it, but never at m.v. light: probably it flies late.
- **Bombycia viminalis* Fab. Fairly common.
- **Aporophyla nigra* Haw. Few at light each year.
Lithophane semibrunnea Haw. Few at sugar in autumn, especially in 1944.
- **L. socia* Hufn. Few at Sallow and light after hibernation.
- **Graptolitha ornithopus* Hufn. Usually common.
- **Xylocampa areola* Esp. Common.
- **Allophyes oxyacanthae* L. Common.
- **Griposia aprilina* L. Not common.
- **Parastichtis suspecta* Hübn. Common.
- **Dryobotodes protea* Schiff. Fairly common.
- **Eupsilia transversa* Hufn. Sometimes very common.
- **Omphaloscelis lunosa* Haw. Never very common.
- **Agrochola lota* Cl. Common.
- **A. macilenta* Hübn. Very common.
- **A. circellaris* Hufn. Not common.
- **A. lychnidis* Schiff. Common.
- **Anchoscelis helvola* L. Fairly common.
- **A. litura* L. Very few.
- **Atethmia xerampelina* Esp. Fairly common at light.
Tiliacea citrigo L. One at sugar, 18th September 1945. There are no limes in the immediate neighbourhood.
- **T. aurago* Schiff. Few at light.
- **Citria lutea* Strom. Common.
- **Cirrhia icteritia* Hufn. Common.
- **Conistra vaccinii* L. Very common.
- **C. ligula* Esp. Very few.
- **Cryphia perla* Schiff. Common.
- **Moma alpium* Osbeck. Rare. One or two most years at light.
- **Apatele leporina* L. Common at light; occasional at rest.
- **A. aceris* L. Rare at light.
- **A. megacephala* Schiff. Common; one melanic specimen.
- **A. alni* L. Few at light. Not seen before the m.v. era.
- **A. tridens* Schiff. Few at light.
- **A. psi* L. Common.
- **A. rumicis* L. Common.
- **Craniophora ligustri* Schiff. Fairly common.

- **Amphipyra pyramidea* L. Common.
 **A. tragopogonis* Cl. Common.
 **Rusina umbratica* Goeze. Common.
Mormo maura L. Few at sugar; none at light.
 **Dypterygia scabriuscula* L. Fairly common.
 **Apamea lithoxylea* Schiff. Fairly common.
 **A. monoglypha* Hufn. Very common.
 **A. caracterea* Hübn. Scarce.
 **A. crenata* Hufn. Scarce.
 **A. sordens* Hufn. Common.
 **A. infesta* Ochs. Fairly common.
 **A. obscura* Haw. Fairly common; few at light.
 **A. secalis* L. Common.
A. ophiogramma Esp. One at light, 12th August 1954.
 **A. ypsilon* Schiff. Very few at light.
 **Procus strigilis* Cl. Few.
 **P. latruncula* Schiff. Very common.
 **P. fasciuncula* Haw. Few.
 **P. furuncula* Schiff. Few.
 **P. literosa* Haw. One at light, 10th August 1951.
 **Luperina testacea* Schiff. Common; few at light.
 **Euplexia lucipara* L. Very common.
 **Phlogophora meticulosa* L. Common.
 **Thalpophila matura* Hufn. Few.
 **Laphygma exigua* Hübn. Four at light in 1952.
 **Petilampa minima* Haw. Few at light.
 **Meristis trigrammica* Hufn. Sometimes abundant.
 **Caradrina morpheus* Hufn. Very common.
 **C. alsines* Brahm. Very common.
 **C. blanda* Schiff. Fairly common.
 **C. ambigua* Schiff. Few at light and sugar.
C. clavipalpis Scop. Very few.
 **Hydraecia oculea* L. Common.
 **H. micacea* Esp. Few.
 **Gortyna flavago* Schiff. Fairly common.
 **Cosmia pyralina* Schiff. Not common.
 **C. affinis* L. Two only.
C. diffinis L. One at light on 12th September 1953.
 **C. trapezina* L. Very common.
 **Enargia paleacea* Esp. One at light, 26th July 1951; another 18th July 1952.
 **Zenobia retusa* L. Very few at light.
 **Z. subtusa* Schiff. Two at light.
 **Rhizedra lutosa* Hübn. Few.
 **Arenostola pygmina* Haw. One flourishing colony known; occasional at light.
 **Nonagria sparganii* Esp. One pupa, Cranbury Park, July 1951. One at light, 14th September 1951.
N. typhae Thunb. Small colony in Cranbury Park. One at light, 1953
 **Oenobia rufa* Haw. One at light, 21st August 1954.
 **Jaspidia pygarga* Hufn. Common.
Eustrotia uncula Cl. I know of only one locality for it.
 **Bena fagana* Fab. Common.

- **Pseudoips prasinana* L. Fairly common.
 **Sarothrips revayana* Scop. Few at light.
 **Catocala nupta* L. Fairly common.
C. promissa Schiff. One at sugar in the garden. One larva, Cranbury Park.
Euclidimera mi Cl. Not seen for several years.
Ectypa glyphica L. Not uncommon locally.
Colocasia coryli L. Common.
 **Polychrisia moneta* Fab. Not common.
 **Plusia chrysitis* L. Common.
 **P. festucae* L. Occasional at light.
 **P. iota* L. Very few.
 **P. pulchrina* Haw. Fairly common.
 **P. gamma* L. Usually very common by the end of the summer.
 **Abrostola tripartita* Hufn. Common.
Episema caeruleocephala L. Local; never at light in the garden.
 **Lygephila pastinum* Treits. Few.
 **Rivula sericealis* Scop. Fairly common.
 **Scoliopteryx libatrix* L. Common; larvae often very common.
 **Hypena proboscidalis* L. Common.
 **Zanclognatha tarsipennalis* Treits. Very common.
 **Z. grisealis* Schiff. Fairly common.
 **Laspeyria flexula* Schiff. Common at light.

GEOMETRIDAE.

- Archicaris parthenias* L. Very common wherever there are birches.
 **Pseudoterpna pruinata* Hufn. Occasional.
 **Geometra papilionaria* L. Fairly common
 **Hemistola immaculata* Thunb. Very few.
 **Comibaena pustulata* Hufn. Fairly common.
 **Iodis lactearia* L. Common.
 **Hemithea aestivaria* Hübn. Common.
 **Alsophila aescularia* Schiff. Males at light.
Sterrrha seriata Schr. Few. Not recorded at m.v.
 **S. fuscovenosa* Goeze. Few seen every year.
 **S. emarginata* L. Few.
 **S. aversata* L. Very common.
 **S. biselata* Hufn. Few.
 **S. dimidiata* Hufn. Few.
S. trigeminata Haw. Fairly common in the garden and elsewhere, but surprisingly none at light.
 **Scopula floslactata* Haw. Common.
S. marginipunctata Goeze. Two only.
 **S. imitaria* Hübn. Fairly common.
 **Calothysanis amata* L. Common.
 **Cosymbia porata* L. Very few, mostly at light.
 **C. punctaria* L. Fairly common.
 **C. linearia* Hübn. Very few.
 **C. annulata* Schulze. Scarce: there is no maple.
 **C. albipunctata* Hufn. Common.
Xanthorhoe ferrugata Cl. Common.

(To be concluded)

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S. H. SKAIFE, D.Sc., F.R.S.S.Af.

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EXCHANGES AND WANTS

Wanted.—A subscriber wishes to purchase rare and extreme forms (British) of *Lysandra coridon* Poda.—Box No. 5, c/o the Assistant Editor, No. 4 Windhill, Bishop's Stortford, Herts.

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laothoe populi*, *Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—B. R. Laurence, Birkbeck College, London, W.C.1.

Warwickshire Lepidoptera.—Will Entomologists please assist in compiling a new "County of Warwickshire Local List of Lepidoptera" (Macro and Micro)* Records giving date and year, and locality of capture should be sent to Trevor Trought, F.R.E.S., c/o The Curator, County Museum, Warwick. All assistance will be acknowledged.

Wanted.—Mahogany cabinet, 40 drawers; Brady or Gurney preferred.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.

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Editorial

WHEN I was invited, in August 1955, to become Editor of the *Record* it was plain that Mr. Allan's age and continued ill-health might necessitate some further arrangement being made in the near future. It was in fact essential that he should be relieved of some part of the burden which he had voluntarily assumed in 1951. Moreover, I myself, having hitherto had but small experience of the conduct of a magazine, was uneasy at the thought that I might suddenly find myself (if Mr. Allan's health did not improve) in sole charge of the production as well as the editing of the *Record*.

Accordingly it was decided to form a Board of Governors which should control the *Record* and ensure its continuance on lines which its Founder would have approved—in fact on the lines which Tutt had laid down for it in 1890.

The outcome of this decision was a Meeting held in the rooms of the Royal Society at Burlington House, London, on 29th October 1955 at which the following gentlemen were formally constituted the Board of Governors:—Mr. S. N. A. Jacobs (chairman), Mr. H. Symes (secretary), Mr. A. C. R. Redgrave (treasurer), Mr. L. Parmenter, Mr. A. A. Allen and Mr. J. O. T. Howard. The legal Deed of Incorporation was signed and duly stamped at Somerset House.

I am happy to say that Mr. Allan will continue to produce the magazine for us each month, and we all hope that by lightening his burden on the sub-editorial side he will continue to be associated with the *Record* and that we shall have the benefit of his mature experience for many years to come. Mr. Byers also will continue to watch over that part of the production which has done so much to secure the stability of the magazine.

S. N. A. JACOBS.

Hibernation of *Lysandra coridon* Poda in the Larval State

By A. E. COLLIER.

During the last ten years I have frequently bred *Lysandra coridon* from the egg. When the females have finished laying, the eggs have been placed, with the dead vegetation on which they were laid, loosely in a muslin bag, which has been hung up out of doors in a position partially sheltered from direct sunlight. Examinations during the winter have invariably revealed a few empty eggs, appearing as though the larvae had emerged. My reaction to this phenomenon was to lay the blame on parasites or predators, as the bag usually contained a number of very small mite-like creatures.

This year (1955) the eggs were laid, and left, in pots of *Hippocrepis comosa* raised from seed sown in 1953, and were kept in normal out-of-door conditions. For many weeks there have been increasing signs of characteristic feeding, and empty eggshells have been observed.

A close examination with a strong glass on 4th November revealed a number of living larvae, some of which were feeding.

On a pot containing over 300 eggs, laid in the last week of July, I

counted 10 larvae of various sizes, and on 13th November I found another, newly emerged and making its first meal. On another pot containing about 100 eggs, laid in the third week of August, I discovered 6 larvae.

The older leaf sprays carried many feeding scars, but the larvae are now (17th November) situated on the very young, newly opened, shoots.

It would appear from this and earlier experiences that there is a tendency for a small percentage of *coridon* larvae to emerge in the late summer and autumn, and, possibly, under very favourable conditions, to feed up into a partial second brood of imagines.

In any case, if these larvae hibernate successfully they should result in very early insects in the early summer.

In a suitable locality these insects, few in number, might well be compelled to mate with *L. bellargus* Rott., thus producing ab. *polonus*, which is generally accepted as a hybrid.

I hope to mate the early emergences, if any, this year and to endeavour to ascertain whether their precocious tendency is hereditary. I should also like to mate early ♂♂ with *bellargus* ♀♀, and I should be most grateful if any collector reading this note could suggest a practicable method of obtaining virgin *bellargus* ♀♀ of the first brood, or, better still, a moderate number of *bellargus* larvae in April, when they should be nearly full fed.

A mating of *coridon* ♂ × *bellargus* ♀ should produce hybrid butterflies in the late summer.

Lynher, Horsham Road, Cranleigh, Surrey.

Records from Camber and District, including the capture of the rare *Aristotelia micrometra* Meyr.

By S. WAKELY.

After reading the interesting collecting records from various districts recently published in the *Record* these notes were written in the hope that readers would get some of the enjoyment from them that I have derived from reading their articles.

On the 2nd July, 1955, I joined Canon T. G. Edwards at Camber, Sussex, for a fortnight's holiday. He had already been there for over a week and reported capturing *Hyloicus pinastri* L., *Heliophobus albicolon* Hb., *Plusia festucae* L., *Ethmia bipunctella* F. and several other local species before my arrival.

Of special interest was the capture on 13th July of a specimen of *Aristotelia micrometra* Meyr., a species of which there are few records and which was recorded in 1894 from King's Lynn under the name of *A. servella* Zell. This wrong determination of the name was pointed out by G. H. Heath in the *Entomologist* for June, 1935, p. 121, where the author recorded the capture of two specimens of the moth at Braunton Burrows, N. Devon, on 2nd and 3rd July, 1934. It is suggested that the larva is likely to be found mining leaves of *Scirpus*.

Another noteworthy capture was that of three specimens of *Cacoecia aeriferana* H.S., also on the 13th July, which was probably our most productive night.

A blended 160-watt bulb suspended over a sheet on the ground was used to attract the insects, and it was very noticeable how each night

totally different orders were represented. For instance, one night crowds of water beetles would appear, while the next night it might be that small Mayflies, or Caddis flies, or water bugs (Corixids) would appear, while insects common the previous night would be in the minority or entirely absent. *Agrotis exclamationis* L. was probably the commonest moth, although several other common species ran it very close in numbers.

Sugaring was tried on the posts running between the car park and the dunes and a few nice species were taken in this way, picked out from hosts of very common noctuids which swarmed on the sugar most nights. On two occasions some cement posts on the sea side of the Rye Golf Course were sugared, but results were very poor, nothing but very common species appearing, and even those were in small numbers compared with those frequenting the posts along the dunes.

A full list of all the species of lepidoptera seen was not kept; in any case it would be too long to publish. The following is a list of the most interesting lepidoptera taken: *Hyloicus pinastri* L., *Cerura furcula* L., *Leucoma salicis* L., *Earias clorana* L., *Spilosoma urticae* Esp., *Arctia villica* L., *Comacla senex* Hb., *Agrotis ripae* Hb., *Hadena suasa* Schiff., *Heliophobus albicolon* Hb., *Calophasia lunula* Hufn., *Leucania litoralis* Curt., *Cosmia pyralina* View., *Cucullia asteris* Schiff., *C. umbratica* L., *Eustrotia uncula* Clerck, *Plusia festucae* L., *Semiothisa alternaria* Hb., *Acentropus niveus* Ol., *Schoenobius gigantellus* Schiff., *S. forcicellus* Thunb., *Anerastia lotella* Hb., *Nephopterix genistella* Dup., *Euzophera marmorea* Haw., *Platytes alpinellus* Hb., *Chilo phragmitellus* Hb., *Zeuzera pyrina* L., *Cossus cossus* L., *Phalonia tesserana* Treits., *P. atricapitana* Steph., *Cnephasia longana* Haw., *Gypsonoma neglectana* Dup., *Bactra scirpicolana* Pierce, *B. furfurana* Haw., *Polychrosis fuligana* Schiff., *Endothenia oblongana* Haw., *Argyroproce bifasciana* Haw., *Eucosma costipunctana* Haw., *E. semifuscana* Steph., *E. expallidana* Haw., *Aristotelia palustrella* Dougl., *A. lucidella* Steph., *A. micrometra* Meyr., *Mniophaga senectella* Z., *M. desertella* Dougl., *Gelechia hippophaella* Schrank, *Phthorimaea salicorniae* Her., *P. marmorea* Haw., *Anarsia spartiella* Schrank, *Mompha ochraceella* Curt., *Depressaria costosa* Haw., *D. subpropinquella* Stt., *Elachista triatomea* Haw., *Argyresthia albistria* Haw., *Hyponomeuta rorella* Hb., *H. variabilis* Zell., *H. evonymella* L., *Ethmia terminella* Fletch., *E. bipunctella* F., *Coleophora viminetella* Zell., *C. otitae* Zell., and *Acrolepia granitella* Treits. I am indebted to Mr. J. D. Bradley for naming several of the micros.

A number of the species taken were represented by a single specimen only. This was the case with *Hyloicus pinastri* L. Five other species of the common hawkmoths appeared. The beautiful larvae of *Leucoma salicis* L. were in extreme abundance on willows and sallows, particularly those growing as garden hedges in the centre of Camber itself. One hedge of osiers bordering a narrow path leading from the main Lydd Road to the dunes was almost defoliated by the caterpillars and as many as half-a-dozen cocoons were often found spun up together on one branch, with some larvae still feeding and an occasional freshly-emerged moth visible.

Eight *Agrotis ripae* Hb. were taken in all, showing great variation. *A. vestigialis* Rott. was represented by two specimens, while *Helio-*

phobus albicolon Hb. appeared in small numbers at both light and sugar. A good fresh series of *Leucania litoralis* Curt. was taken, some at light and some at sugar. Several *Semiothisa alternaria* Hb. put in an appearance, both at light and sugar, surely a strange place to take this species among sand dunes! Is it possible these were immigrants? *Schoenobius gigantellus* Schiff. was represented by a single fine female with broad central black streak on forewings, but *S. forcicellus* Thunb. was fairly common, with a number of dark-streaked specimens.

Platytes alpinellus Hb. occurred at light—two specimens only, while a single male of *Chilo phragmitellus* Hb. was found. Both *Bactra scirpicolana* Pierce and *B. furfurana* Haw. came to light in small numbers, but a series of the latter was taken one day by one of the dykes. A larva found on willow emerged some weeks later—a nice form of *Eucosma semifuscana* Steph. The green larvae of *Polychrosis fuligana* Schiff. were found in abundance feeding in terminal shoots of the Creeping Thistle (*Cirsium arvense*). Larvae of *Gelechia hippophaella* Schrank were fairly common in spun shoots of the Sea Buckthorn which grows in large thickets on the sandhills at Camber.

An interesting find was several webs of *Hyponomeuta rorella* Hb. larvae on willow bushes by the main road bordering the golf course at Camber.

We visited Dungeness, Kent, on 9th July, joining a field meeting of the South London Entomological Society. Canon Edwards found half-a-dozen larvae of *Calophasia lunula* Hufn. on the Yellow Toad-flax and later bred three fine moths. I was not so lucky with several larvae found a day or so later, the moths failing to emerge. By all accounts this species is not easy to rear, and mortality in the pupal state is high.

Larvae of *Nephoteryx genistella* Dup. were in webs on gorse at both Camber and Dungeness, but they were very local in isolated patches of gorse, although numbers could have been taken. At both places where webs were taken a pupa of *Depressaria costosa* Haw. was found in webs adjoining the silken tubes made by the *genistella*. At Dungeness there are large patches of blackthorn growing with recumbent stems, forming a dense mat less than a foot high. Specimens of *Euzophera marmorea* Haw., *Peronea variegana* Schiff., and *Argyresthia albistria* Haw. were disturbed from this, and pupae of *Hyponomeuta variabilis* Zell. were hanging among the twigs in clusters in their webs.

At Dungeness larvae of *Coleophora viminetella* Zell. on willow and *C. otitae* Zell. on *Silene nutans* were very common, while several imagines of *Ethmia terminella* Fletcher were found at rest on posts on the borders of Dungeness.

We returned home on 15th July, and later learned that numbers of larvae of *Hydraecia hucheradi* Mab. were taken in the district just after we left.

Inverness-shire in 1955

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

The 1954-55 winter is considered by the local inhabitants to have been the worst of the century, if not in living memory. Like that of 1952-53 it started very early, with snow and frost below 1,000 ft. alti-

tude before the end of October. Unlike it, however, the worst was to come later, in February.

The year 1955 started, as is usual, with a mild spell, and another at the end of January caused a few misguided ♂♂ *Phigalia pedaria* Fab. to emerge and fly to the street lamps after a fortnight of snow and intense frost with several nights of sub-zero Fahrenheit temperatures, the lowest I recorded being -7° F. This wintry weather returned on 5th February and lasted all the month, even mid-day temperatures seldom rising above 12° F., while on the night of the 26th lower Speyside recorded an unofficial temperature of -20° F., probably the lowest ever recorded in the British Isles.

On 1st March a very slow thaw started by day, sufficient to encourage two bees, *Apis mellifera* L., to forage in my garden on the 3rd, and on the same day the advance guard of returning plovers passed down the valley, being joined by a few thrushes and curlew on the 12th in fine sunny weather. I was thus encouraged to start my m.v. light-trap; but this produced only one ♂ *P. pedaria* on the 15th and another two, together with the first hibernator, *Conistra vaccinii* L., on the 25th. On the 28th continued sunshine had encouraged the larvae of *Phragmatobia fuliginosa* L. to climb to the tips of the heather shoots and start spinning their cocoons, followed by emergence of the first *Semioscopis avellanella* Hübn. among birches, and the first *Orthosia gothica* L. in the light-trap on the 30th; the last *gothica* came to light on 1st June, quite fresh—a long emergence period.

April as a whole was fine, mild and sunny, and although the main rush of spring emergences—the *Orthosias*, *Achlya flavicornis* and *Colostygia multistrigaria* Haw.—only occurred in the first week, at least a fortnight late, yet by the 17th this delay had been made up. In fact I was surprised to find the first ♀ *Brachionycha nubeculosa* Esp. freshly emerged on a birch tree in Glen Feshie on the 1st. On 17th my local colonies of *Poecilopsis lapponaria* Bdv. were fully out, and both *Endromis versicolora* L. and *Saturnia pavonia* L. were flying in the sunshine, together with the first ♂♂ *Isturgia carbonaria* Cl., closely followed on 22nd by the first butterfly, *Callophrys rubi* L., on the moors.

Hibernating insects appear to have been affected by the intense cold in diverse ways. The imagines of *Aglais urticae* L., usually hardy and abundant, were almost non-existent—I saw only one; spring larvae also were generally very scarce, with the sole exception of *Lycophotia varia* Vill. on the heather. On the other hand *Dasypolia templi* Thun. ♀♀ were unusually abundant, as also were queen wasps and bumble bees, which suffered severely later in the year, owing I think to a combination of the bitterly cold succeeding month of May and the widespread mortality of moorland flowering plants killed by the February frosts. Large areas of heather, broom, bilberry and bearberry were destroyed in exposed places.

The return of winter in May lasted right up to the last week. Snow covered even the low ground by day, with sharp frosts at night, and the snow-ploughs were out in several places, so that the usual May insects were hardly able to fly and very few of any order were seen. Mortality amongst imagines must have been very high and this was most clearly in evidence later amongst the Hymenoptera, for the off-

spring of the hibernating queen wasps and bees were in very small numbers. My m.v. trap catches from 12th to 23rd May were zero each night—surely unprecedented for mid-May! The last week saw a great improvement in the weather but still with a very cold east wind, so that Lepidoptera were still almost entirely absent.

June began with a sunny week and the very belated appearance of the usual spring butterflies, *Pieris napi* L., *Argynnis euphrosyne* L., and *Anthocharis cardamines* L., and I was much pleased to observe that the latter had survived the intense February cold in good numbers. *A. euphrosyne* was unusually abundant and widespread all over the county, as also was *Hada nana* Hufn. (*dentina* Esp.) among the moths, most other spring and early summer species being below the usual in numbers. A nation-wide B.B.C. frost warning on the 9th proved only too accurate and did not help matters. However, a few bright spots continued to occur during the month; a visit to the 3,000 ft. contours on the 17th showed *Psodos coracina* Esp. to be emerging in its usual numbers, while the hillsides were alive with more *Lasio-campa quercus* L. ssp. *callunae* Palm. than usual; at the same time the shingle beds of the river Spey were unusually accessible owing to drought and there I found *Hadena conspersa* Schiff. to be flying to the blossoms of *Silene maritima* in good numbers after dark. The weather at last began to improve and, generally speaking, continued dry and sunny into the hot weather of July and August, with very marked drought conditions.

On 4th July *Erebia epiphron* Kn. was well out in good numbers, together with fresh *P. napi*, at 2,000 feet; this date, being halfway between the two broods, on Speyside at 700 feet is interesting; but I must refrain from making rash deductions from a single observation. Sugar in the riverside woods was only moderately productive; though *Hyppa rectilinea* Esp. and *Hadena contigua* Schiff. in June and July were both commoner than usual, *Anaplectoides prasina* Schiff. and *Eurois occulta* L. were scarcer than usual and the latter also late in appearing. On 8th July at Findhorn on the Moray Firth coast I saw the first ♂ *Satyrus semele* L., an early date, and the sandhills contained a fine Burnet colony, six-spotted and I suppose therefore *Zygaena filipendulae* L., though the ground colour and general appearance were much more akin to *Z. lonicerae* Schiff. On 10th July I at last had the intense pleasure of finding a colony of *Itama brunneata* Thun. at 1,500 ft. on the edge of Rothiemurchus forest; a return after dark was rewarded with the finding of both sexes. At the same time I also found a small colony of *Hepialus hecta* L., a species new to the district; hitherto I had found it only at Forres in Moray.

On the 12th July a definite immigration of *Pieris brassicae* L. occurred; the insects were quite common and noticeably more so to the north-east as they made their way up the Spey valley. About the same date fresh *Apamea exulis* Lef. ssp. *assimilis* Dbld. were taken by Messrs. R. Mere and E. Pelham-Clinton at m.v. light on the top of Braeriach in the Cairngorms at over 4,000 ft., possibly an altitude record for this species; it was however very uncommon in its more usual haunts at lower levels. The summer butterflies were unusually scarce this summer, especially *Polyommatus icarus* Rott. and *Aricia agestis* Schiff. ssp. *artaxerxes* Fab.; I saw only one specimen of each.

Coenonympha tullia Müll. alone was in its usual numbers, while the common July moths were mostly rather below average in numbers in spite of excellent collecting weather.

On 12th August I returned home to Inverness-shire after a pleasant collecting holiday in East Anglia, where the Lepidoptera were in moderate numbers, while the weather continued to be superb. On return I found that the early autumn species were well out, the *Hydraecias*, *Lithomoia solidaginis* Hb., *Amathes depuncta* L., *Aporophyla lutulenta* Schiff. and *A. nigra* Haw. all being present in the m.v. trap at once. The summer moths were definitely past their best.

Two groups of interesting occurrences were now noted. The first was the capture in the m.v. trap so far north of three uncommon migrants, a ♀ *Rhometra sacraria* L., a ♂ *Loxostege sticticalis* L., and a ♂ *Palpita unionalis* Hb., all probably carried by the steady south-easterly air-stream over western Europe, but they were accompanied by more locally bred *Plusia gamma* L. and *Nomophila noctuella* Schiff. than usual, indicating earlier migration also.

The second group contained several new records of unexpected British species for the district and presented interesting problems. *Actebia praecox* L. came to my m.v. trap, a fairly fresh ♀, on 16th August, the third occasion of its capture in the area. Whether this insect is a wide stray from its nearest known colony at Findhorn 65 miles away or has a nearer breeding site inland needs to be discovered. On the 18th I was amazed to find a perfectly fresh ♂ *Hydraecia petasitis* Dbl. sitting on the outside of my trap. Coltsfoot occurs commonly locally, but I have yet to find any butterbur; yet I feel certain this individual was bred locally. *Lampra fimbriata* Schreb and *Axylia putris* L. (? second brood) both came to m.v. in the woods on 30th August and 9th September respectively. Both were fresh females and probably occur rarely here, this area being on the edge of their normal range. In the same manner Baron C. G. de Worms took *Luperina testacea* Schiff. and *Tholera cespitis* Schiff. at Aviemore for the first time, and we both took *Procus literosa* Haw., also previously unknown in the centre of the Highlands.

The prolonged fine weather increased the number of individuals in the second broods of several species, notably *Lycaena phlaeas* L. and the 'Prominents' *Pheosia tremula* Cl. and *Notodonta dromedarius* L., and several species not known to produce a second brood here previously did so, notably *Drepana falcataria* L., *Diataraxia oleracea* L., *Plusia festucae* L., *Opisthograptis luteolata* L., *Cosymbia albipunctata* Hufn. and *Colostygia pectinataria* Knoch. The general run of common moths was much below the average in numbers, however, especially *Triphaena pronuba* L., *Apamea monoglypha* Hufn. and *Amathes xanthographa* Schiff., but, as every year, a few species were commoner than usual, this year being the turn of *Amathes agathina* Dup. and *Thera firmata* Hb. in addition to *H. nana* in June.

The long spell of fine warm weather ended in September, though there was little rain, and the season drew rapidly to a close with the emergence of the first *Oporinia autumnata* Bork. on the 25th. A heavy fall of snow with frost on the low ground brought the season effectively to an end on 17th October, although some survivors were seen in early November.

To sum up: 1955 in Inverness-shire was remarkable for an intensely cold winter and late cold spring, followed by unusually good collecting weather in July and August. The resident Lepidoptera had barely an average year, but several interesting migrants penetrated to these northern regions.

Lepidoptera in the Isles of Lewis and Harris in 1955

By J. W. HESLOP HARRISON, D.Sc., F.R.S., F.R.S.E.

Except for short visits to the Isles of Ensay, Stromay, Suem and Saghay Beg, all lying in the Sound of Harris, our investigations during 1955 were restricted to the Isles of Lewis and Harris. Favoured by the fine weather and the drying-out of much of the boggy land, we were able to examine areas which had been almost inaccessible in former seasons. In spite of this, probably because of the diffuse nature of our researches, we encountered relatively few lepidopterous insects. However, it is possible that the paucity of such insects was due to the unfavourable nature of the season of 1954.

Polyommatus icarus Rott.—This species, always single brooded in the Outer Isles, was almost over when we arrived in Harris in late July. In fact, only two specimens were seen, one on the dunes at Husinish, North Harris, on 27th July, and a second at Luskentyre, South Harris, a month later, on 28th August.

Vanessa atalanta L.—This insect was first observed flying over, and feeding at, heather flowers, on 25th August, on the slopes of Caernabhal, just east of Loch Langavat, Isle of Lewis. Later, it was seen at Aline, feeding at bramble blossoms, and at Stornoway where various flowers were patronized. Both of these stations are in Lewis. In Harris, it was plentiful on the moors above Borvebeg and elsewhere when we left in September.

V. cardui L.—Swarming on the Lewis moors between Caernabhal and Linthaid in late August, but not seen anywhere in the Isle of Harris.

Aglais urticae L.—Widespread and not rare in both islands.

Pieris brassicae L.—At all suitable points in Lewis and Harris both as imagines and larvae, the latter doing enormous damage to cabbage and turnip crops. The insect is, no doubt, a regular immigrant.

P. napi L.—We have previously recorded this insect from several localities in South Harris and from a habitat near Stornoway, Lewis. This year it was far from rare throughout Harris. In North Harris it occurred at Husinish, opposite the Isle of Scarp, and in South Harris in new stations at Luskentyre, Horsaclett, Seilebost and near Loch Drinesheadar. In all probability, the discovery of these additional stations depends upon the fact that our visit to the islands this season was later, and thus coincided with the emergence of the second brood.

Colias croceus Fourc.—In 1941 we captured a female of this migrant on the sand dunes at Luskentyre, South Harris. This year, a single example occurred on 28th August on the moorlands to the east of Loch Langavat and north of the Allt Creag na Clibhe in the Isle of Lewis, thereby providing the first record for that island. Curiously enough, this species was observed prior to our encounter with the crowds of immigrant *V. atalanta*, *V. cardui* and *Plusia gamma*.

Cerura vinula L.—Plentiful as larva on *Salix aurita* near Loch

Drinesheadar, Glen Geirsdale, Borvebeg and elsewhere, but on aspen near Horsaclett. All these localities are in South Harris.

Notodonta ziczac L.—Eggs were taken from *Salix aurita* on the seacliffs near Kyles Lodge, and larvae from the same shrub on a cliff near Loch Drinesheadar. On islets in Loch Collam and Loch Huamavat, they favoured *S. atrocineria*.

N. dromedarius L.—Larvae were obtained from birch and alder near Stornoway, Isle of Lewis. Those from birch were brownish, and those from alder bright green.

Tethea or Schf.—Larvae abundant on aspens on every cliff face examined in Lewis and Harris.

T. duplaris L.—Larvae common on birch and alder in the Lews Castle woods, Stornoway, Lewis. This is the first time we have examined alder-fed larvae.

Lasiocampa quercus L.—Clearly this has been an "off" season for this species for no large larvae were noted in July, August or September. However, crowds of young larvae, about half an inch long, could be beaten from *Salix aurita* both on Harris generally and on islets in Loch Collam and Loch Huamavat. On a larger islet in the latter loch, which had been fired, cocoons occurred in immense numbers in the burnt peat.

Macrothylacia rubi L.—Sparingly as larva, and only near Borve.

Agrotis exclamationis L.—Quite rare near Scarasta, South Harris—our first Harris record.

Ceramica pisi L.—This is an insect we had not seen previously in Lewis. It was taken in the larval condition on the shores of a lochan draining into Loch Langavat, Isle of Lewis.

Hadena bombycina Hufn.—Larvae on heather east of Loch an Duin, S. Harris.

Cerapteryx graminis L.—In great numbers everywhere. At Kyles Lodge, South Harris, swarms began to enter the house daily, with great punctuality, at 11.15 p.m. (B.s.t.). On the Isle of Stromay, fifteen were counted on one head of ragwort, seven on a second and three on a third.

Apatele psi L.—On 2nd September, larvae were beaten from birch in the woods at Stornoway. This supplies the first record for the species in Lewis or in any of the northern isles. To the south, we made the first record for the species in the Outer Hebrides on the basis of specimens collected in various years from birches growing along the Allt Volagir in the Isle of South Uist.

Apamea furva Schf.—At *Escallonia* flowers in the garden at Kyles Lodge, South Harris.

Hydraecia micacea Esp. Abnormally common at ragwort on both islands.

Plusia gamma L.—An immigrant, of course, but swarming everywhere on Lewis and Harris.

P. chrysitis L.—At *Escallonia* and *Stachys palustris* flowers at Kyles Lodge, S. Harris.

P. iota L.—Odd examples near Stornoway, Isle of Lewis.

Abrostola tripartita Hufn.—Larvae generally plentiful wherever nettles grow.

Xanthorhoe montanata Schf.—Well-distributed, but only worn examples left.

Colostygia didymata L.—Common almost everywhere.

Entephria caesiata Schf.—On former occasions, we have always recorded this species as “unexpectedly rare”. This season it was generally plentiful on the moors around the Uamaslett chain of lochans, Horsaclett, Meaveg, Cnoc na h’Uamha, Drinesheadar, Borve, Loch Langavat, etc., on South Harris. The banded form *annosata* Zett. was also far from rare.

Euphyia bilineata L.—Very much less common in Lewis and Harris than usual.

Electrophaes corylata Thunb.—Larvae beaten from birch, etc., in the Lews Castle woods, Stornoway.

Perizoma albulata Schf.—Transitions between forms almost typical and the var. *hebodium* Weir occurred wherever yellow rattle grew.

Lygris testata L.—Quite common the moorlands of South Harris and Lewis, with forms approaching var. *insulicola* Stgr.

Chloroclysta siterata Hufn.—As larvae near Stornoway.

C. miata L.—Larvae abundant on *Salix aurita* in Glen Seilebost, South Harris.

Dysstroma truncata Hufn.—On this occasion, this species was found in great abundance in stream gorges and on rock faces; the range of variation being very great. It turned up in all the Lewis and Harris localities visited.

D. concinnata Steph.—At rest on rocks and cliffs along the stream draining the Uamaslett series of lochans in South Harris. Unlike its congener *D. truncata* this species seems to be univoltine in the Outer Isles.

D. citrata L.—Definitely less common than its ally *D. truncata* and of sparser occurrence than usual; widespread in Lewis and Harris.

Thera obeliscata Hb.—Larvae not at all rare in the little wood at Borve, South Harris on Scots pine; this is the first record for the Isle of Harris. The insect has been reported as occurring amongst the pines in the Castle woods at Stornoway, but I could not find it there.

Hydriomena furcata Thunb.—Imagines disturbed along stream gorges with *D. truncata*. The favoured food of the larvae in South Harris is hazel, although *Salix aurita* is often chosen.

H. caerulea Frey.—Formerly we have reported this insect from the alder wood near the Parks road, Stornoway; it is now possible to state that the larvae can be obtained in great numbers from the alders in the woods fringing Stornoway Harbour. In all cases, we noted that the larvae were greyer than the usual Co. Durham form. In fact, some could scarcely be distinguished from those of *H. ruberata*.

H. ruberata Frey.—Larvae very common on *Salix aurita* along the Creed River, Lewis. Although both *S. atrocinnerea* and *S. nigricans* were available, they seemed quite ignored.

Anaitis plagiata L.—In all the Harris gorges in which the beautiful St. John’s Wort, *Hypericum pulchrum*, grows.

Epirrhoe alternata Müll.—Common on the sand dunes at Husinish, North Harris, on 27th July, but completely absent from its usual haunts on the dunes at Luskentyre and Borve in the middle of August.

Eupithecia lariciata Frey.—Larvae in small numbers on the larches in Stornoway woods.

Abraxas grossulariata L.—Quite over as imagines, but small larvae could be beaten from *Calluna* and *Erica* in sheltered places on the moorlands.

Lomaspilis marginata L.—Far from common in Stornoway woods; larvae attached to *Salix aurita*.

Cabera pusaria L.—Common enough in all suitable places.

C. exanthemata Scop.—Larvae with those of the preceding species, but much rarer.

Gonodontis bidentata L.—In the little wood at Borve on birch but distinctly rare; this is the first Harris record. In Lewis, at Stornoway,, larvae were plentiful on many trees. On lichen-clad sallows these were beautiful creatures, mottled black and green; on *S. aurita* and birch they were greyish, on lime pale brown and on alder blackish brown.

Opisthograptis luteolata L.—Full-grown larvae were obtained from hawthorn near Stornoway early in September. These duly pupated so that we are dealing in Lewis with the race that passes the winter in the pupal condition.

Biston betularia L.—Larvae not rare on birch and alder in the Stornoway woods. All, except one, of those beaten were light brown in colour; the other was green.

Memories of a Naturalist—V.

By MALCOLM BURR, D.Sc.

So fascinated had I been by the wild and picturesque lands that I had tramped through in 1898 that I resolved to go again at the earliest opportunity. In 1900 I had company in the person of Hubert, the youngest son of Dr. Roose. We tramped down to Rijeka from Cetinje, but instead of crossing the lake to Shkadar took a boat to the village of Vir, or Vir Pazar, on the western shore and tramped from there over the Sutorman Pass down to Bar, one of Montenegro's coastal townlets called in Italian Antivari because it is opposite their port of Bari.

Bar had a unique commodity for export, that is cavasses. A cavass is a trustworthy messenger, analogous to our uniformed commissionaires in London. They are stalwart, faithful men and in great demand in the cities of the Levant as guards for embassies and consulates, banks and similar institutions. In Constantinople and afterwards in Istanbul these strapping Montenegrins in their splendid national costume of blue breeches and crimson gold-embroidered jacket, with the pork pie cap of black, crimson and gold, lent an air of safety and stability that was comforting. They formed a strong corporation, which was a further guarantee of their fidelity, and in fact it served as a perfect fidelity bond. It is related that once an unheard-of thing occurred. A Montenegrin cavass stole a large sum of money that had been entrusted to him. The guild at once paid up the money and the offending cavass was tried by his colleagues and . . . shot. When Bernard Shaw's play *Arms and the Man* was brought to Constantinople for production the Montenegrin cavasses, feeling that their beloved country was being parodied and in particular Prince Danilo, their heir to the throne, attended in a body and absolutely forbade the production. No action could be taken against them, and the play was not produced. Strangely, these men of Bar are of different faith from the main mass of Montenegrins, who belong to the Greek Orthodox Church. The men of Bar, however, are divided more or less equally into Moslem—a relict of the five centuries of Ottoman domination of that coast—and Roman Catholic, whose ancestors

were Dalmatians under the influence of Rome. The Roman Catholic Dalmatians and coastal Montenegrins are commonly known as Croats, in contradistinction to the Orthodox Southern Slavs, who are Serbs.

From Bar, Hubert and I tramped up the coast back to Kotor. At Castellastua, when we were resting in the village café, we were accosted by two English-speaking men who, like so many of the stalwart natives of this poverty-stricken country, had spent several years in the United States. They invited us to drink with them, offering some kind of liqueur, of devilish meretricious charm. We had two glasses, and then, not liking the atmosphere, I stood up to go. I reeled and crashed against my companion.

"Man, you're drunk!" he exclaimed.

Drunk I was not. My head was perfectly clear, but I could feel a numbness stealing up my legs, like the sensation when an anaesthetic begins to take effect.

"Let's get out of this", I said, and we gripped each other's arms and, by sheer effort of will, stalked out into the open. The distance to the room we had taken for the night was but a few hundred yards, but to this day I cannot understand how we made it. I could feel the numbness rising and, fight as I would, I knew it was beating me. And Hubert too. But we were in the open and there were people about. They looked at us curiously and after that I remember no more. Next morning we found ourselves, fully clothed, with hats and stick, prone upon the floor of our doorway.

We took a rowing boat across the little bay to Budva, one of those charming little walled towns of that coast, with gateway so narrow that only a single person can enter at a time. Our thirst under the blazing sun in that open boat, parched by the aftermath of the drug, was maddening, and in Budva we had no energy for exploration. As we stepped into the gateway a couple of black-bearded sailors with rifles crashed down their bayonets at our stomachs and peremptorily demanded our passports.

Such documents were in those days an unfamiliar novelty. Nobody bothered to have passports for Europe in general, although they were useful as identity documents for collecting letters at post offices; but in the Balkan Peninsula and in Russia not only were passports indispensable but visas also were required. The only other country in the world at that time where such documents were necessary was Haiti, and there I never went. When I received my first it gave me a thrill of adventure and I loved the phraseology. On the first page Robert Arthur Talbot Gascoigne, Marquess of Salisbury . . . with a whole string of subsidiary titles, including, as it were incidentally, Her Majesty's Principal Secretary of State for Foreign Affairs, did request and require all whom it may concern to let me, a British subject, pass without let or hindrance and afford me all assistance of which I might be in need.

On the boat from Kotor to Fiume, en route for home, a man opposite us in the saloon insisted on singing. I could not recognise the language but he assured us it was English. At this Hubert could not suppress his giggles, so the man challenged him to a duel. The appointment was made for six next morning in a field outside Fiume and I hope he kept the rendezvous. But Hubert and I had taken the train for Vienna that evening.

On my next visit to the Balkans I chose the Venice route for the sake of a change. As I stepped into a gondola in the Grand Canal I caught sight of a familiar figure in another that was passing. It was Alec Lees-Milne, the Purple Emperor.

“Where are you off to, Alec?” I asked him.

“Nowhere in particular,” said he.

“Come with me to Montenegro.”

“All right.” And he did.

Thus casually we started on what developed into a fine trip. Back to Cetinje, on to Podgoritsa and then to Skadar. One might be in Chinese Turkestan or Korea, so strange and exotic is that curious old city. One of the centres of attraction is the House of the English Lord, in the middle of the town, an imposing building with a clock tower, giving the time, of course, *à la Turka*. It had been built or re-modelled by some member of the Paget family, who had been with the Turkish army in the Russo-Turkish war of 1878 and made friends with some Albanian officers, who had persuaded him to establish a seat in their old city. But he had recovered from the fad and never came back. It was being used at the time by our Consul-General, who entertained us in a huge hall with an enormous gilt-framed Birmingham mirror on one wall and a fine collection of oriental weapons on the other. There is no street lighting in Shkodra, to spell it in the Albanian way, so after dinner a cavass with a lantern escorted us to our hotel.

From Shkodra we hired a fly to drive us to Nikshich, in the centre of Montenegro. On the way we stopped to climb up to the famous old monastery of Ostrog, tucked in a great hole in the face of a vertical cliff. Here Prince Mirko, father of Prince Nikolas, had been besieged with eleven men by the Turks in the war of 1865. Eventually they smoked him out, but he cut his way through with his eleven men and got away to Cetinje.

Nikshich was also famous for a picturesque siege: it was vividly described by Sir Arthur Evans in his *Illyrian Letters*. He was present as correspondent of *The Manchester Guardian*. The siege was conducted in the Homeric style. Both sides suspended shooting while a champion of each stood forth to fight in single combat, a tall ‘Turk’, that is to say a Mohammedan Montenegrin, on the Ottoman side and a village priest on the Christian. I forget which won but the victor cut off the head of the other and proudly exhibited it as evidence of his prowess. When the commander of the fortress surrendered, which suggests a win for the Christian champion, Prince Nikolas received him reclining on his *struka* or plaid upon a rock and entertained him with full honours.

He sent the good news to the Princess, in Cetinje, in verse, which he dashed off then and there. This episode made a great impression on me and I never forgot the ringing Serbian text of the original, which I frequently used as an effective quotation in talking afterwards with Montenegrin friends. Here is a translation, which conveys the archaic and heroic style:—

Mine is the standard that floats today above Onogosht’s castle,

Plamenats, leader in war, quaffs the red wine cup beneath.

Shrieking like mountain eagles, the standard-bearers around him

Gather. But Nikshich mourns, captive to-day of my arms.

We paid a visit of courtesy to Bozho Petrovich, a cousin of Prince

Nikolas, who had a distinguished military career, for he had won two battles, at Medun and Spuzh, against the Turks and had been Minister of War and Minister of the Interior. But Nikolas was always a little distrustful of his cousins, especially if they were distinguished or popular, so Bozhidar was living in retirement on his estate near Nikshich. I had visited him in Cetinje on my first visit three years previously. He received us with that dignified courtesy that is characteristic of these mountaineers and sent a message to be passed on wherever we went that we were English friends of his. We felt the benefit of his protection.

From Nikshich we rode over the hills, or tramped, with our kit upon ponies, for a couple of days to the highest village in the country, Zhabljak, on the shoulders of Mt. Durmitor. Then we cut across country, taking as far as possible a bee-line, which made rough going in that broken country, down precipitous cliffs, to the deep gorge of the river Pivo. We had several minor adventures; weary and footsore, short of food, we slept on the bare ground. On the banks of the Pivo, as I lay drowsy on the grass beside the torrent, I was aroused by a big dog sniffing my face. "Shoo, old fellow", I muttered sleepily, and he shood; but I was by then awake and realised that in that lonely spot there would be no dogs. But there were wolves . . .

On the fourth day we crossed the frontier of Hercegovina and reported to the nearest gendarmerie post, where we were received at first as invaders, for they sprang to their arms, and then as lunatics who had ventured into that nest of robbers and cutthroats, as they regarded the Montenegrins. Eventually we explained that we were quite sane, but English, and they were perfectly satisfied and gave us their best hospitality.

As we lit our *trabucos* and enjoyed a cup of good coffee after an excellent meal, and stretched our weary legs in front, I said to Alec: "I don't care if I never see another mountain as long as I live". And he agreed.

After a few days in Mostar and Sarajevo we made our way to Belgrad, arriving to find a temperature of 104° F. in the shade. In those days the walls of public buildings were disfigured by the portraits of King Alexander Obrenovich, who had not yet made his capital notorious by his follies and his obstinacy, which led to the palace revolution of 1903, when his degenerate dynasty was exterminated; and so the royal vendetta, which had been the curse of the country all through its modern existence, came to its logical end and the Karageorgevich dynasty came to the throne.

Belgrad the oft-beseiged did not make a great impression on me on my first visit. It struck me as much like any provincial Austrian town. How little did I foresee the future and what the name of Belgrad would mean to me in later years.

A few days later we travelled down the Danube by steamer as far as the Bulgarian port of Russe, in those days still generally known by the old Turkish name of Rustchuk. Here we heard that plague regulations were in force in Constantinople, whither I was bound; but my companion was afraid of being held up, so he proceeded by boat to Odessa, and thence home through Berlin. I, however, was determined to see the Turkish capital and to pay a visit to Yervant Essayan in his own home on the Bosphorus.

So I took the train, which ambled easily over the downs, stopping when we passed a plum tree, to Varna, where I booked a passage on a Greek steamer to Kavak, at the mouth of the Bosphorus. To spin out my cash I took a steerage ticket, which meant sleeping on deck as best I could, with my suit-case for a pillow and my overcoat as a blanket. I did not complain of that but was rather worried by the sheep, which packed the deck. That seems to be characteristic of Black Sea steamers, for I found the same thing there half a century later.

Foolishly, I had not laid in any private supply of food, and the sea air made me peckish. I wanted to buy some but was handicapped because I did not know any modern Greek though I had the hang of the pronunciation as I had taken a lesson or two out of curiosity with an interesting old Greek, Plato Drakoulis, in Oxford. But I knew a good deal of ancient Greek and was at home in the Greek of the New Testament. I also knew the Lord's Prayer in Greek by heart. So I went up to the skipper and said to him:

"Give us this day our daily bread."

It worked.

We landed at Kavak in due course, a village on the Asiatic shore of the Bosphorus, whence I was able to get a steamer to the Galata Bridge, to be welcomed there by the smiling face of Yervant. Six or more happy weeks I spent in his house in Büyükdere and had a good view of the Ottoman capital under the régime of the Sultan. Although this was my first visit to the imperial city, little thinking that in later life I should live there longer than in any one other place in my whole life, it was my third visit to Turkish territory, so conditions were not quite novel to me. I had read a good deal about it and heard more from Yervant.

Living nearby at the time was an Englishman in the Ottoman service, Woods Pasha, an Admiral of the Ottoman Fleet and A.D.C. to the Sultan. He was a friend of my father, who had met him through Dr. Roose, and in spite of the disparity between our ages he soon became a very good friend of mine also. Thanks to his influence I had the opportunity of seeing Abdul Hamid at the *selamlık*, his weekly visit to the mosque, and caught a glimpse of his gaunt face, dark eyes and sunken cheeks.

That singular tyrant had the knack of inspiring devotion and even affection. Woods Pasha always referred to him affectionately as "my Sultan". The Pasha, with his grey hair and neat white beard trimmed in the naval style, had started life in the British Navy before the days of steam and had an interesting career before he ever came to Turkey. He had been engaged in combating the Arab slave trade off West Africa, had rounded Cape Horn and sailed up the Pacific coast of Chile, crossing over to Japan in the days of the Shogun. Thence his ship sailed eastwards into the unknown, for the story had gone round that we were at war with the United States and they expected to be attacked any day. One day when I was dining with him he had been reading an account of Sir James Brooke's adventures in Sarawak. He pointed to a passage describing a gunboat advancing up a river towards a stockade. A midshipman stood by the gun in the bows, waiting the command to fire.

"I was that middy", exclaimed the Pasha.

Then, when Sultan Abdul Aziz was modernising his fleet in the

sixties a number of English specialists came out. Woods was lent by the British Navy for six months, to superintend the lighting of the Bosphorus; but he stayed forty years. I do not know what his age was, and his stories of his career gave me the impression of antiquity, but he played an active game of tennis and took me for rides into the Forest of Belgrad, a piece of original woodland left in the neighbourhood of the capital which took its name from a mediaeval camp of Serbian prisoners of war. Although the idea of a sailor on a horse often raises a smile Woods Pasha had a good seat and with his black breeches and boots, grey hair and short white naval beard, contrasting with his crimson fez, he looked an attractive and dignified figure.

The Forest of Belgrad, compared with our lively English woodlands, struck me as being lifeless. Bird life and insect life no doubt are to be found there, but on a casual glance when riding through, there seemed to be no animal moving. There is compensation, however, in the *bends*, the massive aqueducts, relicts of the Byzantine emperors and mediaeval sultans, who cared for the water supply of their city.

As we were riding out of the forest my eye caught sight of a massive insect sitting upon a thistle. I recognised it at once as a *Saga*, a monstrous carnivorous cricket that I had never before seen alive. It is the biggest insect in Europe and one of the most formidable in the world, a representative of a very ancient order of insects. Muscular, with double rows of great spines down their long strong legs and great powerful mandibles, they are creatures that must spread terror in their own world and inspire respect even in humanity. I sprang from the saddle, flung the reins to the astonished Pasha, and, although not provided with any entomological apparatus, went resolutely to the attack. After a brief but fierce struggle I overwhelmed him by enveloping him, and then tying him up in my handkerchief, a technique employed in dealing with violent lunatics, and so brought him home in triumph to Büyükdere. For a long time afterwards the Pasha used to tell his friends of the fight I had with a fierce cricket near the Forest of Belgrad.

COLEOPTERA

Some Records of Coleoptera taken in 1955

By K. C. SIDE.

Of the local and less common species taken during the year the following seem to be worth recording. Names are as in Kloet and Hincks (1945: *A Check List of British Insects*).

Cychrus caraboides (L.) v. *rostratus* (L.). 2.vi.55. Folkestone Warren, Kent. One only, under a stone.

Notiophilus substriatus Waterhouse. 2.vi.55. Folkestone Warren, Kent.

Amara convexiuscula (Marsham). 27.vii.55. Pegwell Bay, Kent. Very numerous amongst litter at high tide mark on saltings.

Agonum marginatum (L.). 19.viii.55. Fairbourne, Merioneth. Numerous, under stones on salt-marsh.

Platystethus capito Heer. 7.v.55. Wrotham, Kent. Running on bare chalk at foot of Downs.

- Staphylinus similis* Fab. 2.vi.55. Folkestone Warren, Kent. One only, under a stone.
- Conosomus immaculatus* (Stephens). 2.x.55. West Thurrock, Essex. In litter on saltings.
- Saprinus rugifrons* (Paykull). 19.viii.55. Fairbourne, Merioneth. In refuse at high tide mark on saltings.
- Elmis maugei* Bedel. a. *aenea* (Mueller). 9.iv.55. Horton Kirby, Kent. Several were found clinging to stones in River Darent. A single specimen was taken 28.viii.55 on Cader Idris, Merioneth. This one was clinging to a leaf of a Potamogeton, in Nant Cader, at 1200 feet above sea level.
- Syncalypta spinosa* (Rossi). 7.v.55. Wrotham, Kent. Running on bare chalk with *Platystethus capito* Heer. (See above.)
- Laria dulcamarae* Scopoli. 3.vii.55. Wrotham, Kent. Taken when sweeping *Atropa belladonna* but some *Solanum dulcamara* was present and the insect may have been on that.
- Carpophilus sexpustulatus* (Fab.). 25.ix.55. Fawkham, Kent. Taken when working a heap of dead branches by beating them over a sheet and tearing off loose bark. The branches were in a clearing in a small wood.
- Vincenzellus viridipennis* (Latreille). 5.xi.55. Benenden, Kent. Under birch bark.
- Mordellistena brevicauda* (Boheman). 29.v.55. Dover, Kent. In flower of *Ranunculus bulbosus*. A second specimen was taken by general sweeping at Longfield, Kent, on 5.vi.55.
- Scaphidema metallicum* (Fab.). 10.viii.55. Wilmington, Kent. Six specimens were huddled together on a dead branch on the ground in an orchard.
- Cryptocephalus bipunctatus* (L.). 16.vi.55. Wrotham, Kent. By general sweeping amongst chalk scrub on Downs.
- Plagioderia versicolora* (Laicharting). 23.vii.55. Cambridge. One only on waterside vegetation on River Cam.
- Epitrix atropae* Foudras. 11.vi.55 and 3.vii.55. Wrotham, Kent. On *Atropa belladonna*.
- Psylliodes marcida* (Illiger). 24.viii.55. Towyn, Merioneth. About thirty were crowded together on a plant of *Cakile maritima*. There were none on other plants of the same species which I looked at in this locality.

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Current Notes

Lepidoptera of Somerset by A. H. Turner is now before us and is a work which commends itself to us as a result of painstaking research, and also, in no small measure, because it is a list of the Lepidoptera of Somerset, not the Macro-Lepidoptera only. In saying this, we do not intend any stricture on those other energetic entomologists who have confined their lists to the families which are their own particular study, but we do suggest that when these gentlemen decide to undertake such useful work, they should try to find someone with whom to co-operate in covering the remainder of the order dealt with. These remarks really apply to lists of Lepidoptera with its illogical division

into the Macro and Micro sections, which overlap and intermingle so disconcertingly; writers on other orders, when they do not list the whole order, can specify the families covered without unduly encumbering the title of their work.

However, we are digressing from the work under consideration. The short preface advises us that the list of 1440 species has its foundation in the card index formed by the late A. R. Hayward, which in turn had as its basis the card index of A. E. Hudd, used for the Victoria County History. These two sources account for 1405 species, and the further additions are the result of the present research; thirty-three helpers and interested bodies are quoted as being responsible for the entries, and the names follow the "Check List of British Insects" of Kloet & Hincks (1945).

A map of Somerset accompanies the volume, and in the account of each insect, localities are given as parish names together with the authority for each given by initials explained in the preface.

This work consists of iv + 188 + viii pp. and is published by the Somersetshire Archaeological and Natural History Society at the very reasonable price of 10s. 6d. post free.

The Sixth Annual Report of the Nature Conservancy for the year ended 30th September 1955 is published by Her Majesty's Stationery Office at 4s, and gives a very comprehensive sketch of all the many activities of this body, together with twelve half-tone plates, mostly of nature reserves. Of particular interest to the entomologist are Section IV, dealing with Nature Reserves, particularly short notes on the Reserves added or extended during the year, and Appendix I, which tabulates all Nature Reserves in four columns, say: Name and Date declared, Acreage, Access and Restrictions, and the name and address of the Warden.

Amongst detailed accounts of various scientific activities is a list of something like thirty scientific papers on subjects varying from selective weed-killers to Notes on the Vegetation of Iceland, and there are papers on ants, three on *Myrmica rubra* L. and one on the Wood Ants of the Lake District. This report will certainly be exceedingly useful to the "travelling" entomologist.

In *The Canadian Entomologist* of August 1955, Douglas C. Fergusson divides the North American *Calocalpe undulata* L. into two species; the solitary larva feeding on *Rhodora*, *Azalea*, *Spiraea* and *Salix* as being conspecific with the European species, whilst the moths resulting from the gregarious cherry-feeding larvae are described as a new species, *C. prunivorata*, with genitalia dissections of both sexes of both species.

M. E. MacGillivray lists many further species of Aphids from the Atlantic Provinces of Canada.

In the November number R. M. Prentice gives a detailed life history of the Aspen-feeding Tortricid moth *Choristoneura conflictana* Walk., including larval chaetotaxy, ♂ and ♀ genitalia and parasites.

I. Lansbury gives detailed distribution records of North American Corixidae recently identified from material accumulated by the Canadian Department of Agriculture. The paper is intended to amplify

H. B. Hungerford's "The Corixidae of the Western Hemisphere" of 1948.

R. L. Lyon has an interesting paper on a secondary sexual character in the Scolitid beetle *Ips confusus* Lec. which is useful in determining the sex of specimens. The writer remarks: "In species with concealed genitalia, reliable secondary characters are especially useful for rapidly separating the males from the females. Where such characters are lacking, a dependable determination of sex can only be made by the laborious procedure of dissection for a check of genitalia". It is claimed that by employing the method described, sex has been determined with an accuracy of 99 per cent. in 2,500 adults examined.

The separative character is an enlarged tubercle on the frons, situated medially and just above the epistomal margin in the male. "The shape of the tubercle is not consistent. It is usually conical (with rounded apex) to hemispherical, but in occasional males it is truncate and so irregular as to have no definite form. In all beetles observed, however, the sides of the tubercle rose steeply, and thus this structure could easily be distinguished from a similarly positioned and gently sloped cuticular embossment often found in females". The tubercle projects directly away from and perpendicular to the frons, but it was frequently found to angle downwards towards the mandibles. "The location was consistent: always medial and contiguous, or nearly so, with the epistomal border". It is usually twice as large as the frontal asperites. It will be interesting to know whether this useful sex indicator is present in our British species of *Ips*.

Four new species of *Liocoris* (Hemiptera: Miridae) are described by Leonard A. Kelton, and there are papers on The Oak Bark Beetle, *Pseudopityophthorus minutissimus* Zimm., Typhlodromid mites, and a fungous enemy of the pea-aphis.

The December number of *Lambillionea* holds much of interest. Pierre Viette contributes a note on nomenclature and also the description of a new Cossid species from Madagascar, with a figure of the ♂ genitalia. L. A. Berger figures melanic specimens of *Argynnis selene* Schiff. and of *Pseudopanthera macularia* L., and also contributes a note on *Augiades venata* Bremer-Grey, while E. Jannouille lists four species new to the Belgian list and contributes a note on *Gelechia rosabella* Fol., which species is also the subject of a comment by Abel Dufrane.

Entomologische Zeitschrift for January 1956 carries a well illustrated paper on coastal forms of *Hadena sordida* Bkh., *Miana literosa* Hw., *Mamestra albicolon* Hw., *Agrotis (Euxoa) cursoria* Hfn., *Miana bicoloria* Vill., *Acidalia (Ptychopoda) ochrata* Hb., *Nola centonalis* Hb., and *Lithosia pygmaeola* Doubl. by G. Warnecke. This paper was read at the third joint meeting of the South-West German Entomological Societies at Kassel. This is only a first instalment and we look forward to the next issue.

The January *Entomologische Berichten* carries the first of three papers dealing with three species of hawkmoths from Surinam which are injurious to crops. The first deals with *Protoparce sexta paphus* Cramer, and is in the English language, but as determinations were

made by members of the U.S. Department of Agriculture this is given a somewhat transatlantic twist, in that Sphingid larvae are referred to as "Hornworms". The present species damages tomatoes, peppers, and tobacco. A Chalcid egg-parasite is mentioned as the reason why the number of larvae attacking these crops is usually low, but having in mind the voracity of a large Sphingid larva, we would suggest that food supply might also have some say in this matter.

E. T. G. Elton cites the infestation of a stack of sheets of "Moll" (agglomerated cork for lining insect boxes) by the wax moth *Achroia grisella* Fab. which had spread from some infected honeycombs stored some distance away in the same loft in the manufacturer's premises. Hitherto this moth has only been recorded from bees' wax, sugar and dried fruit, and it is added that mortality of larvae was high, indicating that cork is not a suitable food.

From Czechoslovakia we have received a very welcome parcel of separata from our friends, Dalibor Povolny and F. Gregor, a very active team working from the School of Agriculture at Brno, who have investigated many obscure entomological problems and have produced much useful literature. From the Proceedings of the Moravian Museum (XL, 1955) we have a paper in the Czech language with a German summary, describing nineteen "New and Interesting Species from Czechoslovakia". From the Entomological Proceedings of the National Museum (Prague) (1953, XXIX, 424, pp. 25-40) is a very thorough paper on the genus *Ophiusa* Ochs. and the presence of all the species in Czechoslovakia with three plates, one figuring the imagines, one the male genitalia and the third, the female genitalia. The summary is in Russian.

Another paper in the Czech language with summaries in Russian and German is on the "Beet Moth" (Rübenmotte), *Gnorimoschema ocellatellum* Boyd. in Czechoslovakia, and the final one describes four new species of Micro-lepidoptera from the Mediterranean region. This is in Proceedings of the Vienna Entomological Society (XL, 81-87) (1955) and describes *Lithocolletis amseli*, with a fine coloured plate, *Gnorimoschema pseudobsoletellum*, *G. reisseri*, and *G. mirabile* with text figures of the genitalia.

The October number, Vol. 3, No. 4, of *The British Journal of Animal Behaviour* has an interesting, illustrated article on two closely-allied species of gall midges, *Dasyneura violae* F. Loew and *D. affinis* Kieffer (Dipt.) by Barbara Stokes showing how two morphologically identical species can be differentiated by their behaviour, being quite distinct in their host plant range on *Viola*. Dr. C. J. Banks, in the same number, gives an account of his methods in using radioactive tantalum in studying the behaviour of larvae of *Coccinella 7-punctata* L. (Coleoptera).

Recent publications of the Smithsonian Institution of Washington include a key and descriptions, very brief in some cases, of neotropical species of *Conops*, *Mallochoconops* and *Physoconops* by S. Camras. Vol. 105, No. 3355, 'A Review of the New World Flies of the genus *Conops* and allies (Diptera: Conopidae)'. In Vol. 104, No. 3343, 'Fruit flies of the genus *Tomoplagia* Coquillett (Diptera, Tephritidae)', M. L. Aczél has described 15 new species and redescribes others, keying out

the 43 species with numerous figures and photographs of wing markings and venation. Some of these flies examined by the author had been collected or bred by our old contributor, K. J. Hayward, in Argentina. Although few of the species have been bred, gall-makers and attackers of fruit and flowerheads are already known, similar to the related genera in this country where Tephritidae is regarded as but a sub-family of the Trypetidae.

We are able to add to our note in last month's *Record* about the Forestry Commission's proposals to enclose another 5,000 acres of the New Forest. We understand that the Verderers considered the matter at a private meeting in December and came to a conclusion, which they announced at an open sitting of the Verderers' Court, held at the Court House, Lyndhurst, on 2nd January. In short, the Forestry Commission's application for authority to carry out their plan has been rejected. This decision was received with applause by the assembled commoners. The senior verderer, Colonel J. B. Scott, disclosed that it was his own vote which had settled the matter, four of the verderers having voted in favour of granting the Commission's application and four against. The Deputy Surveyor of the Forest, Mr. E. Wynne-Jones, had selected the 37 areas mentioned in our note and these ranged from 8 to 475 acres. He is reported to have said that he was not disappointed at the decision, but felt remorse that he had not made out a better case for the Commissioners. For our part we think he made out quite a good enough case, dangerously good, in fact.

Notes and Observations

AN ABERRATION OF *HARPYIA FURCULA* CLERCK.—In my article in the November issue of this magazine (*Ent. Rec.*, 67: 284) I mentioned that I took a 'Kitten' moth amongst many *Harpyia furcula* Cl. at Cadnam, Hampshire, on the night of 17th August 1955 at m.v. light which puzzled me. I have made enquiries and shown it to several well-known collectors and it is generally agreed to be an aberration of *H. furcula*. According to B. J. Lempke of Amsterdam the form is new. Unlike a normal *furcula* the markings, instead of being a dull grey, are jet black.

I propose to name this form:

ab. *aureonigra* nov. ab.

Type ♂: Cadnam, Hampshire, 17th August 1955, taken at a mercury vapour lamp by Alan Kennard. In the collection of the captor.

Description: Markings of the forewings jet black, giving the insect a striking appearance. The band across the hindwings is pronounced while the central band of the forewing is dusted with orange scales, being almost straight on the inner margin and indented on the distal margin. Head and thorax black with intermittent orange scaling in stripes. Shape of markings similar to normal.—ALAN KENNARD, TORUS, Ashburton, Devon. 6.i.56.

PLUSIA CONFUSA STEPH. (GUTTA GUEN.) IN KENT IN 1955.—My friend, Mr. P. B. Wachter, has shown me a fine specimen of this immigrant that he took at m.v. light on 20th August 1955 at Ickham near Littlebourne, some five miles east of Canterbury.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 13.i.56.

DASYPOLIA TEMPLI THUN. IN DORSET.—In Dorset the autumn proved rather uneventful, and the only surprising insect taken was *D. templi*. A ♀ appeared on 15th October followed by a ♂ two days later. The nearest locality I know of is in the Purbeck Hills, some ten miles distant as the crow flies, and I believe that in the south the species is essentially coastal. Both my specimens were newly emerged, so the parents must have wandered in the spring.—ALAN KENNARD, Torns, Ashburton, Devon. 6.i.56.

ARGYROPLOCE POMEDAXANA (PIERCE) IN GLOUCESTERSHIRE.—On 1st August 1955, in a wood a few miles from Tetbury, I collected a fresh specimen of this Tortrix from oak. Although Meyrick in his *Revised Handbook* gives for the distribution of this species: "Devon, very local, not known elsewhere", it is probably more widespread than has been hitherto believed. I knew of specimens taken in Surrey; this is a record for Gloucestershire.—J. NEWTON, 11 Oxleaze Close, Tetbury, Glos. 7.i.56.

HERSE CONVULVULI (LINN.) IN GLOUCESTERSHIRE.—On 26th September 1955 a girl brought to me a live pupa of this hawkmoth. I visited the place where it was unearthed, a potato field at Long Newton; apart from potatoes, the field had a considerable growth of bindweed. A workman reported that he had destroyed several of "these things" while potato lifting. A week later I received a second live pupa intact from the same field.—J. NEWTON, 11 Oxleaze Glose, Tetbury, Glos. 7.i.56.

APATELE ALNI.—I was interested to see that Mr. H. Symes says in the December *Record* that he knows of only one specimen of *alni* that was taken on a post or tree trunk. I possess a specimen of *alni* which I took sitting on an oak tree in Ryton Wood, near Rugby, on 23rd June 1923. This is included in the "List of Lepidoptera observed near Rugby in 1923" in the "Report of the Rugby School Natural History Society" for the same year. I remember this incident very well indeed; it was the highlight of my youthful collecting days. Ryton Wood was very much the best locality for lepidoptera in the neighbourhood of Rugby in those days.—J. L. CAMPBELL, Isle of Canna.

FOODPLANTS OF *XYLOMIGES CONSPICILLARIS* L.—I was much interested by Mr. H. E. Hammond's note on this subject (*Ent. Rec.* 67: 330). When I stated that the larva did not eat elm or oak, I was referring to the larva *in a wild state*, as is clear, I think, from the context. The fact that Dr. Kettlewell and Mr. Hammond have reared larvae on elm with highly satisfactory results is most helpful to rearers of the larva *in confinement*, but it does not prove that the wild larva feeds on elm. To-day, most of the posts along the railway line near Taunton are a long way from elm or oak trees, but in Doidge's time, as I was told by Somerset entomologists years ago, there was parkland on one side of the line, and it was here that Doidge dug up his pupae. Now all the elms have been felled, and only two large oaks remain, in the middle of a field of arable. Apart from this, the railway runs mainly through open meadowland, varied at one point by a large apple orchard. The fact that I found three or four moths on posts alongside this orchard opens up another possibility about the foodplant. How-

ever, if, as there is good reason to believe, many of the moths found on the posts have crawled up them to dry their wings, I believe that the larvae had fed on the bird's-foot trefoil (*Lotus corniculatus*) which grows freely at the foot of the posts. Incidentally, when the larva in its last instar is resting at full length on a piece of *Lotus*, it bears a striking resemblance to a ripe seed-pod of that plant.

In 1931, I received a few half-grown larvae from a friend, the late G. D. Hancock, of Minehead. Living, as he did, not far from the Taunton locality, he had considerable experience with the species. The larvae he sent me were feeding on *Lotus corniculatus*, and he told me that if I could not obtain this, I should give them *Prunus*, either blackthorn or cultivated plum. As I had no difficulty in obtaining *Lotus*, I continued to feed them on this, and they came through without much trouble.

Since my article appeared, I have received information about rearing the larvae of *X. conspicillaris* from two correspondents, one of whom says he had been warned not to give them *Lotus* in captivity. He found they would not touch the leaves of common elm (*Ulmus campestris*), but he twice reared them successfully on wych elm (*U. montana*). My other correspondent says his larvae ate the flowers of *Lotus corniculatus* but did not care for the leaves: they preferred the flowers of hawthorn (*Crataegus monogyna*) to anything else, and they also liked knotgrass (*Polygonum aviculare*).

From all this it would appear that the larva of *conspicillaris*, in captivity, will eat a variety of pabula, and that *Lotus corniculatus* may not be the most suitable foodplant for it in confinement: probably it is too succulent. But I am still inclined to think that it is the natural foodplant in the wild. Has anyone ever found a wild larva of *conspicillaris*?—H. SYMES, 52 Lowther Road, Bournemouth. 27.xii.55.

BRACHIONYCHA SPHINX HUFN.: PROLONGED PUPAL STAGE.—I have been interested in the remarks about this species by Mr. H. Symes, M.A., and other correspondents, and would like to add a few further words. Mr. Symes refers (67: 329) to the emergence of a fine female moth on the 4th November 1955, from a pupa that he had had since the summer of 1953. I had a similar experience in November 1955, when a female moth came out on the 11th, from a 1953 pupa. Although I have reared this moth in moderate numbers over the years, this never happened previously amongst any of the examples under my observation, nor do I recall any information about such an event from other collectors. This, of course, does not provide evidence of the behaviour of the species in the wild, and I have never managed to unearth a wild pupa. The few moths that I have reared have resulted chiefly from wild larvae, found by searching or beating blackthorn, and a small percentage came from oak or elm. A proportion of the larvae have been affected by parasites of the *Apanteles* genus, and those nearing maturity when taken have usually given better results.

In the spring of 1953, Dr. Harold King kindly sent me a few larvae which were about one-third grown, and as they were eating sallow on arrival, they were restricted to this. Unfortunately, in spite of care, only three reached the pupation stage. It was from one of the three pupae obtained that the moth mentioned above emerged last November.

Dr. J. V. Banner kindly gave me a small batch of eggs last winter, and the larvae, which hatched towards the end of March 1955, were also offered sallow as there was little else available. About half of them were sleeved on a bush in the garden, and the remainder confined in large g.t. tins. Crowding was avoided, but, alas, the larvae started to die off when they were about half-grown, and not one survived to maturity. I believe that Dr. Banner suffered similar disappointment.

I have never detected any sign of cannibalism in this species, although Barrett, Newman and Leeds, and other authors mention it. As amongst other species in captivity, especially in crowded conditions, it might occasionally develop. Although the larva of *Brachionycha sphinx* is noted for deep burrowing when preparing for pupation, this may be more its habit in captivity. It certainly will go down ten inches, or even more, if it has the chance, in an earth-filled flower-pot. But, as already stated, I have not yet succeeded in finding a wild pupa; perhaps my digging efforts have been too near the surface. For that reason it would be interesting to know the depth at which Mr. Symes found his pupa (67: 50) near Bruton so many years ago.—GEORGE E. HYDE, F.R.E.S., 20 Woodhouse Road, Doncaster, Yorks. 10.i.56.

LEPIDOPTERA OF THE INNER HEBRIDES.—I am sorry that J. L. Campbell should be puzzled by my references to Heslop Harrison's captures of *Amathes agathina*, *Celaena haworthii* and *Citrea lutea* on Canna (*Ent. Rec.*, 68, p. 28). May I refer him to Harrison's article in the *Entomologist*, LXXIX, p. 147 *et seq.* "Noteworthy Lepidoptera from the Isle of Rhum, with some notes on Insects Captures on the Adjacent Isles". Here we read as follows in connection with the species concerned:—

"*Amathes agathina* Dup.—On heather on all the major islands". (And the context leads one to believe that Canna is no exception to this statement.)

"*Celaena haworthii* Curt.—On the moorlands of Rhum and Canna".

"*Citrea lutea* Stroem.—Casually captured as imagines on Rhum, Eigg and Canna . . ."

(And be it noted I am not concerned with whether or not a species is captured casually or with due intent—it does not alter the fact of its capture!)

I hope these notes will remove the difficulties expressed by Campbell and my little review of his worthwhile list.

Finally, it is pleasant to note that he has now himself recorded capturing the three species concerned—so everyone should be happy.—N. L. B.

Fifty Years Ago

(From *The Entomologist's Record* of 1906).

IN THE THAMES MARSHES.—A week later, one evening at sugar, I had some *Pyralis glaucinalis* visit one particular post; I only caught two as they were very skittish, so, as I wanted the species, I made a daylight inspection of the locality, and soon came across some farm-buildings well covered with old thatch and a fine old stack of hopbine. The day forbade active work, and I had to content myself with looking

and thinking, but Monday found the sugar-pot at work, and *P. glaucinalis* fairly swarmed. I boxed 40 or 50, and filled all my boxes, while scores got away. Two nights later I essayed to repeat the performance with a greater number of boxes. Imagine my chagrin when not a sign of the species was to be found. I was fairly nonplussed, the weather had been grand, and yet here was a species in swarms one evening, and two nights later not to be seen, while all the other species were in about the same abundance as on the first night.—J. OVENDEN.

COLLECTING IN THE CORN SHOPS.—Mr. Pool having told me that he was taking *Ptinus brunneus* at Edmonton, a species he had captured there before in the corn shop where he discovered *Ptinus tectus*, I went over to collect there with him. I found, however, that he was taking something new, and it eventually turned out to be *Ptinus pusillus* Stm., a species new to Britain. We took several specimens and he has captured quite a number altogether . . . It is common in France and Germany, and there is no doubt it is also British, and will be found commonly when granaries and such-like places come to be more worked. The difficulty is that so many of the people who own corn shops, etc., will not allow anyone to collect in them, and are very indignant at the mere suggestion that they harbour anything so disgusting as beetles.—HORACE DONISTHORPE.

HABITS OF YOUNG LARVAE OF NOCTUA DEPUNCTA.—From ova of *Noctua depuncta* a number of larvae emerged in September. I gave them sorrel to feed on, but they huddled together, and used the sorrel, not as food but, as a resting place, and remained perfectly quiescent till disturbed with a fine brush. This went on for some weeks, being, each time I looked at them, perfectly quiet and gregarious till touched, then quite lively, settling down again afterwards. Tired of this, I put them out in the garden on a small bed of sorrel, but suppose I shall see nothing of them in spring. I cannot help wondering how, if this is the usual habit, they manage to keep alive through the winter. I do not remember ever reading anything about the life-history of *N. depuncta*. Has anything been published thereon?—J. E. GARDNER.

[Not, we believe, until 1953, when the larvae were successfully reared, and their habits described, by Dr. D. A. B. Macnicol in *Ent. Rec.*, 65 : 275.—ED.]

SALES OF INSECTS.—So much interest, both of a scientific and personal character, attached to the dispersal of a collection like that of the late Mr. C. G. Barrett, that we were not surprised to find a fairly large company at Stevens' rooms on March 13th, when the British Macrolepidoptera were sold. Both private and trade-buyers appeared to be well represented. There seems to be a gradual, but decided increase in the purchases made at Stevens' by dealers. We apologise for the word, which carries to many people a flavour not at all applicable to some of the persons to whom we refer. There must be a large outlet for the insects so bought. It is also the case that trade-buyers purchase the more expensive lots more freely, not always we imagine on commission. The time is still, however, we hope, measureably distant when insect sales will fall into the hands of a ring, as so often occurs with books.—J. W. TUTT.

Lepidoptera at Chandler's Ford, Hants

By B. GOATER.

(Continued from page 32)

- **X. designata* Hufn. Fairly common.
- **X. montanata* Schiff. Common.
- **X. fluctuata* L. Common.
- Nycterosea obstipata* Fab. Female at Ivy bloom, 16th October 1950.
- **Ortholitha chenopodiata* L. Common in grassy places.
- **Colostygia pectinataria* Knoch. Fairly common.
- **Earophila badiata* Schiff. Common.
- **Anticlea derivata* Schiff. Not common.
- **Mesoleuca albicillata* L. Few.
- **Perizoma affinitata* Steph. Few.
- **P. alchemillata* L. Few.
- **P. flavofasciata* Thunb. Common.
- **Euphyia unangulata* Haw. Two only; at light.
- E. cuculata* Hufn. Very few.
- **E. bilineata* L. Very common. Few at light.
- **Lyncometra ocellata* L. Fairly common.
- **Electrophaes corylata* Thunb. Fairly common.
- **Ecliptopera silaceata* Schiff. Common.
- **Lygris testata* L. Occasional.
- **L. mellinata* Fab. Fairly common.
- **L. pyraliata* Schiff. Few.
- **Cidaria fulvata* Forst. Common.
- **Plemyria bicolorata* Hufn. Few.
- Chloroclysta miata* L. Few.
- **Dysstroma truncata* Hufn. Very common.
- **D. citrata* L. Scarce. A single specimen at light.
- **Thera obeliscata* Hübn. Common, especially in autumn.
- **T. variata* Schiff. Common in at least one locality in Cranbury Park.
Common at light in the garden, autumn, 1954.
- **T. firmata* Hübn. Not at all common.
- **Hydriomena furcata* Thunb. Common.
- H. coerulata* Fab. Few.
- Triphosa dubitata* L. One only.
- Calocalpe undulata* L. One only, taken by my mother before 1939. It is still in my possession, unlabelled.
- **Chesias legatella* Schiff. Common.
- **Anaitis plagiata* L. Not common.
- **A. efformata* Guen. Not common.
- **Epirrhoe alternata* Müll. Common.
- Eulype hastata* L. Not seen since 1944; formerly common in Cranbury Park.
- **Horisme vitalbata* Schiff. Few most years.
- **Eupithecia subnotata* Hübn. Fairly common.
- **E. pulchellata* Steph. Fairly common.
- **E. exigua* Hübn. Few.
- **E. centaureata* Schiff. Fairly common.
- **E. expallidata* Dbld. Very few.

- **E. vulgata* Haw. Common.
 **E. icterata* Vill. ssp. *subfulvata* Haw. Fairly common.
 **E. succenturiata* L. Few.
 **E. nanata* Hübn. Few.
 **E. abbreviata* Steph. Common.
 **Chloroclystis coronata* Hübn. Few.
 **C. rectangulata* L. Common.
 Gymnoscelis pumilata Hübn. Few.
 **Mysticoptera sexalata* Retz. Locally common.
 **Acasis viretata* Hübn. Sometimes fairly common.
 **Nothopteryx carpinata* Bork. Common.
 **Oporinia dilutata* Schiff. Abundant.
 **Operophtera brumata* L. Abundant. Very few at m.v. light.
 **O. fagata* Scharf. Common.
 **Asthena albulata* Hufn. Common.
 **Hydrelia flammeolaria* Hufn. Very few at light.
 **Euchoeca nebulata* Scop. Very few.
 **Abraxas sylvata* Scop. One at light 1st July 1952.
 **A. grossulariata* L. Fairly common.
 **Lomaspilis marginata* L. Common.
 **Ligdia adustata* Schiff. Few.
 **Bapta bimaculata* Fab. Few.
 **B. temerata* Schiff. Fairly common.
 **Cabera pusaria* L. Common.
 **C. exanthemata* Scop. Common. Only one at light.
 **Anagoga pulveraria* L. Scarce.
 **Ellopija fasciaria* L. Scarce.
 **Campaea margaritata* L. Fairly common.
 **Deuteronomos alniaria* L. Common at light.
 **D. fuscantaria* Haw. Fairly common.
 **D. erosaria* Schiff. Fairly common.
 **Selenia bilunaria* Esp. Common.
 **S. tetralunaria* Hufn. Usually common.
 **Apeira syringaria* L. Very few.
 **Gonodontis bidentata* Cl. Common.
 **Colotois pennaria* L. Common.
 **Crocallis elinguaris* L. Sometimes very common.
 **Angerona prunaria* L. Rare at light. Var. *corylata* occurs.
 **Ourapteryx sambucaria* L. Common.
 **Plagodis dolabraria* L. Common.
 **Opisthograptis luteolata* L. The most abundant species at light.
 **Epione repandaria* Hufn. Very few.
 **Cepphis advenaria* Hübn. Local. Only one at light.
 Pseudopanthera macularia L. Very common.
 **Semiothisa notata* L. Fairly common.
 **S. liturata* Cl. Fairly common.
 Theria rupicapraris Schiff. Uncommon. Not at m.v. light.
 **Erannis leucophaearia* Schiff. Common; few at light.
 E. aurantiaria Hübn. Fairly common. Not at m.v. light.
 **E. marginaria* Fab. Very common at street lamps, but only a few at
 m.v.
 E. defoliaria Cl. Another abundant species at street lamps; none at
 m.v.

- **Phigalia pedaria* Fab. Males common at "yellow" and m.v. light.
 **Apocheima hispidaria* Schiff. Fairly common some years, but very erratic.
 **Lycia hirtaria* Cl. Status uncertain: few taken at the light, but flies late.
 **Biston strataria* Hufn. Males common at light.
 **B. betularia* L. Abundant at light. The typical form predominates, but *insularia* and *carbonaria* are increasing.
 **Hemerophila abruptaria* Thun. Fairly common.
 **Aleis rhomboidaria* Schiff. Very common.
 **A. repandata* L. Common but decreasing.
 **Boarmia roboraria* Schiff. Not uncommon, but probably decreasing.
 **B. punctinalis* Scop. Common.
 **Ectropis bistortata* Goeze. Common, particularly at rest on pines.
 **E. crepuscularia* Hübn. Fairly common.
 **E. extersaria* Hübn. Uncommon.
E. consonaria Hübn. Scarce and local in Cranbury Park.
 **Aethalura punctulata* Schiff. Common.
Gnophos obscurata Schiff. The only one I have seen came to the house lights on 8th August 1945.
 **Bupalus piniarius* L. Fairly common amongst pines.
 **Lithina chlorosata* Scop. Abundant amongst bracken.
 **Chiasmia clathrata* L. Fairly common; var. *nocturnata* occurs.

ZYGAENIDAE.

Zygaena filipendulae L. Local.

Z. trifolii Esp. Local.

Procris statices L. The only locality where I have found it has been built over.

LIMACODIDAE.

- **Apoda avellana* L. A few at light.

COSSIDAE.

- **Zeuzera pyrina* L. Males common at light.

- **Cossus cossus* L. Not uncommon. One at light.

HEPIALIDAE.

- **Hepialus hecta* L. Common.

- **H. lupulina* L. Common.

- **H. sylvina* L. Very common.

- **H. humuli* L. Few females at light and flying in the garden, but no males seen.

SESIIDAE.

Aegeria culiciformis L. For many years there was a birch stump in the garden which bore signs of having been tenanted by this species. My parents had watched the moths emerging when the house was being built in 1928. I have sought the insect, but never found it.

A. tipuliformis Cl. It occurs, but I have not taken it.

A. flaviventris Staud. One, caught on a window.

EXCHANGES AND WANTS

Wanted.—A subscriber wishes to purchase rare and extreme forms (British) of *Lysandra coridon* Poda.—Box No. 5, c/o the Manager, No. 4 Windhill, Bishop's Stortford, Herts.

Wanted.—Living female pupae of *Saturnia pavonia* or any other large female pupa (*Laotioe populi*, *Smerinthus ocellata*, etc.) for work on assembling scents. Cash or exchange.—Dr. H. B. D. Kettlewell, Genetics Laboratory, Department of Zoology, University Museum, Oxford.

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—B. R. Laurence, Birkbeck College, London, W.C.1.

Warwickshire Lepidoptera.—Will Entomologists please assist in compiling a new "County of Warwickshire Local List of Lepidoptera" (Macro and Micro)? Records giving date and year, and locality of capture should be sent to Trevor Trought, F.R.E.S., c/o The Curator, County Museum, Warwick. All assistance will be acknowledged.

Wanted.—Mahogany cabinet, 40 drawers; Brady or Gurney preferred.—J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.

Wanted.—Edwards, F. W., 1929, British Non-biting Midges. *Trans. ent. Soc. London*, 77: 279-439. Write stating price required.—Dr. N. L. Birkett, 2 Thorny Hills, Kendal.

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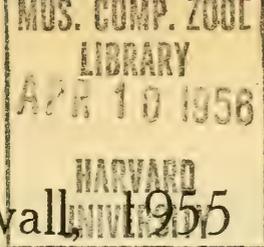
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Notes from Cornwall, 1955

By W. G. TREMEWAN.

The season in Cornwall was very late in 1955 as it probably was in other parts of the country. The thaw began early in March, although there was continuous hoar frost until 22nd March.

Visits to the Gwithian sand dunes during April produced a good series of *Elachista nigrella* Haw. At sallow, moths were very scarce throughout the month; four *Orthosia gracilis* Schf. (red form) emerged from pupae resulting from larvae taken the previous year in the New Forest.

Lithocolletis geniculella Rag., a species new to my list, was captured on 10th May on the edge of a sycamore wood.

Pararge aegeria L. was scarce during the spring, but was to be found in its usual abundance in the summer brood and eventually produced a partial third brood, as I captured a pair *in copula* on 15th October. One or two specimens in good condition were seen after this date.

My wife and I visited Gwithian on 22nd May and found *Callimorpha jacobaeae* L. abundant; a ♂ *Phragmatobia fuliginosa* L. was found *in copula* with a *C. jacobaeae* ♀, but no eggs resulted although I kept the *jacobaeae* until 11th June, when she died an apparently natural death.

One *Vanessa cardui* L. was noted on 27th May, and two *Platyptilia gonodactyla* Schiff. emerged (28th May and 1st June) from seedheads of *Tussilago* collected from Gwithian in April.

On 31st May a single *Argynnis euphrosyne* L. ♀ was captured in fresh condition, having a large faint cream blotch in each hind wing on the upper side.

We paid a visit to the Lizard district on 5th June, but conditions were poor; a strong sea breeze was blowing and the sun became obscured half an hour after our arrival at 10 a.m. No larvae of *Lasiocampa trifolii* Schf. were found although we searched carefully. However, before the sun disappeared, we were able to examine a colony of *Euphydryas aurinia* Rott., and a ♂ was taken having the usual pale yellow spots replaced by fulvous orange.

The first *Colias croceus* Fourc. was seen at Falmouth on 11th June, and on the detached rocks around Pendennis Point I took a good series of *Platytes cerusellus* Schiff., although only three females were taken; these were harder to find as they were less inclined to fly. Larvae and imagines of *Coleophora discordella* Zell. were found on *Lotus* sp., and a large *Zygaena filipendulae* L. ♀ was also taken, an early date for this species as it normally appears during the latter half of July; although it was damaged, I took it because of the exceptional date.

At Maen Porth, a ♀ *Nemotois degeerella* L. was found at rest on a stem of *Heracleum*, but a search failed to produce any more of this species.

At home, a worn *C. croceus* ♀ was seen on 13th June, and another, together with *V. cardui*, on 16th June.

We visited Boscastle on 28th June where my wife took *Aglais*

urticae L. with a pink ground colour, in fresh condition. We looked for *Panaxia dominula* L. without success and came to the conclusion that we were too early.

On 4th July I captured a *Plebejus argus* L. (= *aegon* Schiff.) ♂ with the orange spots on the underside replaced by chocolate brown. An identical aberration, a female this time, was taken on 8th July from the same colony, which is situated on an area of heath not many yards square. A male *Thecla quercus* L. emerged the same day.

A further visit was paid to North Cornwall on 10th July, where at Boscastle we found *P. dominula* abundant with even one or two specimens flying away from the colony and in the village itself. An *Argynnis aglaia* L. ♀ was taken with the right forewing heavily suffused with black scales, the other three wings being normal; I have taken forms suffused in all wings before, as this is not infrequently found in the females in Cornwall; incidentally, I have never found a dark male. Perhaps I might venture to state that the female is dimorphic in Cornwall, but I have had no experience of this species in other parts of the country.

On the cliffs east of Bude we found a small colony of *Zygaena trifolii* Esp., most of them being in good condition, although the date indicates that these might be the marsh form, *palustris*. The locality was very dry except for a small stream and there was definitely no marsh. Where does one draw the line between species and sub-species in the Burnets?

Incidentally, a worn *Argynnis selene* Schiff. was captured for identification purposes and released. From the late date of this insect, as it must have been the spring brood, I should imagine that the Burnet is *trifolii*, and not the subspecies. Perhaps species are late in emerging on the north Cornish coast.

At Gwithian on 13th July we found *P. aegon* practically swarming; a gynandrous female was taken having rays of blue in the right hand pair of wings. Two other females were taken with blue in the fore and hind wings similar to the sub-species *masseyi*; this form turns up occasionally on the sand dunes.

On 16th July light and sugar were used at Gwithian but a thick sea fog spoiled everything. However, two *Eilema complana* L. were taken at sugar, a new species to me, and this was the only insect to turn up.

A *Z. filipendulae* ♀ having the spots united emerged from a pupa taken near St. Ives. Aberration in the Burnets has been scarce this year as compared with 1954.

The "one that got away" was a lovely lemon yellow *Pieris rapae* L. which I was unable to secure, as I had no net with me at the time; this was on 22nd July.

The weather throughout July was almost tropical and butterflies were drinking at patches of wet mud, and I saw several Pierids drowned in pools and streams, presumably in an attempt to obtain water.

A fresh *V. cardui* was noted on 26th July and on the 28th fresh examples of *C. croceus* were observed; some of them were limp and drying their wings, showing that there was a local emergence.

On the 31st at Gwithian *P. aegon* was over, but the second brood

of *A. selene* was appearing and eventually proved to be just as abundant as the spring brood; it is double brooded in this locality every year, but the summer examples are much smaller.

On 2nd August *V. cardui* started emerging in my breeding cages.

On 11th August I captured *Rhometra sacraria* L., a female which laid a batch of fertile eggs. The first *C. croceus* ab. *pallida* was taken on the 16th; altogether eight of the pale forms were taken during the season.

On 22nd August a worn *Pieris brassicae* L. ♀ came to light at 9.45 p.m.

A. selene ab. *marphisa* was taken on 24th August, but hardly so extreme as the specimen figured in Frohawk's *Varieties of British Butterflies*, Pl. 12, Figs. 2 and 3.

On the 28th a dwarf *Maniola tithonus* L. ♂ was taken; it was about the size of a normal *Lycæna phlaeas* L., but it is unfortunately rather worn; *tithonus* with additional spots turned up in their usual numbers. Also on the 28th at Gwithian, a nice series of *Aspitates ochrearia* Rossi; previously I had only known this species from odd specimens; it was remarkably abundant and could be kicked up from the Marram Grass at every few yards.

Nycterosea obstipata Fab. ♀ came to light in good condition on the 29th and a further male was taken on 2nd September.

The first example of the third brood of *P. brassicae* appeared on 12th September and eventually the species became not uncommon. A fresh male *C. croceus* was noticed on the 13th and thereafter became common. Whether this second lot was migratory or the progeny of the first local emergence I cannot say.

A dwarf *L. phlaeas* was captured on 17th September and a *Colias hyale* L. ♂ was seen on the same day, but unfortunately not taken. I was on a motor-cycle when I first saw it but I was not lucky enough to capture it with a pill box.

On the 18th, a beautiful *R. sacraria* ♀ ab. *sanguinana* emerged; a male emerged on the 19th followed on the 21st by a female, which, however, was crippled. These two were typical and all were progeny of the female captured on 11th August. I had about two dozen pupae altogether, but after these three emergences the rest died, although the moths could be seen fully developed in the pupae. The larvae had pupated in moss, which I kept fairly damp.

P. brassicae ♂ was captured on the 21st having two spots in the forewings united on the under side.

Nomophila noctuella Schiff. was extremely abundant throughout the autumn, and *Macroglossum stellatarum* L. was not uncommon. A specimen of this latter species was bred from a larva which my wife found at Gwithian.

On 25th September *L. phlaeas* was taken with a cream patch in the left forewing and a white patch in the left hind wing.

On 3rd October a pair of *Pararge megera* L. were seen *in copula*, both freshly hatched and presumably a partial third brood. On the 4th, two worn *L. phlaeas* were captured with white spots in all four wings. On the same day, two fresh *P. megera* ♀♀ were noted, and a badly worn *Polyommatus icarus* Rott. ♀. On the 6th another dwarf *L. phlaeas* ♀ was taken, with the band on the hind wings obsolete and

the copper only showing on the veins. It is in good condition, and a further example was taken on the 13th.

On 18th October *C. croceus* ♀ was taken, with the usual yellow spotting in the borders practically obsolete. The first frost occurred on the night of 28th-29th but a *croceus* ♂ was seen flying strongly during the day when the sun came out, also a worn *megea*.

Butterflies continued into November and *L. phlaeas* produced a third brood which was much longer than those in the spring or summer. The last *croceus* was seen on 15th November, a fresh *L. phlaeas* ♀ being taken on the same day; was this an example of a fourth brood? *V. atalanta* was also seen on this date.

The last *phlaeas*, a worn specimen, was seen on 24th November, followed by an *A. urticae* on the 25th. *V. cardui* was last noted on 4th November in poor condition.

Plutella maculipennis Curt. was swarming throughout the autumn and a fresh specimen was seen on 30th November, while *Pyræusta ferrugalis* Hb. was noted on 8th December.

So ended a wonderful season, not only for abundance of butterflies and moths, but also for such beautiful weather. The Micros were especially abundant in the spring, and back, more or less, to normal. All the insects mentioned were taken in the Redruth district, that is, within a five mile radius, unless otherwise mentioned.

Some Further Records of *Sterrha rusticata* Schiff.

By A. J. SHOWLER, M.Sc.

Since my paper (1) on *Sterrha rusticata* Schiff. further information has been forthcoming, in view of which certain of my statements must be modified. It is convenient to deal with this information county by county.

Sussex. J. M. Chalmers-Hunt has brought to my notice the capture of two specimens at Rye on 13th and 14th August 1909 by E. C. Raven (2), while R. F. Bretherton mentions its capture at Eastbourne by R. E. Ellison, who has kindly informed me that he took one specimen, a male, on 29th July 1952, though he has not seen any others since.

Hampshire. In the collection of J. P. Robson are three specimens labelled "N. Forest, 1.7.06". Unfortunately these were obtained by exchange from a person unknown, and so further verification of this record is needed.

Dorset. R. F. Bretherton has supplied records later than my own for Portland, viz. from the University Museum, Oxford, specimens labelled "19/24.viii.1906" and "7/9.vii.1921" (by Rufus Castle); and a record for 12.vii.1937 (3).

Lastly, G. A. Ford (4) has informed us in his article that a locality still exists—"a small area . . . 20 feet by 3 feet at the base of a certain cliff, where pellitory-of-the-wall grows".

Ireland. The possibility of *rusticata* existing in Ireland is discussed by R. F. Haynes (5) who suggests that it may well be found at Caragh Lake, Killarney.

If this is indeed the case, then *Sterrha rusticata* may well have a distribution similar to some species cited by E. B. Ford (6) as being of coastal occurrence in southern England and S.W. Ireland, viz.

Cryphia muralis Forst., *Heliophobus reticulata* Vill., and *Eustrotia olivana* Schiff., and if this is so it makes an occurrence in St. Kilda even less likely, although as Bretherton points out, the record "was accepted by A. S. Corbet in a careful note on St. Kilda lepidoptera" (7).

To sum up, then, *Sterrha rusticata* Schiff. at the present day has a more continuous distribution than I at first suggested (1), still occurring in Dorset and Sussex as well as in Kent and Devonshire. It has possibly occurred, and may still do so, in Ireland and Hampshire. Are there any recent records from the latter county or the Isle of Wight?

In conclusion I wish to thank all those mentioned in the text for their assistance in preparing these further notes.

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Isle of Canna Collecting Notes, 1955: A remarkable August

By Dr. J. L. CAMPBELL.

1955 followed two bad years of wet summers and cold and stormy winters. Consequently the island's stock of insects was very considerably reduced, with the exception of *C. rubi* which, owing to a succession of fine springs, is steadily becoming more plentiful here.

Three heavy falls of snow in the early months of 1955, all with low temperatures—something quite unusual here, for as a rule the Hebrides have snowfalls only once every two or three years and the snow rarely lasts long—wiped out the Canna colony of *P. brassicae* completely. The spring moths were scarce, 23 being the largest catch in the m.v. trap in April 16th (11 *O. stabilis*, 6 *O. incerta*, 5 *X. areola*, 1 *O. gothica*). There was mild weather at Easter, but even then the nights were cold and clear and catches were very small. This kind of weather lasted into May, when the trap for the first time in May (8th) gave a nil return.

On 14th May I left Canna for a fortnight in Shetland and the Faeroes; during all this time the weather was very cold. At the beginning of June there came a disastrously cold dry easterly wind which blasted all the early leaves and must have been a setback to willow—and poplar—feeding larvae; it checked the growth of the young willows, birches and poplars here very much. Owing to this unseasonable weather after the severe winter, wild bees became very scarce indeed, and the apple crop failed. The weather remained unsuitable for the m.v. trap until the middle of June, when 80 moths comprising 30 species were taken, including a specimen of *Hadena caesia*. On the night of 19th-20th June the total was 71 moths comprising 21 species; 29 of the moths were *exclamationis*; the catch included the first *P. gamma* of the season; there was also a queen wasp. On 26th-27th June only 67 moths

were taken—a miserable total for midsummer; of these 33 were *A. exclamatoris* and one *P. gamma*. These poor catches continued into July, and the totals did not start to increase until the end of the month, when wild bees (queens) also began to be noticed again. On 19th-20th July 150 moths were taken comprising 39 species; one, *R. umbratica*, was new to the collection. On 25th-26th July there were 191 moths comprising 42 species, of which *M. brassicae* was a newcomer. On 29th-30th July there were 171 moths, 37 species, and a newcomer in *C. elingvaria*. *D. rubi* was also taken this month.

August was the month which provided the surprises, however. After six weeks of good weather since midsummer we had hardly dared to hope for a fine August; but we got the finest August since 1947 and some of the warmest and calmest weather I ever remember experiencing in the Hebrides. As a result of this, insects increased in number remarkably; all records for the trap were beaten, the highest previous night's catch was nearly doubled, and more moths were taken in the trap in August than in any previous whole year. The result is worth tabulating.

CANNA M.V. TRAP—AUGUST 1955.

Date.	No. of Moths	Of which :		<i>A. xantho-</i>		No. of Species	New Species
		<i>T. pronuba</i>	<i>H. micacea</i>	<i>grapha</i>	<i>P. gamma</i>		
Aug. 1*	14	3	—	1	—	8	—
3	153	17	6	—	—	30	—
9*	97	21	12	3	—	17	—
11*	23	3	3	—	—	9	—
12	390	55	99	18	1	40	1
14	408	53	115	36	—	41	2
21	306	55	86	22	—	28	2
22	371	36	141	45	2	25	—
			(record)				
24	329	25	91	61	5	31	2
25	512	46	104	113	27	27	2
	(record)						
26	224	28	47	38	8	28	2
27*	29	1	7	5	—	11	—
29	378	52	136	44	5	28	1
31*	23	1	2	9	2	10	—
TOTALS	3,257	396	849	395	50	81	12
							different species

*Trap on for only part of night.

Thus within little over a fortnight a dozen new species were added to the collection. Altogether eighty-one species were taken in the trap in August, compared to a previous highest number of 47 for that month, in 1952. They were as follows:—

RHOPALOCERA (1 species): *V. atalanta* (2 on 26th).

SPHINGIDAE (1 species): **H. convolvuli* (2, one on 24th, one on 26th).

NOTODONTIDAE (1 species): **P. tremula* (one on 26th).

ARCTIIDAE (1 species): *A. caja* (6).

NOCTUIDAE (55 species): *Apatele rumicis* (1), **Euxoa cursoria* (8), *E. tritici* (159), *A. ypsilon* (2), *L. strigula* (1), †*A. praecox* (1—not taken since 1951), *A. lucerneae* (9), **A. agathina* (4), *A. glareosa* (179, including a nice pinkish specimen), **A. castanea* (1), *A. baja* (26), *A. e-nigrum* (2), *A. ditrapezium* (12), *D. festiva* (2), *A. xanthographa* (395), *O. plecta* (4), *T. comes* (26), *T. pronuba* (396), **L. fimbriata* (1 on 14th), *T. ianthina* (164), *D. oleracea* (5), *H. conspersa* (3), *H. cucubali* (1), †*T. cespitis* (1), *C. graminis* (78), **D. protea* (1, on 25th), *L. testacea* (13), **C. haworthii* (10, first on 14th), *A. furva* (4), *A. secalis* (128), *P. fasciuncula* (1), *A. monoglypha* (89), *A. lutulenta* (8), *A. nigra* (25), *P. chi* (3), *P. meticulosa* (1), **C. leucostigma* (1, on 24th), *H. lucens* (221; all the examples I sent to Mr. Tams were identified as *lucens*), *H. micacea* (849), *A. pygmina (fulva)* (4), *L. impura* (2), *L. conigera* (8), *S. anomala* (1), *C. blanda (taraxaci)* (3), *A. tragopogonis* (3), *O. lunosa* (26: of which 23 on the 29th), **C. lutea* (1, on 25th), **L. solidaginis* (1, on 29th), *P. chrysitis* (36), *P. bractea* (5), *P. festucae* (3), *P. pulchrina* (26), *P. gamma* (50, of which 27 on the 25th), *A. tripartita* (5), *H. proboscidalis* (4).

GEOMETRIDAE (21 species): *S. biselata* (4), *O. chenopodiata (limitata)* (6), *A. plagiata* (9), *L. testata* (99), *L. populata* (2), *D. truncata* and *D. citrata* (36 in all, in about equal proportions, identified by Mr. D. S. Fletcher), *T. cognata* (2), **T. firmata* (1, on 26th), *X. ferrugata* (2), *X. designata* (2), *X. montanata* (2), *X. fluctuata* (16), *P. affinitata* (1), *H. furcata* (18), *E. oblongata* (1), *C. rectangulata* (1), *C. margaritata* (1), *O. luteolata* (4), *A. repandata* (9), *G. myrtillata* (6).

MICROS: *N. noctuella* (4, one on 14th, 24th, 25th and 29th).

*Indicates a new species added to the collection.

†Indicates a species taken for the second time only.

One interesting thing about this August list is that it contains some species such as *caia*, *rumicis*, *plecta*, *oleracea*, *conspersa*, *cucubali* and *impura*, occurring unusually late; other species, such as *ypsilon*, *glareosa*, *nigra*, *meticulosa* and *lunosa* occurring unusually early. A partial second brood may have occurred in some of the former cases.

During this period we experienced the warmest nights I have ever known in the Hebrides. On the 23rd-24th, the night temperature was 67° F.; 24th-25th, 67° F.; 25th-26th, 63° F.; 29th, 58° F. With day temperatures around 80° F. and night temperatures over 60° F., it felt more like the Mediterranean than the Atlantic!

As the temperature fell, and breezes returned, the moths vanished. On 1st September with a temperature of 55° F., there were only 62 moths comprising 14 species, including one *C. lutea* and one *C. icteritia (fulvago)*; of the rest 22 were *T. pronuba* and 12 *H. micacea*. The latter (*micacea*) swarmed all through August and occurred in all shades and sizes.

The fine weather, which had become a drought, broke on 9th September. Thereafter, few good nights for the trap occurred until November, which was surprisingly mild and calm. *P. gamma* was taken on 1st and 22nd September, 4th October, 3rd November and 1st December! I had never found it worth working the m.v. trap in November before; this

year it produced *A. ipsilon*, *P. porphyrea* (*saucia*), *A. circellaris*, *P. gamma* and *H. defoliaria*, and several specimens of *A. sponsana* during that month. On 1st December *circellaris*, *gamma*, *P. pedaria* and *E. defoliaria* occurred in the trap and *O. brumata* was observed at a lighted window. *O. brumata* and *E. defoliaria* appeared at lighted windows again on Christmas Eve.

An interesting feature of the 1955 season was the length of time over which some species appeared, indicating possibly partial second broods.

	<i>First observed</i>	<i>Main brood over</i>	<i>Last seen</i>
<i>P. icarus</i>	midsummer	mid-August	7th September
<i>A. caja</i>	18th June	30th July	24th August
<i>A. rumicis</i>	18th June	10th July	14th August
<i>L. strigula</i>	20th June	26th July	12th August
<i>A. lucernea</i>	18th June	?	29th August
<i>T. c-nigrum</i>	18th June	30th July	not again till 25th August
<i>O. plecta</i>	18th June	27th June	24th August
<i>D. oleracea</i>	18th June	30th July	29th August
<i>H. conspersa</i>	2nd May	20th July	20th August
<i>L. conigera</i>	27th June	30th July	24th August
<i>A. tripartita</i>	16th June	30th July	22nd August

T. pronuba appeared in the trap from 18th June to 5th September.

The total number of moths taken in the m.v. trap during 1955 was 4,308, almost exactly twice the previous highest total, 2,157 in 1952. The total number of different species including *V. atalanta* was, however, only 123, against 121 in 1952: this was due to the poor catches before the middle of July.

Butterflies, except for *C. rubi* and *V. atalanta*, were scarcer than usual. *P. brassicae* and *V. io* were not noticed at all. *A. aglaia* was observed at the far western end of the island on 11th August, a glorious day. *V. atalanta* turned up in greater numbers than had been the case during the past two years, and was seen as late as 4th November. *V. cardui* made a welcome reappearance, none having been seen in 1954 and only one in 1953. I am afraid that the destruction of thistles by selective weed killers here is going to reduce the home bred generation in future years; but other species of lepidoptera are going to benefit from the tree planting which is going on, and which will increase the number of alders, willows, birches, oaks and poplars considerably, the project being to plant a half-acre or so every winter steadily.

In conclusion, I must express my gratitude to Messrs. W. H. Tams, D. S. Fletcher and J. D. Bradley for assistance in identifying various species. Mr. Bradley has identified the following micros taken in the trap in 1955: *P. cespitalis*, *P. dilutella*, *T. ribeana*, *C. colquhounana*, *E. nigromaculana*, *E. cana*, *E. diniana*, *P. lipsiana*, *D. abietella*, *H. nympheata* and *A. sponsana*.

The Middle Copper

By P. B. M. ALLAN.

Years ago *Heodes* (*Chrysophanus*, *Lycaena*) *virgaureae* Linn., the 'Middle Copper' of the old English authors, was a not uncommon

butterfly in Great Britain. The evidence for this would appear to be irrefutable and I hope to put it before my readers in a book which will shortly be committed to the printer. Had not Tutt categorically asserted in his *Natural History of the British Butterflies* that the early English lepidopterists confused *virgaureae* with *dispar* doubtless the Middle Copper would still appear in our handbooks. Suffice it here to say that on a critical examination Tutt's allegation will not hold water for a moment.

Briefly, *H. virgaureae* dwindled to extinction in this island during the last decades of the eighteenth century. In 1803 Haworth recorded it as being "very rare" and by 1835 Duncan was able to write that the species "does not appear to have been found for many years". Its last stronghold of which I have contemporary information that I regard as reliable was in Lancashire, where it appears to have been plentiful; but I have seen no reason to doubt reports by the curator of a museum (an associate of the Linnean Society) in one case and a well-known lepidopterist in another that *virgaureae* existed in Banff in 1857 and in Cumberland in 1858. It was not a fenland species, being sometimes found at a considerable altitude, though it was addicted to humid ground (owing to the ecological requirements of the larval food-plant), and so lately as 1899 W. F. Kirby wrote that he had heard it still existed in some inaccessible spot in the West Country.

So the story I am about to relate should not be lightly dismissed as 'fantastic'; for although *H. virgaureae* may, to-day, be extinct in England it is within the bounds of possibility that it did actually linger on in some of those many out of the way places in our island which no lepidopterist ever seems to visit. In these days of rush and hurry, and consequent conduct of business at high pressure, very few lepidopterists indeed have the leisure to potter about the country and collect 'at large'. Most of us have only a fortnight's holiday each summer, and there are gaps in our collections: we prefer to go to places where we *know* we can fill some of the gaps rather than visit out of the way spots on the mere chance that something good might turn up. Besides, we have wives and children who must share our holiday with us, and in some of the inaccessible places one would have to put up with the discomfort and limited accommodation of a village ale-house. So the places 'at the back of beyond' remain unvisited, unexplored. How many lepidopterists are aware that until 1942, when the last specimen was noticed, *Maculinea arion* Linn. was plentiful in a small and somewhat inaccessible island off our coast? It was a fine large race, like the well-known Cornish one of fifty years ago. Doubtless this fine insect still exists in some of the hundreds of islands which compose the British Isles.—But to my tale.

During the first world war my friend, Sidney George Castle Russell, had to pay a business visit to the West Country during the middle of June. Being in need of a brief holiday after many strenuous months in London, he arranged to go by road, accompanied by his wife and an old friend named W. G. Mills. They motored about Devon, searching for places where *M. athalia* would be likely to be found, and one afternoon, coming to a small town which lay somewhat off the beaten track, they passed through country of exceptional beauty. Next morning at breakfast C.R. asked his wife how she would like to spend the morning.

as he would have to remain at the inn and write letters. Mrs. Castle Russell said that she had been so charmed by the country they had passed through the previous afternoon that she would like to go back for a few miles and see it again. Accordingly, C.R. ordered an ancient fly (which was the only conveyance the inn possessed) to be got ready, and presently his wife and Mills drove off along the road by which they had come the previous day.

After they had gone a few miles the driver of the fly pulled up alongside a stile, from which a footpath ran along a hillside above a very beautiful valley, to join another road (actually a loop of the road they were on) which could be seen in the distance.

"If you would like a little walk", said the man, "you could take that footpath there and meet me at the other end; it's on the way you're going".

So Mrs. Castle Russell and Mills crossed the stile and took the path along the hillside, and after a time they met the fly at the spot indicated.

On their return to the inn, Mrs. C. R. and Mills were both enthusiastic about their walk, describing the hillside and valley as beautiful beyond belief. "And what do you think, Sidney", said Mrs. Castle Russell, "we saw numbers of Large Coppers flying. We tried to knock some down, but they flew too fast for us. Flying in the sunshine, they looked most beautiful".

"They did indeed", corroborated Mills.

C.R. looked from one to the other. Both were in earnest. "Why, it's impossible", he said. "The Large Copper has been extinct for at least fifty years. You couldn't possibly have seen one".

"But we *did*, Sidney. There's no other butterfly like a Large Copper, is there"?

"They must have been fritillaries of some sort".

"They weren't. They were Large Coppers. Weren't they"?'—she turned to Mills.

"I certainly thought so", said Mills.

"What other butterflies are shining copper-coloured"?' she insisted. And that was a question her husband could not answer.

"Anyhow", she went on, "you can easily prove it for yourself. We'll have the fly out again after lunch and go back and catch some".

But the spirit of St. Thomas had settled heavily upon C.R. Obviously the butterflies were fritillaries or *megea* or—or—oh, anything but *dispar*. It was impossible. It's all foolishness, he thought. A waste of time to go back. He laughed it off, and after lunch he and Mills went fishing instead

.

That was the story Castle Russell told me one day at his home in Surrey. We were sitting side by side on that famous settee before the fire, the cabinets containing his marvellous collection at our backs.

"May I write this in the *Record*"? I asked presently.

"Why, yes, if you like", he replied. "If you think it's worth while. It's still a mystery to me what they were, and probably it will never be solved".

"You never thought of going there again"?

"The opportunity never occurred. I did think once or twice of going:

but it's an out of the way place and the inn wasn't very comfortable, and I didn't fancy being cooped up there for some days if it rained all the time, as it often does in the West Country. Besides, I'd already worked that part of the country for *athalia*, and I don't think there was anything else worth catching there. It would probably have been a wild goose chase".

I thought no more about the matter until 1950, when I had completed my survey of *H. virgaureae* in England, and then I re-opened the matter. We discussed it in letters, and C.R. (always eager to go out of his way to do his friends a service) wrote to his friend Mills, who, then aged 86, was living in another part of the country, and asked for his recollections of the matter. Here are some extracts from the letters.

20.x.1950. *S.G.C.R.* to *P.B.M.A.* "With regard to your letter . . . Both had collecting experience and knew the various species, especially my friend who had two sons he used to help collect, and my wife, too, had been collecting with me for many years. It did occur to me that they might have been one of the species of rare coppers, but the date seemed to me to be far too early for *dispar*, and I knew very little about the other species. The place was some 15 miles away and I did not think it worth while to go and ascertain what the species was. The terrain was certainly not suitable for *dispar*. Unfortunately, although they both tried to catch an example, the ground was too rough and no net was available. I have always been sorry that I did not go and solve the mystery, especially as soon after I got home I read that one of the species (I forget which) had been taken in Devonshire. Of one thing I am quite certain and that is that the butterfly in question was not one of the species that we were all collecting . . . No early *cydippe* or *aglaia* were about, and only *athalia* and *selene* of the fritillaries in evidence. *Tithonus* was out with a few late *aurinia*. I thought that they might have met with a colony of early *aglaia*, but they were quite definite that they were not. And so the thing remains an unsolved mystery. . ."

26.x.1950. *S.G.C.R.* to *P.B.M.A.* "In connection with the 'Unknown' I thought I would write to my oldest living friend, W. G. Mills, whom I was intimate with when we were both in the twenties and ask him what he remembered about the episode. I cannot do better than enclose that portion of the letter that refers to the matter. . . . You will see that he has still got in his mind the idea that the butterflies seen were large coppers and both he and my wife were familiar with most species as both collected very frequently with me. I do not know the sort of ground that *virgaureae* frequent nor the time of appearance. . ."

28.x.1950. *P.B.M.A.* to *S.G.C.R.* "On the Continent . . . *virgaureae* is on the wing during the second half of May and again in July-August. *Dispar* flies (on the Continent) during the first week of June. But in England *dispar* is not on the wing until the first week of July (at Wicken Fen), and it is usually the case that when a butterfly has two broods, the spring brood in England is from a fortnight to a month (generally quite a month) later than on the Continent. So we should expect *virgaureae* to be out, in England, about 18th June in a normal year, continuing on the wing for about three weeks. In a 'late' year it would not appear until the end of June, continuing

until mid-July. It is not a fen species, but frequents hillsides, flowery meadows about streamlets, etc., on the higher ground. There is of course no English butterfly which even a novice could mistake on the wing for one of the larger Coppers."

24.x.1950. W.G.M. to S.G.C.R. "As to the experience to which you refer what I remember of the matter is that your good wife and I were very favourably impressed with the last part of the drive . . . that I think it was the very next morning that we decided to engage a horse and trap to take us over the last few miles that we might have time to take a good look *slowly* at the country. When we had got out a little way the driver said, "If you would like a little walk you could take a footpath here, and meet me at the other end, all on the way you are going," which it proved to be; but I cannot remember whether our footpath took us all the way to the place we were making for or whether the driver of our carriage drove us some part of the way to the place, and I cannot remember if we had lunch out. According to my memory the idea of the trip was only to have a good look at the lovely country through which we had travelled . . ."

Mrs. Russell and I were more than pleased that our driver had suggested the footpath walk. It was very beautiful country, part of the walk was on the side of a hill which ran down a considerable distance to a valley; bushes at the bottom I think shut our view off from the very bottom of the valley. It was along here that we saw some particularly beautiful butterflies, and were very excited thinking they were large coppers. As you know my limited experience of butterflies I was not surprised but disappointed that you did not share my excitement . . ."

30.x.1950. S.G.C.R. to P.B.M.A. "Mills resided at Westcliff on Sea where he used to go out on butterfly expeditions with his boys, and I think he used to occasionally report having seen *edusa*. At the time there was a well-known collector named Conquest there with whom he was friendly, who had formed a very fine collection. As regards *hera* neither my wife nor Mills had ever seen the moth but were of course familiar with the garden tiger. As you infer, however, the date would not fit in as *hera* would not have been on the wing so early nor, I think, would *caja*. I can only blame myself for not making an investigation at the time, but I could not assimilate the idea of large coppers being on the wing in June and probably had had enough driving for a time . . ."

7.xi.1950. S.G.C.R. to P.B.M.A. "I have had another letter from Mills in which he repeats the fact that he . . . told the driver that he was to follow the road we had come by car the previous day. He goes on . . . "I do not remember seeing any village, stream or landmark of any kind to mention. I have never seen such a gorgeous show of butterflies with, scattered amongst them, what Mrs. Russell and I thought were large coppers. I was greatly impressed with the wonderful display of butterflies. My sons and I used to find clouded yellow butterflies on Canvey Island . . ." Mills always had a horror of exaggerating in the least, and minimised everything, and knowing him so well I ought to have allowed for this characteristic, and made an investigation. How-

ever, we preferred to go fishing, resulting in one small trout between us."

It was not possible to pin-point the place on the map and I think that at this distance of time it would be a waste of labour to attempt to do so. Roadside stiles leading to footpaths along hillsides with flowery valleys below are a common feature of some parts of the West Country, and neither Castle Russell nor Mills could say how far the fly had travelled from the inn. C.R. mentioned 15 miles; Mills thought only "a little way"; it may have been anything from two to six miles. (It is unlikely that the old four-wheeler, drawn by perhaps an equally ancient quadruped, the kind of turn-out that was kept at country inns in those days, could have travelled 30 miles there and back in a day, let alone in a morning—for be it remembered that C.R. and Mills went fishing in the afternoon. Probably ten miles is the most that such a conveyance, with three people in it, could have covered in a morning, especially in a hilly country.)

But as for the butterflies seen that mid-June day in 1917 by Mrs. Castle Russell and Mr. Mills one thing is certain, and that is that these butterflies were of a kind unknown to either of them. During the previous days they had watched C.R. netting "and boxing" *athalia* and *aurinia*—of these latter they found "a large colony" of which "all specimens seen were very worn". Castle Russell assured me that his wife had seen and caught or seen him catch all the English fritillaries except *Issoria lathonia* L. There is no English butterfly which a person with several years' experience of the British butterflies could by any possibility mistake for a Large Copper—and be it noted that not a single specimen was seen but many, that Mrs. C.R. and Mr. Mills tried to catch several of them, and that in trying to knock down a specimen they must both have been *very close to them*. Those who have seen *C. dispar* or *rutilus* or *hippotohe* (*chryseis*) or *virgaureae* or *ottomanus* or *gordius* on the wing will agree that the larger Copper butterflies of Europe are unmistakable when flying in the sunshine. My own opinion (which of course is worth, in terms of Entomology, nothing at all) is that Mrs. Castle Russell and Mr. Mills chanced upon, that memorable day in June 1917, what was perhaps the last surviving colony of *Heodes virgaureae* in the south of England. That this colony should have survived until so recently unknown to lepidopterists is in no way remarkable—no whit more remarkable than the discovery, during this present century, of *Carterocephalus palaemon* Pallas in Inverness-shire. It is merely another case in point of the neglect of English lepidopterists to explore their own country.

It remains for me to add that W. G. Mills died on 29th December 1955, aged 91, and to thank his eldest son, Dr. W. T. Mills of Ramsbury, for permission to quote the above passages from his father's letters.

Current Notes

The Field Naturalist Vol. 1, No. 1 (New Series) is before us as an eight-page printed magazine instead of its former duplicated typescript form. This is much more convenient and lasting. It is a local magazine of general Natural History interest in the North-west corner of Eng-

land, and is a bi-monthly intended to circulate local Natural History intelligence amongst the local naturalists, and as such it is a useful undertaking which has our best wishes. We foresee one small danger, however, and that is that contributors having noted their observations and captures in local magazines, as they should do, will omit to mention them also in the national magazines, thus complicating the task of the research student very considerably, for there is a large number of really local publications. What is really desirable is that ordinary observations should be given at once to the local magazines, and special notes of rarities and unusual occurrences both to the local and the national magazines, and the interesting summaries of the year's work still have their place with the National magazines as these records cover those first published in the local magazine. The great advantage of the local magazine is that it stimulates all with an interest in natural history, who live in the district, and we look forward to the resurrection of the fine breed of Artisan Naturalists who did so much in the last century and the early part of the present century, for seeking out the secrets of nature for themselves will once more create the active mind which is the secret of human happiness.

The Thirtieth Report of the Lancashire and Cheshire Fauna Committee is to hand. This is dated 'December 1954' but has only just been issued (January 1956). It contains the reports of Recorders for the years 1950 to 1953 inclusive and very impressive some of these reports are. Of the 78 pages some 25 are devoted to insects. H. N. Michaelis ably lists the additions and interesting species of lepidoptera noted in the counties of Lancashire and Cheshire. As usual most of the new records concern the micros but it is surprising how many fresh macros turn up. S. Shaw of the Manchester Museum is responsible for the report on the insects of the 'Other Orders'. Preponderant in his list are Hymenoptera, and especially the parasitica. It is interesting to note that so many of these records concern insects collected by the late Harry Britten who did so much for the Fauna Committee and whose photograph and obituary notice appear in the same issue. W. K. Ford reports on the Odonata and Orthoptera.

The whole report is well got up and printed and to those of us who collect in Lancashire and Cheshire is quite indispensable as it must also be to those studying the geographical distribution of British insects. Enquiries regarding the report should be made to H. K. Lawson, 25 Rydal Drive, Hale Barns, Altrincham, Cheshire. N.L.B.

Our contributor, A. J. Showler, who broke off his account of military moth-hunting in our January number to say that he had been posted to Cyprus now finds himself even farther afield. In a letter to us, dated 24th January, he writes: "As you may, or may not, know from my address I am in Jordan, not Cyprus, where I stayed for only two hours after flying out. We are in the desert, and I have seen very little insect life since my arrival, only two *cardui*, one *stellatarum*, and several of a species of moth unknown to me". It was prudent of him to say that we "may or may not" know where he is from his address since this consists almost entirely of various numerals and groups of capital letters—unintelligible to a civilian. Such is the pace at which we live to-day that neither the Services nor the newspapers have time

to write words in full—or is it done on purpose to prevent the Russians from getting to know our contributor's whereabouts? . . . Anyhow, we wish him good luck wherever he is.

DIPTERA

Phytomyza rydeniana Hering (Dipt., Agromyzidae) in Scotland

By L. PARMENTER.

When visiting Glen Lyon, Perthshire, on 9th July 1955, some mines, mostly empty, were seen in the leaves of Melancholy thistle, *Cirsium heterophyllum* L. = *helenioides* (L.) Hill and they were unfamiliar to me. Some leaves were plucked, pressed and later sent to Prof. E. M. Hering of Berlin, who has returned them after identifying the mines as those of *Phytomyza rydeniana*. In some cases the same leaf also carried the empty blotch mine of *Pegomyia steini* Hend. (Dipt., Muscidae). The agromyzid mine is a linear one, much broader and longer than that of the well known mines of *Phytomyza atricornis* Mg. which attacks so many species of plants. The mine was generally found in the tip of the leaf but also occurred at the base. It winds for a considerable distance alongside itself filling in a large area in a serpentine manner. The frass is laid down in large separate dots, mostly tailed, well spaced along the edge of the mine.

The species was described by Hering, who illustrated its mine, in "Eine neue minierende Phytomyza aus Schweden (Dipt., Agromyz)" 1949. *Opuscula Entomologica* 14: 159-161, from a bred specimen from mines found by Nils Rydén. By 1954, Rydén in his "Catalogus Insectorum Sueciae XIII Diptera Cyclorrapha schizophora: Agromyzidae" in *Opuscula Ent.* 19: 79-96 was able to record the species from the provinces of Närke, Medelpad and Jämtland in Sweden, also from Finland and Norway.

As the plant is known from Merioneth, Stafford and Derby to Caithness and Sutherland in Britain, it is hoped that our northern readers and those visiting this northern area will search for this species and rear it, for it is new to the British List. Abroad this thistle is found in Europe in mountains from Pyrenees to Rumania and northwards from Pomerania into Scandinavia, Russia and Siberia. Since writing this note, Mr. K. A. Spencer in *Ent. Gaz.* records the species from Killin, Perthshire, in August 1955, but without definitely stating whether obtained as an adult or larva.

Some Dipterous Inhabitants of Thistle

By M. NIBLETT, F.R.E.S.

The following notes refer to insects whose larvae live and feed in various parts of thistles; many hundreds of these parts of the plants have been collected or examined in the field over a period of years. As the Trypetidae form the bulk of the insects concerned I will deal with those first.

Chaetostomella onotrophes Lw.: The larvae of this species are to be

found sparingly in flower-heads. From about 1300 heads of *Cirsium palustre* collected during the past 20 years, in areas where *onotrophes* was quite plentiful, only 18 flies have emerged, 2 flies in August and September of the first year, the remainder between May and July of the second. I have only found it once in a very large number of heads of *Cirsium arvense*.

Tephritis cometa Lw.: On 13.viii.53, numerous flower-heads of *C. arvense* were collected at Epsom Downs; from these, 29.viii.53, I had four of this rare species emerge from larvae which had pupated in the heads. It was first bred by Dr. Hering of Berlin in 1934, and I believe there is no record of it having been bred in this country; a few of the flies have, however, been caught.

Tephritis conura Lw.: The larvae of this species are stated to cause galls in flower-heads of *Cirsium heterophyllum*, a thistle confined, I believe, to upland pastures in the North. The fly has been taken there, but so far as I know there are no records of it having been bred in Britain.

Tephritis hyoseyami L.: The larvae are to be found in flower-heads of *Carduus crispus* usually in some numbers from June to August. They pupate in the heads and the flies emerge in July and August of the same year.

Terellia longicauda Mg.: The larvae inhabit the flower-heads of *Cirsium eriophorus* where they pupate, the flies emerging in June and July of the second year. It is not uncommon in localities where its host-plant grows; I have had it from Shropshire and Warwickshire.

Terellia serratulae L.: The larvae of this species are to be found in flower-heads of *Carduus nutans* and *Cirsium vulgare* in many localities, but not as a rule in great numbers; I also found the larvae once in a *Carduus crispus* × *nutans* hybrid. The larvae pupate in the heads and the flies emerge in June and July of the second year.

Trypeta ruficauda F.: The larvae are usually to be found in fair numbers in flower-heads of *Cirsium palustre*, and less frequently in those of *Cirsium arvense* and *C. pratense*. The latter Thistle had not been recorded as a host-plant until I added it to the list in 1936; the larvae form cocoons of pappus hairs in which they pupate, the flies emerging in June of the second year.

Trypeta winthemi Mg.: Since I added this species to the British List in 1934 I have found the larvae in considerable numbers in Surrey; they pupate in a slight cocoon in the flower-heads of *Carduus crispus*, the majority of the flies emerging in June of the second year.

Urophora cardui L.: The gall of this species on the stems of *Cirsium arvense* is a familiar object in the Southern Counties of England, but it appears to be scarce in the Midlands. The larvae live and pupate in the galls and the flies emerge in June and July of the second year. It has been stated that it is a double-brooded species, but so far I have failed to find any evidence of this.

Urophora solstitialis L.: After searching for many years for galls of this species, I found a few in flower-heads of *Carduus nutans* at Banstead Downs in September 1952; the larvae pupated in the galls and the flies emerged in June of the following year. This is a scarce species; there have been many records of it, but the majority have been based on wrong identification.

Urophora stylata F.: The larvae of this species are the cause of hard woody galls in flower-heads of *Carduus nutans* and *Cirsium vulgare*, which are often to be found in some numbers where these plants occur; the galls are also to be found very rarely in flower-heads of *Cirsium arvense* and *C. palustre*. The latter was an unrecorded host until I found it galled in 1942. The larvae pupate in the galls and the flies emerge in June and July of the second year.

Xyphosia miliaria Schrnk.: This is a double brooded species the flies emerging in July and August of the first year, and from May to July of the second. There is also at times a retarded emergence, a portion of a brood emerging in August and September of the first year, with the remainder coming out from May to July of the second. The larvae are to be found in flower-heads of *Cirsium arvense* and *C. palustre*, having a preference for the former thistle judging by my own experience.

On 28.vi.51 at Riddlesdown in Surrey I collected several mined leaves of *Cirsium arvense*. Several larvae left the mines and pupated, on 21.vii. There emerged what appears to be an exceptionally light form of *Philophylla heraclei* L., a species only known to inhabit mines on Umbelliferous plants; the remaining pupae unfortunately only yielded Chalcid parasites. I have searched for similar mines since, but have so far failed to find any with larvae of *heraclei* in them.

The larvae of Agromyzid flies are to be found in mines on the leaves of several species of thistles, they include *Liriomyza strigata* Mg., *Phytomyza affinis* Fln., *P. atricornis* Mg., *P. cirsii* Hend. and *P. cirsicola* Hend.

The larvae of the Muscid fly, *Pegomyia steini* Hend., may be found in leaf-mines on *Carduus crispus*, *Cirsium arvense* and *C. vulgare*, in July; they leave the mines to pupate in the soil, the flies emerging in the following April and May.

The larvae of the Pallopterid fly, *Palloptera paralella* Lw., occur in flower-heads of *Carlina vulgaris* and *Cirsium vulgare* not infrequently. I have found these larvae in September and October, they go to earth to pupate and the flies emerge in May of the following year.

There are three species of Cecidomyiidae, Gall Midges, affecting the flower-heads classed as gall causers; they are *Dasyneura compositarum* Kieff. with red larvae on *Cirsium vulgare*; *Jaapiella cirsicola* Rüb. with yellowish, and *Macrolabis cirsii* Rüb. with red larvae, both on *Cirsium arvense*. There are also larvae of several other species of Cecids to be found in flower-heads of various species of thistles; these are yellow, orange and orange-red; some appear to feed on the seeds, some are probably scavengers, many were found in heads containing Trypetid larvae. They may pupate in the heads or in the earth, and they have emerged in August and September of the first year. The larvae of *Clinodiplosis cirsii* Kieff. are stated to live in the midrib of leaves of *Cirsium arvense*.

Parasites: The larvae of all the insects I have mentioned are attacked by hymenopterous parasites to a considerable extent, the lepidopterous larvae by Braconids and Ichneumons, the leaf-miners by Braconids and Chalcids, the remainder mainly by Chalcids. The larvae of *Urophora solstitialis* and *U. stylata* are attacked by a species of *Eurytoma*, the larva of which is an internal parasite; this I have discovered

causes premature pupation of the Trypetid larvae, as does *Eurytoma curta* Nees, those of *Urophora jaceana* Her. in Knapweed heads; this Chalcid is very similar in appearance to *curta* but it is not yet decided whether it is the same species. I have also recently discovered that *Eurytoma tristis* Mayr causes premature pupation of the larvae of *Urophora cardui*. The larvae of *Xyphosia miliaria* are also attacked by a species of *Eurytoma*; I have not yet found out whether this also causes premature pupation.

SERICOMYIA SILENTIS HARRIS (DIPT. SYRPHIDAE) AT LIGHT.—Diptera are frequent, if unrecorded visitors to the m.v. trap. Recently Col. W. Bowater kindly gave me a large dipteran that came to the light-trap in his garden at Edgbaston, Birmingham, on 20th August 1955. It proved to be a female of *Sericomyia silentis* Harris. This insect has been recorded previously in Warwickshire, but it is an unexpected find well within the boundaries of the city.—CARTWRIGHT TIMMS, 524 Moseley Road, Birmingham, 12. 6.ii.56.

In "PARASITIC FLIES" by Dr. J. L. Cloudsley-Thompson in *Science Progress*, 172: 616-628, of October 1955, we have an excellent summary of the parasitic way of life as practised by a large number of species of diptera throughout the world. The value of the paper is heightened by the historical comments on some of the terms used and by the provision of a short bibliography.

The study of leaf-miners, especially those of the *Agromyzidae* (Diptera), has gathered impetus recently in this country through the assistance of Prof. Dr. E. M. Hering of Berlin whose 'Keys of the European Leaf-Mines', to be published by W. Junk, was announced in 1954. In the Dutch journal *Tijdschrift voor Entomologie*, 98: 1-27, Hering (1955) has edited a valuable index to the late J. C. H. de Meijere's studies on the larvae of the *Agromyzidae* that have been published in that journal between 1924-1950. The synonymy has been brought up-to-date and an index to the genera of plants with their miners, has been included. In the same journal, 97: 115-136 (1954), he has a paper continuing de Meijere's work, describing the larvae, habits and distribution, with illustrations, of 23 species, many of which have been found, during the past few years, to occur in this country. In Hering's 'Die Minierfliegen der Oberlausitz' in *Abhandlungen und Berichte des Naturkundemuseums Görlitz*, 34: 163-184 (1955), he lists, with valuable comments and descriptions, 189 species of *Agromyzidae* found in Oberlausitz out of 405 known for Germany and 673 known for the Palearctic Region. Some of the leaf-mines are figured and four new species described, with amendments to Hering's keys. A further three new species of *Liriomyza* are described by Hering (1955) in his paper on the species of this genus attacking plants of *Lactuca* and *Sonchus* in *Deutsche Entomologische Zeitschrift N.F.*, 2: 204-9.

L. P.

Notes and Observations

BOMBED SITE MICROLEPIDOPTERA.—This winter of 1955-56 has seen much activity by excavators at the Cripplegate-Barbican area in the City of London. Acres of plants have been removed and with them

thousands of insects. Since 1942 when the area was laid waste, the colonization by plants, birds and insects has attracted the attention of many naturalists including at least one Fellow of the Royal Society. Lists of insects have appeared in the pages of the *London Naturalist*, *Entomologist* and *Entomologist's Gazette*. None of these mentioned microlepidoptera. Have London's micro-lepidopterists missed an interesting chance of noting the arrival of the smaller moths to the City?

When collecting diptera in 1950, I first noted many leaf-mines on the Rosebay Willowherb, *Chamaenerion angustifolium* (L.) Scop. of *Mompha raschkiella* Zell. and in later years reared the insect. In 1952, I first gathered the brownish, blotched leaf-mines on the Spear thistle, *Cirsium vulgare* (Savi) Ten. of *Phthorimaea acuminatella* Sircom. on 5th July, and found the fresh mines of this double-brooded Gelechiid in July and September in later years, up to 1955.

On 18th June 1955 I collected four species of micros:—*Platyptilia gonodactyla* Schiff., in an area of Coltsfoot, *Tussilago farfara* L., its foodplant, *Argyroploce lacunana* Dup., *Hemimene petiverella* L., *Homoeosoma binaevella* Hb.—surely an early date for this moth according to L. T. Ford and B. P. Beirne. Possibly the seed-heads of the Spear thistle where the larvae feed are formed earlier here than in the open country.

Can anyone add to this list, either from the Cripplegate area or other bombed sites or give further information about these species? If not, could some microlepidopterists have a search on the few remaining sites this season?—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey.

ABUNDANCE OF *EREBIA AETHIOPS* ESP. IN SOUTH WESTMORLAND.—Requiring a few females of *E. aethiops* to complete a series I visited the well-known Arnside Knott locality on 12th August last year. Usually the species is quite restricted in its occurrence to the summit slopes but this year it had spread quite widely and extended at least a mile away from the summit across the rough ground towards Silverdale and Arnside Point. Not only was the species widespread but it was also present in great force and it was obvious that the fine summer was very much to its liking. It has always been a mystery to me why this butterfly should have become so restricted in its range during this century. It used to occur in numerous widely spaced localities in the district—as at Grange over Sands across the Kent Estuary from Arnside. The late A. E. Wright of Grange frequently attempted to re-establish the species at Grange by transplanting females from the Arnside colony but his efforts were never successful. It will be interesting to see if the spread last year will be maintained.

It may also be worth mentioning that *Nymphalis io* was practically non-existent last autumn. The autumn Buddleias were alive with *Aglais urticae* and *Vanessa atalanta* but I did not see a single *io*. This dearth was also noted by K. R. Burgess of Broughton in Furness and I noted it also in Galloway in early September.—Dr. N. L. BIRKETT, 3 Thorny Hills, Kendal. 28.i.1956.

SECOND BROODS AND IMMIGRANTS, 1955.—The exceptional summer with its long period of warm weather from the end of June last year was no doubt responsible for the occurrence of second broods in species

not usually bi-voltine in this area. The following records all concern specimens taken in my trap at Kendal on the dates stated:—*Smerinthus populi* L.—17.viii and 1.ix; *Drepana falcataria* L.—23.viii; *Pheosia gnoma* Fab.—30.viii; *Ochropleura plecta* L.—30.viii; *Apatele leporina* L.—1.ix; *Polychrisia moneta* Fab.—22.ix; *Axylia putris* L.—22.ix; *Opisthograptis luteolata* L.—24.ix (this may have been a third generation); *Diataraxia oleracea* L.—24.ix and *Apamea ophiogramma* Esp. on 1.ix. This last usually occurs with us in mid-July and whether it represents a late emergence or a second generation is problematical.

In this part of the country we do not usually see a great deal of immigrant species. However the following notes may be of interest:—*Eurois occulta* L. occurred in small numbers in my trap. The first was on 14.viii, then on 20.viii I had three males and one female, and the last of the year was a very worn specimen on 24.viii. All the specimens were of the pale form and presumably were of continental origin. *Peridroma saucia* Hb. is a species of sporadic occurrence here. On 22.ix I had about ten specimens in my trap, two more on 8.x, one on 9.x, and over twenty on 10.x. On this last night I noted also large numbers of *Plusia gamma* L. and *Nomophila noctuella* L. in the trap.—Dr. N. L. BIRKETT, 3 Thorney Hills, Kendal. 28.i.1956.

SECOND BROOD OF EUPHYDRYAS AURINIA DURING 1955.—I think it will be of interest to record a partial second brood of *Euphydryas aurinia* Rott. during last year, for as far as I can gather from enquiries among friends and a search through past records, such an event has never been known to occur before with *aurinia*, either in a breeding cage or in the wild state. But perhaps I am wrong and this note may bring the event to light.

In accordance with my usual practice over the past ten years or so I had in hibernation a number of *aurinia* larvae from eggs laid by captured females taken in May and June 1954. All pupated normally and, as usually happens, pairings took place, soon after emergence, in the breeding cage; three pairings were noted on 6th June and, after copulation, the females were placed on potted-up plants of scabious and left in a warm sunny spot in the garden.

Examination of the foodplant a few days later revealed several small batches of eggs; all were left *in situ* and the cages were stood in pans of water as a protection against the depredations of ants, etc. They were all placed on paving stone in the shady side of the garden and left to face all weathers. Sunshine could reach the cages only during the late afternoon, from 4 p.m. onwards, and from the foregoing it may be seen that no abnormal weather conditions prevailed and all larvae were reared under normal outdoor temperatures.

By the third week of August the larvae appeared to be ready for hibernation, as they had spun a dense web among the foodplant, and as they had reached this stage I neglected them for about a fortnight and really thought I had seen the last of them until the spring. Imagine my surprise, then, when on casually glancing into the cage a fortnight later I found about two dozen larvae engaged in feeding up and obviously approaching their full growth. In fact the first larva pupated on 11th September followed by the rest daily, until by 15th September a total of 29 pupae could be seen hanging in various positions in the cage.

The event was so unusual that the cage was brought indoors and placed on a table in a cool room. Careful examination of the pupae showed that some of them were very undersized and these particular individuals failed to emerge. On 2nd October the first butterfly appeared in the cage, a small male, and by 15th October 21 butterflies had emerged, 15 ♂♂ and 6 ♀♀, the remaining eight pupae being black and shrivelled, and obviously dead.

Apart from size, the insects were indistinguishable from normal specimens; it was also noticeable that on emergence the insects remained apparently lifeless and hardly moved at all. It would have been interesting to have obtained a pairing, but cold weather precluded the event.

The rest of the larvae remained in their hibernaculum until today, 29th January, when, during a brief spell of sunshine, they could be seen basking outside their web.—H. J. TURNER, 240 Iford Lane, Southbourne, Bournemouth, Hants. 29.i.56.

GONEPTERYX RHAMI LINN. OVIPOSITING ON HAZEL.—On 26th April 1955, at 2.45 p.m. B.s.t., the first warm sunny afternoon of a so far cold and frosty Spring, I noticed a female *Gonepteryx rhamni* L. fluttering low among twigs of an apparently dead, fallen hazel branch almost at my feet and partly under a living hazel clump to which the dead branch had once belonged. The butterfly soon settled near the end of one of the uppermost deadwood twigs, two and a half feet from the ground. After a minute or so she left the twig on a tour of inspection of the rest, but without alighting, and then fluttered clear, to settle, this time, near the tip of a single *living* shoot growing two feet from the fallen branch. At this moment the behaviour of some birds I was stalking took my attention, when a movement on my part disturbed the butterfly and she flew away.

Having memorised the spots where she had settled I moved on to follow the birds, but came back a few minutes later when, on examining the twig on which the butterfly had first settled, I found that an egg had been laid at the base of a bud. The twig, like the rest of the branch, proved to be dead wood though not quite brittle, and had, I judged, lain where it was for six months—possibly longer. All the buds on these twigs were brown and corky. On turning to the living shoot I found she had also laid there, as before at the base of a bud, but in this case the egg was minute and green. I took the ends of the two twigs home with the respective eggs attached. Alas, any hopes I might have had of rearing *rhamni* on hazel were doomed to disappointment, for although the egg on the dead twig duly changed from light bluish-green through yellow to a leaden grey by 17th May, an egg it so remained and all I have of the event is its photograph *in situ*. As for the egg on the growing shoot, it, too, failed to materialise though with the difference that it retained its initial colour, making no change at all.

In view of the traditional "buckthorn only" associated with this species—and I have more than once watched it laying on *Rhamnus catharticus*—I should be interested to know whether such an instance as the above has been recorded before.—(LORD) BOLINGBROKE, Moorhayes, Crow Hill, Ringwood, Hants. 26.i.56.

MIGRATION OF PIERIDAE IN THE ENGLISH CHANNEL.—The following

observation was sent to me by a friend to whom it had been told by Mr. E. Evans of Lymington, Hants. Through my friend I asked for, and eventually received, a letter from Mr. Evans in which he described what he saw. This is what he wrote:—"I am employed as skipper of a hopper with a Dutch-owned Southampton-based dredging firm. The last week in July, mid-afternoon, flat calm, cloudless sky, I was proceeding to the dumps, two miles south of the Needles, and saw ahead of my ship a whitish grey mass something like a low cumulus cloud. It turned out to be millions of cabbage white butterflies with a large proportion of flying ants. The butterflies looked the same size as one sees on cabbages. At the time the mass was fairly static, as we steamed away back to the Needles and got clear. When we got inside the Needles, all that was left were flying ants sticking to windows, etc. A fortnight later I noticed lots of the cabbage butterflies in the garden.—E. EVANS, Master Mariner". I wish the skipper could have given us a little more information about the ants!—(LORD) BOLINGBROKE, Moorhayes, Crow Hill, Ringwood, Hants. 26.i.56.

[Were the 'ants' by chance *Nomophila noctuella* Schiff.?—ED.]

MELANISM AND PROCRYPSIS.—Dr. Kettlewell's article in the January *Record* is a very welcome and valuable contribution on the subject of Industrial Melanism. Through his kindness I have been privileged to read the article in *Heredity* to which he refers and which is a comprehensive record of his most painstaking and thorough experiments. I have also seen the article in *Discovery* and I commend both to anyone wishing to pursue the matter further.

With regard to the article in the *Record* it is hard to resist making the comment that it would hardly be expected that the editors of the New Naturalist series would be overpleased at the suggestion that any statement in one of their books should be a lure to trap the unwary reader into "rising to the fly" nor would it be expected that the author of *Moths* intended that his remarks should be so regarded.

Further, Dr. Kettlewell mentions that it was a pity that I "had not access to the whole paper . . ." in which my queries were answered. Surely it is far more to be deplored that all readers of *Moths* who drew or who may draw similar conclusions should not similarly be in possession of the full story of Dr. Kettlewell's work.

The censure arising from the remarks I made about the relative conspicuousness of the type *betularia* and *carbonaria* in our local woods is cheerfully accepted. These remarks should have been far more carefully phrased as what was intended was to imply that there was little or no darkening of the tree trunks as a result of soot contamination. Foliage contamination is considerable and obvious and as far as the trunks are concerned the absence of lichen is almost complete. The statement that the presence of lichen is necessary to give type *betularia* an advantage is very interesting and seems most important though one cannot, from limited reading, recall having seen it before.

I remain somewhat unrepentant in my opinion that typical *betularia* would probably be less obvious than *carbonaria* in the area I had in mind, but by using Dr. Kettlewell's methods it is hoped that this point may be settled experimentally this year.

While investigating the forms of *betularia* collected over the past few years with a view to separating them into the three forms of type,

insularia and *carbonaria*, it was found to be quite impossible to establish any division between them, a whole range from type to extreme *carbonaria* being evident. Only one or two examples of extreme *carbonaria* appeared. This suggests that those examples loosely referred to as *insularia* are not produced by a simple genetic factor. Could Dr. Kettlewell be persuaded to give us the benefit of his vast experience of this species in the form of a note on the genetics of these intermediate forms?—W. E. MINNION, 40 Cannonbury Avenue, Pinner, Middlesex. 8.ii.1956.

BIRD TAKING *BISTON BETULARIA* L. FROM TREE TRUNK.—Further to the note by Dr. Kettlewell on the subject of *Biston betularia* L. on tree trunks and the resting habits of this moth, I did see a bird take one of the typical forms off an oak trunk in Cheltenham some years ago. This was in the grounds of (what was then) the Thirlestaine Hall Hotel, in the town itself but in a part where there are extensive gardens.

The oak tree I recall had no lichens on it and was dark in colour but not as dark as we get them in industrial Birmingham. The moth was high, about 12 feet off the ground and was so conspicuous that I noticed it at once from about 30 feet away. I was just pointing it out to my wife, to show her how unusually noticeable it was, when a bird flew directly to it, picked it off the trunk and went off with it. I do not recall noticing what kind of bird it was; in retrospect I think I would guess it was probably a robin.—P. SIVITER SMITH, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.

'REGRETS AND RECOLLECTIONS'.—With reference to his note in the January number of the *Record*, my sincere apologies are due to Mr. Sevastopulo for the *lapsus calami* which substituted for his name that of a former acquaintance. The reference to Mr. Sevastopulo in my note was inspired by a perusal of certain articles by that gentleman in the *Journal of the Bombay Natural History Society* of which I believe we have both long been members.

I readily accept Mr. Sevastopulo's correction regarding *A. atropos* in Central Burma. Possessing, as already stated, but a superficial knowledge of the tropical heterocera and, while on operational service, being without means of identification, I imagined the moth to be *atropos*, with which it appeared to be identical.

I assume that South's statement that *atropos* is "represented in Southern India, extending to the Malays, and in China, Korea and Japan" refers to the species or races referred to by Mr. Sevastopulo.—H. G. ROSSEL, The Old School House, Bodinnick, Lanteglos by Fowey, Cornwall. 20.i.56.

INFORMATION ABOUT LOCALITIES.—The views expressed in the second paragraph of Mr. Fincher's letter in the January *Record* (page 25) are worthy of support among entomologists. There will always be two schools of thought, both of which have their pros and cons and are entitled to respect: one frequenting well-known localities for difficult and rare insects, the others who prefer to create their own localities so to speak, by breaking fresh ground. These latter find it rewarding to discover such species as *Lithomoia solidaginis*, *Cleora ribeata* or *Schrankia costastrigalis* in unsuspected and unrecorded localities, long distances from their nearest known habitat. County lists, criticised as they some-

times are, at least have this outstanding advantage. Their compilation involves a close study of a limited and sometimes unpromising area and provides detailed information, which if it could be co-ordinated with other and similar lists, would give us a far better view of distribution in general than we now have, and which state of affairs many of us would like to see remedied.

I know of one county, despised rather than renowned entomologically, where during twenty years there has been added to its list between forty and fifty species of Lepidoptera never before recorded within its boundaries, and where there are still great possibilities for further fruitful work.—H. A. BUCKLER, Sutton Bassett, Market Harborough. 6.ii.56.

A WELSH PLANT.—Can any reader tell me the botanical name of a Welsh plant called ‘lady’s slippers’? I came across the following in a new book, describing the cliffs of Gower at Rhosilli: ‘There is one high piece of rock above a slade more yellow than grey in spring, and it is all caused through a thick carpet—or curtain, for the rock is steep, yes, a golden curtain, of ‘lady’s slippers’ cascading down the rock from top to bottom’. The only plant called ‘Lady’s slipper’ known to me is *Cypripedium calceolus* Linn., which certainly would not thrive in such a situation, nor are its blossoms yellow. Mrs. Pearless (Anne Pratt), who knew the local names of most English plants, cannot enlighten me. A list of the plants of Gower is given in the book in question, but ‘lady’s slippers’ does not occur in it.—P. B. M. ALLAN.

Current Literature

La Revue Française de Lepidopterologie.—We have just received Vol. XV, No. 3 (1955), of this excellent magazine. The appearance is late, but it is appearing under great difficulty, and more overseas subscribers would materially assist a more regular appearance. In these days of continental summer holidays for so many, there is much to interest the British lepidopterist. H. Marion contributes another instalment (pp. 41-55) of his revision of the French *Pyraustidae*, and as a large number of the French species are British also, this cannot fail to be of interest.

Robert Olivier gives notes on two Skippers, *Heteropterus morpheus* Pal. and *Pamphila palaemon* Pal., and there is a final instalment of Marcel Carouel’s revision of forms and aberrations of French butterflies, final, alas, owing to the death of the author.

Jacques F. Aubert contributes an important paper on the genus *Entephria* Hb., and the Editor finishes with a note on the error of referring to two generations of *Aglais urticae* L., pointing out that the two appearances are before and after hibernation.

The Lepidopterist’s News, Vol. IX, Nos. 4 and 5 (21.xii.55) gives a further long list of recent papers on Lepidoptera; an editorial regrets the recent tendency for contributors to lean towards the strictly scientific side, leaving collectors in the cold, and welcomes notes in the present number for the ordinary collector as well as the professional. Another note on the congregation of butterflies on hill tops appears. This phenomenon has elicited several notes in the past, and the present one notes a congregation of male *Papilio machaon alaska*

Scud. on a hill top some two hundred miles north of the arctic circle in Alaska. It is noted that the congregations are practically all males, and suggests that they are carried to the hill tops as the valley air warms in the sun and rises. For the field collector, Francis Hemming gives an account of a day's collecting in the Digne district which produced fifty-six species of butterfly.

The Proceedings of the Birmingham Natural History and Philosophical Society, Vol. XVIII, Pt. 5, 1953-4, carries an instalment of S. E. W. Carlier's notes on Some Leguminous Plants and the Lepidopterous Insects Feeding on them. This is accompanied by three artistic black and white drawings of the three plants treated, figuring also, *in situ*, some of the associated insects. Another interesting paper is by Dr. W. J. Rees, who treats of the Flora of Waste Land, in particular dealing with colliery spoil banks, and it is accompanied by three half-tone plates of photographs of six typical sites.

Zeitschrift der Wiener Entomologischen Gesellschaft, Vol. 66, Nos. 9, 10, 11 and 12 have come to hand with the usual fine collection of papers and notes which it is right to expect of this publication. In No. 9, Karl Burmann of Innsbruck gives records of twenty migratory species in the North Tyrol. *Agrochola agnorista* sp. nov. is described from Algeria by Charles Boursin with a plate showing photographs of ♂ and ♀ specimens and also male genitalia dissections of the new species together with those of *A. litura* L., *A. meridionalis* Stgr., and *A. hypotaenia* B.-S. Hubert Meier gives a long local list of Macrolepidoptera of the Murtal in Obersteiermark.

A new *Cnephasia* species, *C. taurominana* is described by Josef Razowski from Sicily with ♀ genitalia figures of this species and of *C. gueneana* Dup., and also photographs of the ♀ adults, while Stanislaw Bleszynski deals with three crambid species, *delicatellus* Zell., *occidentellus* Car. and *saxonellus* Germ. & Zck. as a sub-family *Xanthocrambus*.

In No. 10, Dr. H. G. Amsel describes microlepidoptera from the Jordan with a new *Ethmia* species, *E. micropunctella* and a new Oecophorid species belonging to a new genus, *Pleurotopsis jordanella*. There are text figures of wing venation and of genitalia dissections, and a half-tone plate of the two new species and *Leobates fagoniae* Wlsm.

Hugo Reisz deals with *Zygaena sareptensis* Krul. and gives three plates.

Joseph Soffner notes *Sterrrha eugeniata* Mill. from Portugal, with a plate showing the locality, Manteigas, Sierra da Estrella, the larva in dorsal and lateral views, and the pupa. S. Bleszynski continues his notes on the Crambidae with *geniculea* Haw., *inguinatella* Den. & Schiff., *dalmatinella* Hamp., and *dalmatinella* ssp. *beieri* nov. as a sub-family *Agriphila* with text figures of the heads of the first two species and both ♂ and ♀ genitalia of *dalmatinella* and of the subspecies *beieri*.

The whole of No. 11 and half of No. 12 are devoted to a highly detailed paper on a group of the genus *Calostygia* by Jacques F. Aubert and Rudolf Löberbauer with two coloured and two half-tone plates. The species dealt with are *C. austriacaria* H.-S. and *C. pungeleri* Stertz.: of the former, subspecies *austriacaria* H.-S., *hofneri* Schaw., *gemmingeri* Schaw. and *norica* nov., and of the latter, *pungeleri* Stertz., *varonaria* Vorbr., *bavariacaria* nov. and *kitschelti* Rbl.

Alfred Meise writes on *Dyscia fagaria* Thbg. with a half-tone plate while Charles Boursin describes a new *Autophila* from North Persia, *A. plattneri*, and a new subspecies of *A. chamaephanes* Bsn., *macrophanes*, with a half-tone plate figuring *A. plattneri*, *A. ligaminosa subligaminosa* Stgr., *A. chamaephanes* Bsn. and *A. chamaephanes macrophanes* with ♂ genitalia figures of each.

Entomologische Zeitschrift of 15th January 1956 deals with the genitalia of certain *Eupithecia* species (Eduard Schutze) and two further instalments of articles on coastal forms of Macrolepidoptera, one by Dr. F. Heydermann and the other by Georg Warnecke, who challenges Beirne's statement that the coastal forms are the "old" race, suggesting that as the pre-glacial coastline was in the region of the Doggerbank, this would be an unsuitable habitat for warmth-loving species such as *albicolon* var. *cinerascens*, which he considers to be definitely post-glacial.

The Entomologist's Monthly Magazine for December 1956 contains the following papers: "Notes on Carrion Coleoptera in the Oxford district" by B. P. Moore, "*Bohemiellina paradoxa* Machulka, a Staphylinid (Col.) new to Britain" by W. O. Steel; "The Conopidae (Diptera) in the Dale Collection, with revisionary notes on the British species of *Thecophora* Rond. (= *Oncomyia* Lw.) by K. G. V. Smith; "Insect Migration on the North Coast of France" by C. Lane; "A Note on *Cirrospilus crino* Walker (Hym. Eulophidae)" by W. D. Hincks; A New Genus of Tineinae (Lep. Tineidae) from North America" by J. D. Bradley and H. E. Hinton. There are also obituary notices of Dr. R. C. L. Perkins, F.R.S. (with portrait), and Harry Dinnage, F.R.E.S.

The Entomologist, Vol. 89, No. 1112. H. C. Huggins describes new aberrations of *Euphyia biliniata* L. and *Gymnancyla canella* Hb., with enlarged photographs; Lt. Col. N. Eliot contributes a note on the natural control of the Gipsy Moth, *Lymantria dispar* L. by a Tachinid fly at Cavallaire, Var, France. V. F. Eastop describes new African Aphids. Dr. H. B. D. Kettlewell writes on a southward migration of *Vanessa atalanta* L., and Dr. Neville L. Birkett on *Hydraecia oculatea* L. and its near relatives in North West England. C. A. Clarke gives a note on an introduced colony of *Melitaea cinxia* L. in Cheshire. D. C. Thomas continues notes on the Biology of some Hemiptera Heteroptera and I. Lansbury gives notes on four species of that order and one of the Odonata in the Northern Frontier Province of Kenya.

Entomologist's Gazette, Vol. 7, No. 1, holds much interesting material. W. E. Minnion and B. S. Goodban add *Xanthorhoe biriviata* Bork. to the British list with a full account of breeding the species in captivity. Two excellent plates accompany the article, one showing allied species as well as *biriviata* for comparison, say *X. quadrifasciata* Clk., *Epirrhoe alternata* Mull. and *E. unangulata* Haw., all $\times 2$, and lifesized photographs of the spring and summer forms of *biriviata*. There is also a $\times 2$ photograph of the pupa in its cocoon. The other plate shows the ova, and four very clear photographs of the feeding larva.

K. H. Hyatt deals with the mite genera *Haelolaelaps* Berlese and Trouessart and *Saprolaelaps* Leitner (Fam. NEOPARASITIDAE) with keys

for identification and many text figures. A. L. Goodson writes on collecting the larvae of *Hydraecia hucheradi* Mabille, while D. E. Kimmins gives a modified family key and a key to the genera of the family *Limnephilidae* (Trichoptera) together with a check list of the British species of the *Limnephilidae*. This gives two pages of beautifully clear neurulation diagrams.

S. A. Manning gives a local list of *Cynipidae* (Hym.) from Norfolk and Dr. P. B. Moore gives notes on a brood of *Sympetrum fonscolombei* Selys (Odonata). Kenneth A. Spencer gives a number of records of *Agromyzidae* (Dipt.) from Scotland and, finally, Robin Mere records the capture of *Lithophane lapidea* Hb. (Lep.) in the Isle of Wight, and suggests that the species is probably breeding there in Cypresses.

Entomologische Berichten. Vol. 16, No. 2, joins in the general congratulation of Dr. Karl Jordan on his 94th birthday.

W. J. Boer Leffel records the capture of *Hydraecia petasitis* Dbl. as an addition to the Dutch fauna; this specimen was taken in a light trap at Apeldoorn, and was amongst a number of *H. micacea*. G. L. van Eynhoven discusses the mite family *Bryobia* and the specific status of four "biological races" of *B. praetiosa* C. L. Koch; it is thought that many more species may be included in this complex.

W. Roepke writes an interesting account of Pieter Cramer and his entomological works, giving dates of appearance of the thirty-three parts of his "Papillons Exotiques".

J. B. M. van Dinther continues his discourse on the "Noxious Hornworms of Surinam". This month *Erinnyis alope* Drury is dealt with; this hawk moth damages papaya trees and may kill seedling plants if the heart be eaten by the larvae. Here, again, the ova are highly parasitized by a Scelionid fly, eight to fourteen larvae developing in each parasitized egg. There is a good half-tone photograph of the adult moth.

M. Beier describes a new pseudoscorpion *Minniza transvaalensis* from the Transvaal with figures of the ♂ and ♀ right side clasper.

Entomologische Zeitschrift, Vol. 66, No. 3, February 1956, has a short note by Richard Breitschneider on the production of varieties in the Lepidoptera by the immersion of the pupae in water for varying periods. Hans Friedemann discusses the life history of *Diarsia rhomboidea* Esp., and Georg Warnecke continues his paper on the modern maritime forms of lepidoptera from the North Sea coasts. Dr. Werner Marten writes from Barcelona on the Zygaenidae of the Iberian Peninsula, while Dr. Adolf Müller deals with the ciliary scales of the Parnassiinae discussing their variability and their taxonomic and systematic values. There is a plate of twenty micro-photographs of fringe scales taken from between veins r1 and m3 of the forewings of various species, magnified 57 to 62 diameters.

Entomologisk Tidskrift, Vol. 76, parts 2-4 (1955) carries important papers on the South American sawflies by Rene Malaise. Karl-Johan Hequist does a revision of the Braconid family *Cosmophorus*, with text figures, and four papers by Thure Palm on Swedish Coleoptera including one on four species new to the Swedish fauna. These papers are illustrated with line and half-tone text figures.

Butterfly Collecting at Digne, Basses Alpes, in 1954 and 1955

By G. HESSELBARTH and H. G. ALLCARD.

(Continued from page 8)

PART II. By G. HESSELBARTH.

Though the accounts written on the Digne fauna are rather numerous, there are difficulties in giving the valid names for the subspecies. The following list has been composed using the recent works of Henry Beurat, Forster-Wohlfahrt, and Ruggero Verity. Furthermore, Mr. T. G. Howarth of The British Museum (Nat. Hist.) and Herr Dr. Forster, of the Entomological Department of the Bavarian State Museum in Munich, were so kind as to give some determinations, for which I am very grateful. The species, listed below, were caught between 4th July and 16th July 1954 and 8th July to 17th July 1955, near Digne:

Papilio machaon L., *bigenerata* Vty and *alpica* Vty.

Papilo alexanor Esper.—rather rare during our stay.

Iphiclides podalirius L.

Parnassius apollo L., *leovigildus* Fruhst—(according to Mr. T. G. Howarth: *venaissimus* Fruhst.) with one splendid ab. *novarae* Obth.,—Montagne de Lure. One huge female on the road to Col. d'Allos on 13th July 1955.

Parnassius mnemosyne L., *dinianus* Bryk.—Mt. Cousson and Barre des Dourbes.

Aporia crataegi L. with *hyalina* Röber.—In my opinion, there are two rather different "forms" (subspecies?) near Digne: a big one at lower elevations and a smaller one on the mountains.

Pieris brassicae L.

Pieris (Artogeia) rapae L.

Pieris manni Mayer gen. aest. *rossii*.

Pieris napi L. *meridionalis* Heyne.

Pontia daplidice L. f. *raphani* Esper.

Leptidea sinapis L., *diniensis* Boisd.

Leptidea duponcheli Stgr.

Colias australis Vty., *calida* Vty.

Colias croceus Fourc.

Gonepteryx rhamni L., *meridionalis* Röber.

Gonepteryx cleopatra L.—Especially on La Collette.

Heodes (Heodes) virgaureae L., *mediomontana* Vty.—on Mt. Cousson only. In 1955 also caught near Col de Croix Haute and on Col. du Labouret (1244 m.) north of Digne. One on Montagne De Lure.

Heodes (Palaeoloweia) alciphron Rott. *gordius* Sulz.

Heodes (Palaeoloweia) tityrus Poda with *subalpina* Stgr.

Lycaena (Lycaena) phlaeas L., *nigrioreleus* Vty.

Cupido minimus Fuessl.

Celastrina argiolus L., *calidogenita* Vty.

Philotes baton Bergstr. *panoptes* Hbn.

Glaucopsyche alexis Poda *blachieri* Mill—on La Collette only.

Maculinea arion L.—especially on Mt. Cousson.

- Lycueides idas* L., *caliopides* Vty.
Plebejus argus L.
Aricia agestis Den. & Schiff.
Polyommatus icarus Rott.
Lysandra thersites Cant.
Lysandra escheri Hbn.
Lysandra amandus Schneider—On Mt. Cousson only.
Lysandra argester Bergstr.
Lysandra bellargus Rott.
Lysandra coridon Poda *diniæ* Vty. with f. *reznicecki* Bart.
Agrodiaetus ripartii Frr.
Meleageria meleager Esper with f. *steeveni* Tr.
Thecla (Quercusia) quercus L.
Thecla w-album
Strymonidia ilicis Esper, *cerri* Hbn.
Strymonidia acaciæ F.—on Mt. Cousson.
Strymonidia spini Fabr.
Callophrys rubi L.
Laeosopsis roboris Esper.
Apatura iris L.
Limenitis ricularis Scop., *herculeana* Stichel.
Vanessa cardui L.
Vanessa atalanta L.
Nymphalis antiopa L.—on Montagne de Lure only 1954. One Les Mees 1955.
Nymphalis io L.
Nymphalis polychloros L.—Mt. Cousson. Barre des Dourbes 1954.
Aglais urticae L.—with one fine dark aberration I failed to net on Montagne de Lure.
Polygonia c-album L.
Polygonia egea Cramer—near Digne.
Euphydryas aurinia Rott., *provincialis* Boisd.—Montagne de Lure and on Col d'Allos on 13th July 1955 in small, fresh, and aberrant specimens.
Melitæa (Didymæformia) didyma Esper *meridionalis* Stgr.
Melitæa (Melitæa) diamina Lang—Montagne de Lure.
Melitæa (Athaliaeformia) athalia Rott. *celadussa* Fruhst.
Melitæa (Athaliaeformia) parthenoides Kef.
Melitæa (Cinclidia) phoebe Schiff., *virgilia* Fruhst.
Clossiana selene Den. & Schiff.
Clossiana euphrosyne L.—Barre des Dourbes.
Clossiana dia L., *diniensis* Obth.
Brenthis hecate Den. & Schiff.—Many localities near Digne, especially Mt. Cousson and Montagne de Lure.
Brenthis daphne Bergstr., *nikator* Fruhst.
Issoria lathonia L.
Fabriciana niobe L. with f. *eris* Meigen.
Fabriciana phryxa Bergstr. with f. *cleodora* O.
Mesoacidalia charlotta Haw.
Argynnis paphia L.—with one fine f. *ralesina* near the village Les Mees.
Pararge aegeria aegeria L.
Lasiomata megera L.

Lasiomata maera L., with f. *adrasta* Hbn.

Agapetes galathea L., *doris* Fruhst. with f. *leucomelas* Esper.

Agapetes japygia Cyr. *cleanthe* Boisd.—Montagne de Lure. In 1954, Herr Schwarzbeck saw one specimen flying, but could not net it. In 1955, however, on the 12th of July, *cleanthe* was in profusion on the Montagne de Lure. The specimens were all quite fresh, the females rather rare.

Hipparchia fagi Scop., *aturia* Fruhst.

Hipparchia aelia Hoffmannsegg.

Hipparchia semele L., *teres* Fruhst.

Neohipparchia statilinus Hufn.—One fresh male near Digne (Hautes Seyes) on 17th July 1955.

Hipparchia fidia L.

Kanetisa (Brintesia) circe f. with one f. *silenus* Stgr.

Satyrus bryce Hbn.

Minois dryas Scop.—Clue de Barles, about 30 km. north of Digne.

Aphantopus hyperantus L.—Col du Labouret.

Chazara briseis L., *maritima* Obth. with f. *pirata* Esper.

Erebia meolans de Prunner *calaritus* Fruhst.—Mt. Cousson, Barre des Dourbes.

Maniola jurtina L., tr. ad *hispulla* Hbn.

Pyronia tithonus L.

Chortobius arcanius L. *balestrei* Fruhst.

Chortobius dorus Esper. with tr. ad *austauti* Obth.

Chortobius pamphilus L. f. *lyllus* Esper.

After the departure of Mr. H. G. Allcard, Herr Schwarzbeck and I visited some other localities: Mt. Pacanaglia near Nice (A.M.), the district from Allos (B.A.) (1425m.) to the Lac d'Allos (2224m.). Here we found some more interesting species:

Parnassius phoebus Fabr., *sacerdos* Stichel—near Lac d'Allos.

Pieris (Artogeia) bryoniae Hbn., *bryoniae* Hbn.—near Lac d'Allos.

Colias phicomone Esper—near Lac d'Allos and on Col d'Allos.

Palaeothrysophanus hippothoe L. *valderiana* Tur. at Vty.—near Lac d'Allos.

Maculineaalcon Den. & Schiff.—near Lac d'Allos and on Col du Labouret.

Aricia nicias Meigen—near Lac d'Allos.

Aricia glandon de Prunner—near Lac d'Allos and on Col d'Allos.

Albulinea orbitulus de Prunner: one single male on Col d'Allos on 13th July 1955.

Agriades glandon de Prunner—near Lac d'Allos.

Cyaniris semiargus Rott.—near Allos and on Col d'Allos.

Polyomnatus eros O.—near Lac d'Allos.

Agrodiaetus damon Den. & Schiff.—near Lac d'Allos and in 1955 near Digne-le-Bains.

Agrodiaetus dolus Hbn.—Mt. Pacanaglia, Nice.

Euphydryas cynthia pallida Spuler—near Lac d'Allos and very numerous on Col d'Allos in 1955.

Euphydryas merope de Prunner—near Lac d'Allos.

Melitaea (Melitaea) cinxia L.—near Lac d'Allos and on Col d'Allos.

- Boloria pales* Den. & Schiff.—near Lac d'Allos and on Col d'Allos.
Boloria graeca Stgr.—near Lac d'Allos and on Col d'Allos.
Brenthis ino Rott.—near Allos and on Col. du Labouret.
Erebia euryale Esper with f. *adyte* Hbn.—near Lac d'Allos.
Erebia melampus Fuessl.—near Lac d'Allos.
Erebia epiphron Knoch *aetherius* Esp.—on Col d'Allos.
Erebia triarius de Prunner—near Lac d'Allos and on Col d'Allos.
Erebia alberganus de Prunner *ceto* Hbn.—near Lac d'Allos and very numerous on Col d'Allos, 1955.
Erebia tyndarus Esper—near Lac d'Allos and on Col d'Allos.
Erebia gorge Esper f. *erinnys* Esper — near Lac d'Allos and on Col d'Allos.
Hyponphele lycaon Kuhn—La Palud, Mt. Barbin.
Pyronia cecilia Vallentin—Mt. Pacanaglia, Nice.
Chortobius amyntas Poda—near Allos.
Chortobius satyrion Esp.—on Col d'Allos.

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The Macrolepidoptera of Inverness-shire— Newtonmore District

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

(See *Ent. Rec.*, vol. 66, pp. 58, 90, 124, and vol. 67, p. 39)

SUPPLEMENT No. 2

Thanks in considerable measure to the good collecting weather of the 1955 summer I am able to record the finding of thirteen more species of Heterocera new to the district as defined in the main list. With the exception of one rare migrant, all may be grouped as uncommon in the district, occurring only in small numbers and probably on the edge of their normal range, due to the local geography.

I wish to acknowledge and record my thanks to the following friends for contributing five of the species as shown in the text: Drs. C. B. Williams and C. G. de Worms and Mr. R. M. Mere. The additions to the list are as follows:—

ARCTIIDAE

ARCTIINAE

Spilosoma lubricipeda L. Mr. R. M. Mere took a specimen at his m.v. light-trap at Aviemore on 12th July 1955. Apparently rare in this area; the only specimen I know of in recent years.

AGROTIDAE

AGROTINAE

Actebia praecox L. This species presents an interesting problem. I believe Mr. Quibel told me he took a specimen at sugar at Aviemore several years ago. Then on 6th September 1953 a very worn ♂ came

to my m.v. trap at Newtonmore and a fresh ♀ on 16th August 1955. I think it is quite possible now that there is an inland colony of this lovely moth waiting to be found in this district.

Axylia putris L. A fresh ♀ came to m.v. light at Newtonmore on 9th September 1955. Apparently rare, as this is the first example recorded.

Lampra fimbriata Schreb. A fresh ♀ came to m.v. light at Kincaig on 28th August 1955. Also rare; the first record for the district.

HADENINAE

Hadena cucubali Schiff. Dr. C. B. Williams took two ♂♂ at his m.v. light-trap at Kincaig on 8th and 11th July respectively. Mr. C. Craufurd also tells me he has bred it from *Silene* spp. at Aviemore. It is apparently not common.

Orthosia cruda Schiff. A fresh ♀ came to my m.v. light-trap at Newtonmore on 26th April 1955. Apparently rare, and not taken previously.

Tholera cespitis Schiff. Dr. C. G. de Worms took a specimen in his m.v. light-trap at Aviemore in early August 1955. Apparently rare; the first record.

AMPHIPYRINAE

Procus literosa Haw. Two somewhat worn specimens came to m.v. light in marshy ground near the river Spey at Kincaig on 24th August 1955. Apparently uncommon.

Luperina testacea Schiff. Dr. C. G. de Worms recorded a specimen in his m.v. light-trap at Aviemore in early August 1955. Apparently rare also.

Hydraecia petasitis Dbl. A very fresh ♂ came to my m.v. light-trap at Newtonmore on 18th August 1955. A very remarkable capture, as I have so far been unable to find any of the butterbur, the accepted foodplant, in the area. It may perhaps feed on coltsfoot, a closely related and common local plant.

CATOCALINAE

Ectypa glyphica L. Dr. C. G. de Worms tells me he captured a specimen near Aviemore in May 1945. Apparently rare; the only record I have.

GEOMETRIDAE

STERRHINAE

Rhodometra sacraria L. A ♀ of this rare vagrant came to my m.v. light-trap at Newtonmore on 25th August 1955, during a prolonged south-easterly air-stream. She was fertile, and a very variable series was bred from her. Probably a most northerly record for the British Isles.

HEPIALIDAE

Hepialus hecta L. A small colony of this species was found on 10th July 1955 in Rothiemurchus forest at 1,600 ft. altitude, near Aviemore. Apparently very local.

This Supplement increases the total number of Badenoch macrolepidoptera at the present date, December 1955, to 349 species.

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Warwickshire Lepidoptera.—Will Entomologists please assist in compiling a new "County of Warwickshire Local List of Lepidoptera" (Macro and Micro)? Records giving date and year, and locality of capture should be sent to *Trevor Trought, F.R.E.S., c/o The Curator, County Museum, Warwick.* All assistance will be acknowledged.

Wanted.—Mahogany cabinet, 40 drawers; Brady or Gurney preferred.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

Wanted.—Edwards, F. W., 1929, British Non-biting Midges. *Trans. ent. Soc. London*, 77: 279-430. Write stating price required.—*Dr. N. L. Birkett, 3 Thorny Hills, Kendal.*

Wanted.—A copy of *The Entomologist's Record* for January 1951. Will pay 10s. for a good clean copy.—*J. F. Reid, 19 High Street, Leighton Buzzard, Beds.*

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Ectropis bistortata Goeze: Melanics and 'Mosaics'

By J. H. JOHNSON.

The variability of *Ectropis bistortata* Goeze (*biundularia* Bork., *laricaria* Dbld., *crepuscularia* Dup.) under certain conditions has caused it to be used in many books as an example of the action of Natural Selection on the course of the progress of melanism. There are two forms, a pale one and a darker one, commonly met with in many parts of the British Isles, although they seem to be fonder of well wooded areas than open country.

In 1890 a Mr. Sheldon of Derby told J. W. Tutt what he considered to be the history of the melanism of *Tephrosia biundularia* (an early synonym) in the neighbourhood of Derby. Between 1879 and 1885 there was an increase in the dark form in a woodland composed of spruce, larch, firs, oak and birch from 50% to 80%, caused by the growth of the trees making the wood darker so that the melanics were protected by their greater resemblance to the objects they rested on. Also the wood had been much collected, and the collectors had taken more of the more easily seen and more attractive pale form. Tutt thought the darkening of the trunks was caused by the increase in humidity inside the wood due to the growth of the trees in the period, and to the gradual increase of Derby as a manufacturing centre. By 1891 another observer declared that it was difficult to find a pale specimen in the wood at all (Tutt 1891).

A similar story was told of the same species in Delamere Forest by N. Cooke (*Entom.*, 10, p. 94). I think a few more notes which carry the history a little further may be useful at the present time, in view of the revival of interest in the subject of Industrial Melanism.

For several years I have had a small thirty-year-old plantation of mixed larch, fir, beech, oak and birch under observation, and at the beginning of 1955 I determined to pay special attention to *E. bistortata* in that locality with the object of ascertaining the true extent of melanism in that species. In most years previously I have found a few very pale specimens among the more numerous dark forms, and I felt reasonably certain of finding a few this year, because, although the wood is becoming increasingly gloomier every season and the pale form is undoubtedly becoming less numerous, it is difficult to eradicate it completely.

In accordance with my resolve, I began a systematic search of the tree trunks in this plantation, which has been a wood of some description since Roman times and possibly before that. My plan was to search every trunk I came across in walking up and down and across the plantation for exactly one hour and to box every moth I saw. The first search took place on 8th April, but *bistortata* had not yet emerged, a solitary pale specimen of *Erannis leucophaearia* Schf. was the only insect found in the hour.

On 20th April I made another search. This time I was more fortunate and I was able to find exactly 20 *bistortata*, 4 of which were very pale, the rest were dark brown, the females apparently slightly darker than the males, although even they were not really black.

During the night one female laid about thirty eggs. All the rest of the moths taken were placed in pairs in separate boxes and all mated

during the following night, which was a good indication that they had not emerged from the pupae many hours before I found them. I subsequently released all the larvae which resulted from these matings among the larches in the plantation so that there will be a few specimens at least next year.

The next visit to the plantation on 7th May resulted in the capture of 10 *bistortata*, all of the dark form although all were much paler than any which I have reared on birch and hawthorn in a shed a few miles nearer the industrial areas. I am not suggesting that the change in food-plants had any effect on the pigmentation of the wings of my insects, but there may be some significance in this difference between bred and wild specimens. Larvae kept from egg to pupa in closed cages often produce imagines which are much darker than those produced by larvae which have lived under completely natural conditions. Experiments, with the necessary controls, to determine exactly what conditions inside breeding cages induce an increase in the melanism in the wings of certain species of lepidoptera would be easy to devise if the essential instruments for measuring micro-climates were readily available. Unfortunately at the moment only hypotheses are possible, and they are not a satisfactory substitute for definite knowledge.

On 14th May, in one hour, between 7 p.m. and 8 p.m., I found 13 rather dark *bistortata*, all at a height of less than one foot from the ground, which consists of a thick layer of pine needles on yellow clay. Two of these specimens had badly malformed hind wings, which did not, however, prevent them from taking flight. I have noticed in previous years that there are often a few moths with twisted or crumpled wings in this part of the wood, but I have usually ignored them as of no importance or significance. However, I have come to believe that this malformation is connected in some way with the occasional appearance of irregularly shaped patches of the typical paler coloration on one or more of the wings of otherwise completely melanic individuals. Wigglesworth (1950) attributes this phenomenon to autonomous gene action, which results in somatic mutations. Damage to the insect in the early stages of development may result in the formation of 'mosaics' or individuals with certain irregularities in some part of the body or its appendages. At the same time as I found the two cripples, I noticed that three other *bistortata* showed the irregular pale patches on the wings which are an indication of 'mosaics' of which I shall say more later.

On 27th May I searched the trunks carefully for one hour in vain, nor was I able to find any more *bistortata* at any time during the rest of the season. There is normally but one brood of this species in this particular locality, although I have had one individual emerge in the breeding cage under almost outdoor conditions in September, but it was badly malformed, all four of its wings were nearly devoid of scales, indicating forcibly that a number of genes were not functioning normally.

Examination of the results of this series of systematic searches suggests that the pale form appears early in the season and is eliminated fairly quickly by the normal operation of Natural Selection. On first searching 20% of those found were of the pale or typical form, but over the whole series of searches the figure for this form was only 9%,

while if only the last search had been undertaken I might have reached the erroneous conclusion that the pale form was extinct. There is no doubt that the pale form is becoming rarer. Very pale specimens appear regularly in every large population, in much the same proportion as very dark ones, as would be expected in a case of Continuous Variation, but there seems to be some factor in close-growing conifer woods which causes the darker forms to preponderate.

When I sent a note about the strange forms of *bistortata* which I had taken in Hardwick Wood to the *Record* in 1953, Dr. E. A. Cockayne expressed a wish to examine a few. I showed him a short series which he thought was interesting enough to be included in the British Museum Collection, where it is now to be found. He also declared that the inheritance of the 'mosaic' character would be worth studying. I, therefore, felt very lucky when, on 30th May 1954, I saw a fine female *bistortata* with pale patches on the forewings at rest on a sycamore trunk. She produced a large batch of eggs from which I obtained 36 healthy pupae. These in turn produced 29 imagines between 26th April and 29th May. The results are tabulated for convenience:—

Offspring of 'Mosaic' specimen of E. bistortata

	Female	Male
Melanic	8	8
Mosaic	8	1
Malformed	1	1
Variations	2	

The seven moths which failed to emerge may have carried "lethal mutant" genes, but this cannot be proved. One of the so-called variations had rounded forewings, the other was suffused with rusty red instead of dark brown. It is interesting to note that most of the specimens which were described as 'mosaics' to any extent were female. All the melanics were very dark, and the fact that none of the pale form appeared was possibly due to factors linked with conditions in the breeding cage, but it is too early to hazard a guess about the nature of these factors. I have several batches of pupae from pairings of the above-mentioned insects, the resulting imagines may throw more light on the problems of both melanics and 'mosaics'.

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Birds and Lepidoptera in Anticyclonic Airstreams

By KENNETH WILLIAMSON.

It is now a commonplace observation at Fair Isle, between the Orkney and Shetland Islands, that good "falls" of migrant birds reach us as a result of down-wind drift in anticyclonic airstreams blowing towards us from Continental shores, and particularly from that narrow sea-crossing, the Skagerrak, which migrant birds must make on their journey south from the Scandinavian Peninsula. I have dealt with the meteorological aspects of this situation, in so far as birds are concerned, in several recent papers, particularly *Scottish Naturalist*

64 (1952): 1-18, and *Acta XI Cong. Internat. Ornithologici* (1955). 179-186. In past seasons we have noticed that such movements are not infrequently accompanied by influxes of migrating Silver Y Moths, *Plusia gamma* L., and it was in the hope of learning more about the link between bird and insect movements that we added a mercury vapour moth trap to our equipment in July 1955.

The first season's work was exploratory, since little previous collecting has been done at the isle, and direct evidence of insect migration was slight. One period, towards the end of August, was particularly interesting, providing good evidence that wholesale movements of moths and butterflies as well as birds take place downwind in anticyclonic airstreams. Mr. John Lorne Campbell, who first encouraged us to include Lepidoptera in our studies, took a wide variety of species, including several new to his collection, in his m.v. trap on the island of Canna in the Hebrides, between August 12th-14th and again on 24th and 25th. Commander G. W. Harper also records some interesting migrant moths in Inverness-shire in the early period and suggests that the prevailing south-east wind was responsible (*Ent. Record*, 68: 39).

August 10th-14th was a period of easterly breezes on the Continent south of an anticyclone which moved from northern Scotland to the Scandinavian Peninsula; and on the western flank of this high a veer of wind to a more southerly air developed on 12th, continuing over the next two days. In the later period conditions were rather similar, with a high over Britain moving to Scandinavia between 20th-22nd and remaining firm till 25th, giving an easterly airflow in central Europe and south-easterly in western France, where the weather was calm and clear. The airflow was south-easterly in southern England and the Irish Sea, and more southerly in the Hebrides, and temperatures were well above the average everywhere at the time.

Clear information linking bird and butterfly migration in this anticyclonic airstream comes from Great Saltee, off south-east Ireland, where August 22nd-25th saw the development of one of the heaviest drift-movements of the autumn. R. F. Rutledge, who is in charge of the Bird Observatory there, informs me that the best days were 23rd and 24th. On the latter, two Icterine Warblers—extremely rare vagrants to Ireland—were trapped, and the only Swift of the autumn was seen on 23rd. Sedge and Willow Warblers showed peaks at this time, and the biggest influx of Pied Flycatchers ever recorded on the Irish coast took place. There was extensive butterfly migration going on: Large and Small Whites were abundant, a Green-veined White was seen, whilst very many Red Admirals and Painted Ladies, and one or two Clouded Yellows, were seen each day. On 26th, to quote the Observatory's Log, "Butterfly migration was seen 200-300 yards offshore coming into the island almost as soon as the mist cleared".

It is interesting that some immigration was taking place at Fair Isle as well as Canna and Great Saltee, although our best nights for insects were 27th and 28th, three days after the biggest "rushes" of Lepidoptera at Canna 250 miles to the south. The only bird movement took place on 23rd after a night of south-south-east wind and involved some 25 Willow and 12 Garden Warblers, a few Whinchats and

Pied Flycatchers and a Reed Warbler, the last extremely scarce so far to the north. Fair Isle's first record of a dragon-fly, *Aeshna juncea* L., was obtained on 24th, and the first *Plusia gamma* came to light on 25th. Painted Lady and Red Admirals were seen on 28th and moths taken the previous night included two more *P. gamma* and our only Sword-grass *Agrotis ipsilon* Hufn. The 30th was also a good night, giving our only specimens of the Shears *Hada nana* Hufn. and Small Wainscot *Arenostola pygmina* Haw., as well as two specimens of ab. *subfuscata* of the Common Pug, *Eupithecia vulgata* Haw. One of the commonest moths at this time was the grey typical form of *Amathes glareosa* Esp., these heavily outnumbering the beautiful blackish Shetland ab. *edda* which had first appeared with 3 specimens on August 4th, a week or so before the appearance of the typical form. A number of *Triphaena pronuba* L. were at the South Lighthouse on August 27th and ab. *renigera* of *Ammogrotis lucerneae* L. was taken that night, practically all other Northern Rustics being of the sooty Shetland form.

Lepidoptera in the Inner Hebrides

By J. W. HESLOP HARRISON, D.Sc., F.R.S.

Illness has prevented me from replying to J. L. Campbell's note in the January number of this magazine, but I hasten to do so now, for several points in his remarks call for comment.

In the first place, Campbell is quite wrong in stating that my last visit to Canna was made in 1937, and there are thus records made by me later than those appearing in the *Proc. Univ. Durham Phil. Soc.*, 10, pp. 10-23 (1938). Incidentally Campbell gives this reference incorrectly.

Again, he ventures on a gibe about "capturing moths casually". A glance at the *Pocket Oxford Dictionary* reveals the fact that "casually" means "due to chance" or "undesignedly". These meanings describe exactly the circumstances under which odd specimens of *Citria lutea* were taken; they came down in the beating tray when I was working sallows and birches for Psyllidae!

Further, Campbell has failed to note my article on "Noteworthy Lepidoptera from the Isle of Rhum, with some notes on insects captured on the adjacent isles" (*Entomologist*, 79, pp. 147-151, 1946). He will find the necessary facts concerning *Citria lutea*, *Celaena haworthii* and *Amathes agathina* set out there. In the case of the last two species in his note, Campbell supplies Outer Island (Barra) records; to round off matters, I should like to state that we have taken *C. haworthii* on South Uist, Benbecula, North and South Harris and on the Isle of Ronay, lying between Benbecula and North Uist. As far as *A. agathina* is concerned, we have obtained it on North Uist, South Uist and Harris; records also exist for the Isle of Lewis.

This seems to be a suitable opportunity for making additions to my May 1955 list of the Lepidoptera of the Skye Isles. As will be seen, seven species are added to the Rhum list, this bringing the total for that island up to 256.

Pheosia gnoma Fab.—Larvae beaten from birches along the Arish Burn, Isle of Raasay.

Spilosoma lutea Hufn.—Taken on the Isle of Muck; the species has

occurred, therefore, on all the islands of the Small Isles Parish of Inverness-shire.

Graphiphora augur Fab.—Not common on the Isle of Soay.

Amathes c-nigrum L.—Sparingly on the Isles of Rhum and Eigg.

Procus strigilis Cl.—Found on the Isles of Eigg, Canna and Soay.

Phlogophora meticulosa L.—Captured at sugar and also as larva on the Isle of Rhum; not really common there. The species has also been observed in small numbers on the Isle of Raasay.

Stilbia anomala Haw.—On banksides near Kinloch, Rhum, on the moors on Soay, and near the Cave and around Dry Harbour on the Isle of South Rona.

Bena fagana Fab.—Larvae beaten in the woods near Poll nam Partan, Isle of Eigg.

Plusia chrysitis L.—On flowers on Soay.

P. iota L.—A few on the Isle of Eigg.

P. gamma L.—A common migrant and occurring on all the Skye Isles in years marked by an immigration.

Colostygia olivata Schf.—Local on Rhum, but to be disturbed in numbers from overhanging grassy ledges just south of the last wood on the southern side of Loch Scresort.

C. multistrigaria Haw.—At sallows on the Isle of Raasay but only as a single belated specimen on Muck.

Perizoma minorata Tr.—In the little gorge between Dornabec and the Long Loch, Isle of Rhum; also near the Iron Bridge, Isle of Raasay.

Oporinia dilutata Schf.—Larvae beaten from various trees in the Kinloch woods, Isle of Rhum; far from being as plentiful as its congener *O. autumnata*.

Selenia bilunaria Esp.—Larvae were procured from willow and birch on the Isles of Soay and Eigg. The larvae are light-sensitive, and those feeding on willow are exceptionally pale. Rhum larvae from birch are richly variegated with browns and purples.

Biston betularia L.—Obtained from alder on the Isle of Scalpay (Broadford).

Bupalus piniaria L.—In very small numbers amongst Scots Pine on the Isle of Eigg.

Hepialus sylvinus L.—Around the Harbour on the Isle of Soay.

Hell Coppice in the 1930's

By H. SYMES.

"See you in Hell on Saturday" was the laconic message I once received through the post, and from a parson, too. The words had an entomological rather than an eschatological significance, and the reference was to Hell Coppice, which is situated almost in the centre of the extensive woodland area, once part of the royal forest of Bernwood, that lies about ten miles north-east of Oxford. Though about the smallest of the woods in that district, it is—or was—the richest in entomological treasures. How it came by its name I do not know, but I think there must have been something unsavoury about the neighbourhood at one time, for a glance at the inch to the mile Ordnance map of Oxford reveals two areas in Waterperry Wood, the nearest wood to the south, named respectively Drunkard's Corner

and Polecat End. Moreover, there were some who firmly believed, in the 1930's, that Hell Coppice was haunted. Two entomological friends of mine, sober, level-headed men, accustomed to night work in woods, heard on their separate sugaring rounds one night eerie noises like the clanking of chains. They were both in rather a panic when they returned to their base, and each was reluctant to open the subject first, fearing ridicule, but in the end they agreed entirely in their descriptions of the sounds they had heard. The same sounds were heard on another night by a third party. No explanation was ever forthcoming, but from that night they went their sugaring rounds in pairs.

The coppice is roughly half a mile long and a quarter of a mile wide. The timber consisted almost entirely of oaks, with a thick undergrowth of sallow, blackthorn and hazel, and a certain amount of aspen and birch: brambles and honeysuckle were abundant. Just outside the wood there was a clump of fine birch trees, a few poplars and some elms. The soil was a particularly stiff and sticky kind of clay. There were two main rides that intersected one another in the middle of the wood. There were also a number of subsidiary paths. The shorter of the main rides had a gate at each end, and must at some time have been used for heavy horse and cart traffic in wet weather, for there were deep wheel tracks at the sides and equally deep hoof marks in the centre. In a wet summer, like 1931, this ride was impassable in several places without gum boots, but one could always execute a turning movement through the undergrowth. In the dry summers of 1933 and 1934 there was water still to be seen at the bottom of the deepest hoof marks at the end of July.

Now that the wood has been ruined by the felling of the oaks and the smashing of the best sallows there seems no reason to withhold publication of the prizes that used to be found there: in fact, I think, some details of such a wonderful locality ought to be put on record. Hell Coppice must be added to the steadily increasing number of hunting grounds which have been sacrificed to economic considerations and, so far as the entomologist is concerned, have gone out of production.

The county boundary follows the line of the hedges which enclose the wood on its west and south sides, so that Hell Coppice itself is in Buckinghamshire. Insects taken on the wing outside the wood belong to Oxfordshire. This makes correct labelling a tricky business. I think it was in 1939 that fourteen male *Apatura iris* L. were taken on cow-pats in the surrounding meadows, that is, in Oxfordshire, but the larvae had undoubtedly resided in Buckinghamshire.

The wood was equally rich in butterflies and moths. Of the former, the great prizes were *A. iris* and *Strymonidia pruni* L. I have already related my experiences with the former (*Ent. Rec.*, 66: 40). The latter, according to the *Natural History of the Oxford District*, edited by Commander J. J. Walker, R.N. (O.U. Press, 1926), was discovered as recently as 1918 by "an enthusiastic young collector". About fifteen years later I met an entomologist on the outside of the wood, and we fell to discussing *S. pruni*. I said I had heard that it had been discovered by an enthusiastic schoolboy, and he replied with a laugh, "Yes, I was that schoolboy". He was W. F. Burrows, well known to thousands in the 1930's as "Our Obstinate Artist" of the *Daily Sketch*.

Besides these two species *Limenitis camilla* L. was plentiful, and I

saw one ab. *nigrina* that had been taken there. The fritillaries were well represented: *Argynnis paphia* L., *A. euphrosyne* L. and *A. selene* Schiff. were all plentiful, *A. cydippe* L. rather less so. I took *Euphydryas aurinia* Rott. just outside the wood, but only one or two odd specimens: I never found its local H.Q. The foodplant abounded everywhere. *Melanargia galathea* L. occurred on the edge of the wood, and *Aphantopus hyperantus* L. was abundant: I took a few specimens of ab. *arete*. I also took a nice pale form of *Coenonympha pamphilus* L. (ab. *pallida*).

It was a good place for the hairstreaks. *Thecla quercus* L. was very plentiful, and once I beat the larva from sawfly: this was in a year when a late frost had seared the tender young oak leaves. *T. betulae* L. was always common in the larval stage. *Callophrys rubi* L. was often to be seen fluttering round the boundary hedge: the larvae were said to feed on *Genista tinctoria*, which flourished outside the wood. Wych elm grew in the neighbourhood, but I think *Strymonidia w-album* Knoch was absent. There was an abundance of wild privet, to whose flowers it is so partial, along the southern edge of the wood, but I never saw it there. On these flowers I took fourteen *S. pruni* on 15th June 1933. All except two were in good condition, and they were nearly all males. But this was an exceptional occurrence, for in other years I did not see them on privet blossom like this: both sexes preferred to sit about on hazel and blackthorn inside the wood. When taken, most of them proved to be in worn condition, so it was necessary to beat for the larva in order to obtain perfect specimens. This, however, was a very chancy business, always strenuous and often disappointing. I heard of one collector who beat thirty larvae in one day. My largest bag (and this happened twice) was four. On one occasion four of us worked hard for most of an afternoon without obtaining a single larva. On another I beat a larva from the second blackthorn I struck, and my hopes ran high, but I went on beating for two or three hours more without getting another. It was only after five blank days that I succeeded in getting my first; altogether I beat sixteen larvae, spread out over eight days, in five years.

Of moths, the greatest prize was *Dicycla oo* L. In 1929, if I may stretch a point to bring that year within the scope of this article, it was very plentiful at sugar, but it was confined to a strictly limited area in the wood. All the oaks on which they were taken have now been felled, and I fear that *D. oo* may have been exterminated in Hell Coppice, though perhaps it occurs somewhere in the neighbouring woods. Sugaring was a failure in the New Forest that year, and three Somerset entomologists, G. B. Coney, A. R. Hayward and Preb. A. P. Wickham, who were spending two or three weeks there, took nothing, I believe, but a single *Carabus* beetle. They were invited by the late Claude Rippon to join him in a night's sugaring in Hell Coppice. Not expecting to take anything, in view of their experience in the New Forest, but thinking that the trip would be rather fun, they motored up from Brockenhurst and returned with about three dozen *oo* between them. There were plenty left, and I came in for some of the gleanings a few nights later, when I learned how extremely quick off the sugar this moth is. By then, some of the moths were rather worn, and Rippon and I kept one or two females for eggs, but despite all our efforts in

the way of providing rough bark with plenty of chinks in it, and tightly rolled up balls of paper, we could not induce them to lay. Next year, on 9th June, we each beat five nearly full-fed larvae from oaks in the area where the moths had come to sugar. 'Newman and Leeds' say the larva is probably a cannibal, so we suspected that they might need something to supplement their diet of oak leaves. I introduced a few mixed Geometrid larvae into the breeding-cage, but *oo* made no attempt to eat them: possibly they were not the right species. I sprinkled a thin layer of sand over the floor of the cage, and within four or five days all my larvae had made use of it to form fragile cocoons in the bottom corners. They all pupated, and moths emerged on 5th July, 6th July (2), 7th and 9th. They were slightly smaller than wild specimens. Rippon had the luck to breed one *ab. renago*. Although I beat for these larvae during the next five or six years, I never saw another.

Other interesting moths taken there included *Catocala promissa* Esp., very common at sugar in 1929 and beaten as a larva in 1930, *Nola strigula* Schiff., to be found sparingly on tree trunks in July—I once beat a larva before hibernation in 1929, but unfortunately it had been torpedoed by an ichneumon fly—*Hemaris fuciformis* L., which I took at bugle (*Ajuga reptans* L.) and whose eggs I found on honeysuckle, *Habrosyne derasa* L., *Thyatira batis* L., *Tethea octogesima* Hb., *T. duplaris* L., *Drepana binaria* Hufn., *Eilema sororcula* Hufn., *Lampra fimbriata* Schreb., *Polia nebulosa* Hufn., *Apamea monoglypha* Hufn., including the dark form, *infuscata*, and *Lygephila pastinum* Treits.

Species taken in the larval stage only included *Tethea* or Schiff., *Polyphoca ridens* Fab., *Lymantria monacha* L., *Drymonia ruficornis* Hufn., *Clostera pigra* Hufn., *Poecilocampa populi* L. *Bena fagana* Fab., *Pseudoips bicolorana* Fuess., *Sarrothripus revayana* Scop., *Apatele alni* L., *Orthosia populeti* Fab., *O. miniosa* Schiff.—this last species swarmed over all kinds of bushes one year—and *Brephos notha* Hb. When beating the blackthorn hedges outside the wood for *S. pruni* and *T. betulae*, one found in one's tray large numbers of *Trichiura crataegi* L., *Episema caeruleocephala* L., *Brachionycha sphinx* Hufn., and *Allophytes oxyacanthae* L. It was a wonderful place for larvae, and although one did not always get an *iris* or a *pruni*, I never—or hardly ever—returned home without something worth having.

Now everything is changed. The oaks have gone, and with them, I fear, has *iris*. On my last visit (in 1950) all the best sallows had disappeared and I failed to find a single larva of that species, but it probably survives in some of the surrounding woods in which it used to occur. *S. pruni*, however, was still to be beaten from blackthorn both inside and outside the wood, and larvae of *T. crataegi* and *B. sphinx* were as plentiful as ever.

In this list I have not touched upon the Geometrids or included a number of the commoner species which I took or saw, nor have I mentioned any insects that I did not take myself. An interesting addition is *Odontosia carmelita* Esp. With the exception of one day's larva beating I did no collecting there in the late summer or autumn, otherwise the list might have been somewhat longer. One charming memory I retain is of clouds of beautiful long-horn moths (*Adela* sp.) which used to rise from the bushes, chiefly hazel, I think, when disturbed, and after floating around for a minute or two, return to

their old position. Their wings gleamed in the sunshine like burnished bronze, and they were a very beautiful sight.

I should think that it was an equally good locality for Coleoptera. Nowhere else have I seen so many of the day-flying, flower-loving species. One afternoon I met a coleopterist from the Museum at Oxford, by name Collins, who told me that he was after some rarity which had been taken there, but he did not mention its name.

Then there were the nightingales. The wood was full of them, and during May they sang throughout the afternoon. They were to be found year after year in the same place. There was always one near the entrance where I left my car, and its song was a constant source of pleasure to me as I sat there eating a hurried sandwich lunch. It has just occurred to me that its own lunch may have included some larvae of *pruni*.

Memories of a Naturalist—VI.

By MALCOLM BURR, D.Sc.

Istanbul in those days of course was the old Constantinople of classic memory, the ancient city of which an early ambassador wrote that, seen from the sea on approach, it is a lovely sight, but to avoid disillusion it is better not to go ashore. There was truth in that in the days when that ambassador wrote three hundred years ago.

It had not altered much on my first visit. True, there were steamers on the water, but not much else that was modern. There were neither trams nor motor-cars, for the latter had barely been invented, so that it was not dangerous for a dog to lie asleep in the middle of the Grande rue de Pera, as the Istiklal Caddesi was then known to Europeans. I gazed once in fascination when I saw an old cabby, the shabbiness of his clothing, horse and fly, set off by the crimson fez, amble down the middle straight upon a sleeping dog. I held my breath to see the horse trample on it, but just as the hooves were coming down the animal in one bound was on the pavement.

Other things used to happen in that same street. The Hotel Tokatlian, now the Konak, was the scene of the murder of Gani Bey, who was shot as he sat in the café of the hotel. It is a sordid story, but perhaps worth telling again after all these years. Gani was an Albanian chieftain from the Tirana district and a favourite of the Sultan. In his splendid national costume, his impressiveness enhanced by the massive pistol in his belt, a weapon which he had no qualms about using, he was generally dreaded as a bully, but under such high protection no one could touch him.

One day he walked into an Armenian jeweller's shop and selected some pretty things to give to his lady friends. When the jeweller timorously suggested the possibility of payment, Gani significantly tapped his pistol and said, "We are massacring Armenians now". He used to gamble with a woman, also Armenian, who kept a brothel in the rue Derviche. One day when she disputed a payment due to him, Gani picked her up and held her out over the street from the fourth floor window. "Will you pay now, *vieille macquerelle*?" he asked. Needless to say she paid, for she knew he was quite capable of dropping her.

He met the end he deserved through the vengeance of an outraged Armenian, who had a beautiful wife. One day when the husband was away, Gani, escorted by some of his myrmidons, invited himself to the Armenian's summer villa on the island called in Turkish Büyük Ada, but better known to Europeans by the Greek name of Prinkipo. He stayed to dinner. Now in those days movement on the water was prohibited after nightfall, as that encouraged the possibility of conspiracy, and so when one dined at another person's house, one spent the night there. When the husband came back and heard what had happened he paid a man to shoot Gani as he sat in the café.

The vendetta was taken up by one of Gani's tribesmen, in accordance with the code of ethics of his people. The man shot the Armenian on the Galata Bridge. He was imprisoned, but the Sultan secretly released him and sent him back to his native village with, it is said, a bagful of gold. At the same time it was believed that the Sultan was not sorry to be rid of his turbulent favourite, whose behaviour was getting too outrageous even for him.

Gani's brother, Essad Pasha, who became famous in the episode of the siege of Shkodra, earned a good reputation by protecting the shattered Serbian army on its dreadful retreat through the mountains of Albania in November 1915. In return for this service he was recognised by the Allies as a belligerent. I used to see him at Salonika, wondering what was the strange flag flying over his villa. He was a man of picturesque and fierce appearance, with the biggest chest I have ever seen on mortal man. Like Gani, he had a violent end, for he too was murdered, but for political reasons.

The bridge at Galata, where the Armenian was shot, was a very different place from to-day. It was carried on pontoons, and a toll of a hundred paras was exacted from every foot passenger, with a graduated fee for horses and carriages. The money was collected by officials clad in long gowns without pockets, which did not encourage pilfering. It is said that the takings amounted to something like £T10,000 a day.

The bridge has become internationally famous in a very different way. One morning, I believe in the 'eighties, an old Armenian who was a great card player came into the Club and said that he had thought out a new kind of game that would be a great improvement on whist. When he explained it to his companions they approved. Someone asked him "What are you going to call your new game?"

"Oh, I don't know. What do you suggest?"

"Call it Bridge," suggested one man. "You use the Bridge twice a day."

And so 'bridge' it became. It spread through diplomatic circles round the world and appeared as a novelty in England in the late 'nineties. It quickly became universal, but the origin of the name was forgotten, although often discussed.

In the days before trams and taxis, connection with the low-lying land round Galata and the high ground of Pera or Beyoglu was mainly by the Tunnel. This was in existence on my visit, for it had been constructed as long ago as 1875, by a French engineer named Gavon, but mainly with British capital. It is said to be the oldest underground railway in the world.

Constantinople has three names. The oldest, Byzantium, is derived from Byzes, the semi-mythical Greek founder of the colony on these shores so rich in fish. Re-founded by the Emperor Constantine the Great in the fourth century, it became Constantinople, for a thousand years the centre of Christendom, which kept alive the flame of culture and education while western Europe was plunged in the chaos and ignorance of the Dark Ages. The modern official Turkish name, Istanbul, is beyond doubt a corruption of the Greek expression 'ς τὴν πόλιν, 's teen polin, that is, to the City, or in the City, for in their eyes it was The city.

Abdul Hamit, who had seen his two predecessors, one his uncle the other his brother, dethroned and come to a violent end, suffered from persecution mania and swore he would not meet their fate. He surrounded himself by the most elaborate precautions. For instance, he built a double wall round his lair, Yildiz Kiosk, to make entrance more difficult. He surrounded himself also with spies. His precautions were justified by events, for he kept his ramshackle empire together for thirty years and died a natural death. The few years of his exile in the Villa Allatini at Salonika were no doubt the happiest of his tormented life, for Fear was no longer at his elbow. When a delegation of officers came to him in 1912 to take him away he protested.

"I am happy here," he said. "Why do you want to take me away?"

They told him that it was necessary, as there was a war on.

"A war?" he cried. "Between whom? France and Germany?"

When they told him that the impossible had taken place, that the Balkan states had combined against them, he exclaimed: "Fools! So long as I was upon the throne I kept them all at loggerheads. Directly you remove me, you let them all combine."

They assured him that they would soon bring him back.

"No," he cried; "you have lost this country for ever and in this way you will in a few years lose the whole empire, which I had kept together for so long!"

They took him to the palace of Beylerbeyl on the Bosphorus whence he could look across the water and see on his left the old city of Stamboul, on his right his old den at Yildiz, the two centres of the Ottoman Empire that mutually feared each other so much. That strange man, the last of the tyrants of the Mediaeval pattern, died there in 1915.

Never did a young enthusiast feel greater pride than I did when I received a letter from the great Brunner himself inviting me to Vienna to do some monographic work on his collection. It was indeed a wonderful experience. Brunner was not only the outstanding authority on the Orthoptera, author of a whole series of revisionary monographs, but a patrician of the old school, with a gift for vivid narrative.

He took me one day on an excursion to a place called Oberweiden in the Moravian Gate, an hour or two in the train from Vienna. The place is a patch of sandy heath and dunes. Many years ago Brunner had discovered there what is known as a relict fauna, that is to say a surviving fauna of ancient conditions that have long since passed away, exterminated in the surrounding region by modern developments.

agriculture, or change of climate, yet lingering here and there in a few such spots, protected by the barrenness of the ground. It was, in fact, a classic spot in the annals of our science. Brunner had escorted half the distinguished entomologists of Europe there during the past twenty or thirty years, but it had changed since his last visit, ten years previously.

The day was not very successful, but I did catch one kind of grasshopper not known elsewhere on this side of central Russia, a survivor of the days when steppe conditions reigned across Europe a thousand or so years after the retreat of the glaciers. There were a few others that belonged properly to the Mediterranean fauna. For me, it was indeed a truly interesting collecting ground.

Brunner was reminiscent. He lamented the presence of the racehorses, for which the place was now being used as a training ground, and the disappearance of the *Buhuhütte*. This had been a wooden hut where an eagle owl had been kept, for some purpose or other that was not clear to me, but apparently in connection with trapping birds. There in the *Buhuhütte* he had sat and eaten a frugal lunch with half the entomologists of Europe, to whom he was showing this remarkable place. But most of them had departed, together with the *Buhuhütte*, in which they had inscribed the names of the rarities they had captured there, with their autographs.

The old man shook his head mournfully. "So-and-So has gone," he lamented, "and So-and-So. The *Buhuhütte* has gone, and now it is my turn to depart also."

"Oh, Herr Hofrath!" I exclaimed with youthful enthusiasm, "you are only eighty and what is that for an entomologist? You surely have many years still in front of you."

He shook his head, but time showed I was a good prophet, for he had another fifteen years to live.

When we sat and sipped our coffee at the little railway station he noticed that the peasant woman who served us was in what the Serbs call 'the second condition'.

"When I was last here," he commented, "ten years ago, she was enceinte. To-day she is again enceinte. If you come back here in ten years time no doubt you will find her enceinte again. Thus the world goes on."

I did not, however, have the opportunity of following up the lady's domestic history, for a telegram recalled me to my father's side. He was suffering from phlebitis, which crippled him for the rest of his life, but did not prevent him from carrying through an immense piece of work against apparently unsurmountable difficulties. It was sad to break off my work in Vienna and lose such a unique opportunity, but I did at least have the satisfaction of having broken some fresh ground and had enough done to be worth publishing, a preliminary revision of a curious and interesting group of grasshoppers called the *Acrida*.

Some sort of passive resistance, more or less unconscious, led me constantly to postpone the eating of my dinners and reading seriously for the bar as my father wished. After coming down from Oxford I wasted a good deal of time, though in my heart it was not wasted, for

it was absorbed in Entomology. But one day my mother suggested that I might prefer to go to the School of Mines.

I leapt at the idea. Dr. Roose's youngest son, Hubert, had—at my father's suggestion—just taken his associateship there. The life of a mining engineer appealed to me; it was more diversified, more outdoor, leading to foreign lands and in touch with nature. And there were other reasons, which won my father's instant approval.

[Burr duly qualified as a mining engineer and for the next few years he was actively employed with his father in the development of the Kentish coalfields. He was kept hard at work, and when the East Kent Railway Company was formed to connect up the collieries with the main railway line he was appointed its managing director and was responsible for building some forty and more miles of railway. But he

This excellent cartoon of Malcolm Burr appeared in *Vanity Fair*, and we are much indebted to the proprietors of that famous magazine, namely The National Magazine Co. Ltd., for their permission to reproduce it together with the letterpress which accompanied it.—ED.

Men of the Day. No. 2308.

MALCOLM BURR, D.Sc. (Oxon).

The degree that adorns the name of Malcolm Burr does something more than signify an educational career at our oldest University. It tells in his case of a sustained enthusiasm for the study of Entomology, which has carried the holder to distinction, has sent him many a time in quest of valuable material to the most remote and wild parts of Europe, and has made him a cosmopolitan and accomplished linguist. He is also the appreciated Secretary of the International Congresses of Entomology held at Brussels and Oxford, a prominent member of the Entomological Society of London and of numerous foreign Societies.

When summer closes and insects betake themselves to winter quarters Dr. Burr is found riding another hobby. It is the hunting field now, and twice a week over the beautiful country between Dover and Canterbury he hunts the West Street Harriers, of which pack he is the popular Master.

The same will-power and spirit which Dr. Burr has given to scientific work and to hunting he has thrown into the discovery and development of coal in the county of Kent, and has been to his now famous father an indispensable assistant and colleague.

When some future historian comes to tell the tale of his most promising industry he will write large a name and place it high on the record of Englishmen-Who-Have-Achieved—the name Burr, *père et fils*.

Their affectionate devotion for each other in the mighty quest will be the best part of the tale.

JEHU JUNIOR.

found time (as only a busy man can) to form a cricket club among his employees and in the winter to hunt with the East Kent foxhounds, at that time under the mastership of H. Selby-Lowndes, for whose prowess as a huntsman Burr had unbounded admiration. "He was a magnificent huntsman," he writes; "never beaten even in the big woodlands near Canterbury, where it was a delight to hear his musical voice cheering hounds on, and he was a great performer on the horn. . . . He told me that he had been a master of hounds since boyhood, over twenty years, and had not missed one single day's hunting." Later, Burr took over the mastership of the West Street Harriers and hunted them for three seasons. "It was a sheer delight," he writes; "we were a sporting hunt and held a fine record. I kept hounds in kennels that I had built under Guston Mill. . . . As kennel huntsman



I had Bob Prior, who had been a hunt servant all his life. He was sixty years of age and as devoted to both hounds and horses as though they were his own children." Amid all these activities Burr also found time to get married. But to continue with the narrative.]

In spite of all these activities I did not neglect Entomology. East Kent is good collecting country and it was not long before I had found most of our British species of Orthoptera within reach of Dover, and from time to time, of course, I paid visits to my beloved Warren.

Systematic work also gave me plenty to do. In 1909 I was invited to do a monograph of the earwigs of British India for the Indian Government, which was published in 1910 in the official *Fauna of British India* series. This was a good step forward towards the big work for which I had been preparing for many years, a monographic revision of the earwigs of the world. Their classification was in a chaotic state and only a little over three hundred species were known; so I set to work to lay the foundations of a proper system. I had a fair amount of material, as almost all the museums of the world sent me their unnamed material to work out, and the results of expeditions nearly all found their way to me. I made contact with resident collectors in different parts of the world, such as the East Indies and Abyssinia. The examination of the museums gave me the opportunity of seeing many of the so-called 'types', that is, the original specimens described by older authors. As the descriptions of a hundred years ago were inadequate as a rule this enabled me to establish beyond doubt the identity of a number of species that had been otherwise unrecognisable.

In this way I gradually worked out a system of classification that seemed reasonable. The work, however, was immense and I saw it would take many years to complete it. I decided, therefore, to publish each separate piece of work, and events afterwards proved the wisdom of this step, for circumstances prevented the completion. However, the main lines of the classification were published in time and in some cases a certain amount of detail was fitted in. A weak point in the literature of the subject had been the lack of illustrations or their amateurish nature. I was fortunate enough to find a first rate entomological artist, the late Edwin Wilson, in Cambridge, and, thanks to his genius, was able to collect a fine number of illustrations, some in colour, others structural, a considerable amount of which was published. When the war brought my activities in this line to an end the typescript of the work filled twenty thick files and I was considering the completion of the first volume, which was to be published by the Ray Society.

But Entomology is not merely a science of the laboratory and library. One of its greatest attractions is that it takes men and women out of doors, into the countryside, to meet Nature face to face. There is not an entomologist worthy of the name who does not treasure countless memories of days in the field, though there are plenty who have only that and are satisfied with Entomology as a recreation, busy men, with their serious work in other lines. To them it is a delight and a relief, an escape, and one that so often leads to longevity.

Some of my happiest memories of those years in East Kent are of days in the field, either a picnic to the Warren, to renew old memories, perhaps without any thought of further new discoveries. It was from material taken there that I had proved the identity of a rare kind of

earwig that had been reported from the south of England before, but under the wrong name. A French entomologist of distinction, M. Lesner, had shown that a pale little earwig that occurs in localised spots in the north-west of France is distinct from a common Mediterranean kind. Finot named it after him, *Forficula lesneri*, and many years ago de Bormans had called my attention to the difference; I had found the species in the Warren when I was hardly more than a boy, and showed that it was the Atlantic *F. lesneri* that we have along our south coast and not the Mediterranean species with which it had been confused.

Another adventure with an earwig gave me considerable satisfaction. There is a certain kind of earwig that is common enough in Central Europe but recorded in England only by old Westwood. The late A. J. Chitty found it in hopfields near Ashford. I had my eyes open for it and spent a good deal of time hunting for it round Dover. One day, when walking up a covey of partridges on a rough chalk hillside at Stonehall, where the railway emerges from the Lydden Tunnel, a hot September afternoon, I noticed the chirping of several kinds of grasshoppers. I stopped to listen for a moment and satisfied myself as to the identity of four of them, but to my surprise realised that the fifth was a totally different fellow, which, from its timbre and its unfamiliarity to me, could not possibly be anything else than a big bush cricket that is famous because Linnaeus, who first named it, said that the children in Sweden used to make it bite their warts, so it was called the Wartbiter, *Decticus verrucivorus*. Although a very prominent insect it had been recorded from only two localities in England, one in Dorsetshire by the old writers, and one at the close of the last century from a specimen found by chance near St. Margaret's. I was aware, therefore, that its rediscovery on the Chalk Downs round Dover was not only possible but probable. It called only for a search, but a search by someone who knew what he was looking for. I knew at once, by a process of elimination, that the fifth chirp must come from the Wartbiter. So when I had shot my partridges and the rest of the covey had flown over the boundary I put down my gun and started a systematic stalk. A little patience and the prize was mine, a strong, active, hard-kicking, long-legged, hard-biting, hard-spewing wartbiter. That afternoon I found about half a dozen of the creatures and was able to exhibit living specimens at the Entomological Society.

But the day's work was not done. I still kept at the back of my head the possibility of meeting that earwig of the hop-gardens. As I walked over the level crossing at the mouth of the tunnel I noticed a clump of stinging-nettles. Now these are good collecting ground for many groups of insects. I had my sweep-net with me and I gave the clump a good sweeping. Imagine my delight when, running nimbly among the rubbish and fragments of nettle in the net, I saw half a dozen or more of the wanted earwig!

I was surprised to find it so far from the hop-gardens, the nearest of which were at Wingham, ten or more miles away, so decided that the association with hop-gardens was merely due to chance. But an old farmer told me later that thirty years previously there had been a hop-garden at that spot, which had been grubbed up because it was a failure.

When we remember that there are less than fifty different kinds of Orthoptera and Dermaptera (earwigs), in the broadest sense of the word, known in Great Britain, it will be realised that the rediscovery of two such rarities in one afternoon gave all that thrill of discovery which is one of the major delights in field work of all kinds.

DIPTERA

Some Brief Notes upon the Habits of *Calliprobola speciosa* Rossi and a Description of a probable Variety of the Species

By ANDREW LOW.

These notes are only from my own personal experiences and observations of this species. Over a period of nearly thirty years' collecting I have taken this rare and beautiful species in only two localities: in the New Forest at Brockenhurst in the Perrywood enclosure, and in Windsor Forest near High-Standing Hill.

Girschner (1884: 199) describes the species at rest in the hot sun, "its legs directed backwards, the tip of the splendidly coloured abdomen somewhat lifted, and the wings spread out". I have seen the species at rest on hawthorn blossom and basking on the leaves of rhododendron; in my experience, however, I have never known it to adopt this attitude. In fact its attitude at rest and its behaviour are surprisingly like those of *Xylota sylvorum* Linn., the wings being folded straight and flat, completely covering the abdomen; it moves in an erratic scuttling motion over the leaves—a habit also markedly noticeable in *Xylota segnis* Linn. The insect is exceedingly agile and alert when at rest, and will take flight at the slightest movement.

Although I have frequently seen it coursing up and down a bank of rhododendron bushes at a reasonable height it appears for the most part to be a low flyer. I have more often seen it coursing over the ground in a curious rather erratic searching manner, at a height rarely above eighteen inches. While doing this it appears to be less alert, and indeed, with the one exception mentioned below, these are the only occasions on which I have succeeded in capturing it. This low searching flight, however, is not restricted to the males, but is common to both sexes. The species looks remarkably 'black' when in flight, with the exception of its long orange-yellow posterior pair of legs, which are held trailing out behind. It seems to be of a remarkably curious and inquisitive disposition, flying over a coat or collecting bag I may have left lying in the pathway; and on two occasions when I have captured it, it was while sitting down on the ground when it flew low over my trouser legs in an enquiring manner and on one occasion settled on them. On other occasions I have seen it flying in the same searching manner round one's ankles when standing in their line of flight.

The male is a remarkably fine hoverer. On one occasion I discovered a male hovering absolutely motionless above the roots of a rotten beech stump, at about the height of two and a half feet, its long posterior legs hanging vertically, and these it was rubbing together with a

regular rhythmic motion. After a few moments of this hovering the insect very slowly dropped in a direct vertical descent, still rubbing its legs together as before, until only about two inches above the tree root, where it resumed its hovering for a little time before rising very slowly, and again in a dead vertical ascent, until it reached its original height where it resumed hovering; at this point I captured it. Owing to this behaviour I suspected that there might be a newly emerged female (or one about to emerge) at the spot to which it descended. Upon very careful examination, however, I could find nothing, and upon further and repeated examination of the tree stump over a period of three seasons I can find no evidence of the species breeding in this particular stump.

Even where this species is known to occur I have always found it very rare, and restricted to a remarkably small area, and though a locality may be worked regularly each season two or three seasons may elapse without it being seen at all. The males appear to emerge some considerable time before the females, the wings of the male at the end of the first week in June often beginning to show signs of wear and a little ragged; the female, however, appearing fresh and recently emerged.

The species is apparently, from my experience, essentially sun-loving, appearing only when the day is well warmed up. I have seldom caught sight of it before twelve o'clock noon and after four o'clock in the afternoon, and all my captures range between these hours. This rather seems to point to the fact that the species under normal weather conditions has a regular flight period during the day.

In spite of the projecting cone-like frons of *Calliprobola*, in view of its structure and habits, in my humble opinion it is remarkably closely allied to *Xylota*, and with due deference to my friend Mr. R. L. Coe's arrangement in his excellent and invaluable handbook on the British Syrphidae I feel that *Calliprobola* should be placed next to *Xylota*, without the intervention of *Brachypalpus*, *Criorrhina*, *Pocota* and *Cynorrhina*.

On the 5th June of last year (1955) I took in Windsor Forest what I considered may be a possible variety of this species. (A coloured illustration of the typical form can be seen in *Flies of the British Isles* by Colyer & Hammond (Warne & Co., 1951). This varies from the typical examples in the following points:—

1. The antennae are deep reddish-orange, particularly the third joint, where the reddish tone becomes more pronounced, with the outer flattened edge of the segment blackish brown.

In the typical examples the antennae are clear orange or yellow.

2. The thoracic pubescence, when viewed from the side, is rich brownish-orange.

In the normal specimen it is yellow or golden-haired.

3. The band of dense pale yellow hairs on the posterior margins of the tergites in the normal example is replaced by bright orange-gold. The blackish patches on either side of the tergites, immediately above the band of gold hair, are more intense, and more clearly defined at the edges.
4. The wings are more orange tinted than yellow, particularly

towards the costa; the darkened tips are more intense; and the legs are more orange than yellow.

In general it can be immediately distinguished from the normal specimens by its more fiery and brilliant appearance.

A NOTE ON *MELANOPHORA RORALIS* L.—The larva of *Melanophora roralis* L. has been recorded as an endoparasite of woodlice (Thompson, 1934) and of the larvae of the moth *Pyralis farinalis* L. (Baer, quoted by Audcent, 1942) and as a predator of the eggs of the spider *Araneus cornutus* Clerck (Lundbeck, 1927). The second of these records van Emden (1954) believes to be unreliable, and I would suggest that the last record should be considered doubtful as well.

Lundbeck's reference reads: "Mr. E. Hoffmeyer bred it from egg masses of *Epeira cornuta* and he communicated to me that the larva was not uncommon in this way; the imago appeared 1/7".

Now *Melanophora* belongs to the subfamily *Rhinophorinae* whose species seem to specialise as parasites of woodlice. One of the exceptions, *Cinochira atra* Zetterstedt, recorded as bred from a Lygaeid bug, van Emden suggests should be placed in another subfamily. I cannot credit that a fly whose larva is normally an endoparasite of woodlice would lay its eggs in the egg-cocoon of an Argyopid spider. The change in the pattern of behaviour seems too great. I cannot claim to speak as a dipterist but I believe I am correct in saying that there are normally distinct differences in the younger stages of endoparasitic larvae from similar stages in ectoparasitic and scavenging larvae. The methods of deposition of eggs differ too. Do we know of these differences for the *Rhinophorinae*?

I have in the past few years examined large numbers of the egg masses of spiders (and especially of *Araneus cornutus*) and have bred out a number of hymenopterous predators. *Araneus cornutus* lays its eggs within a retreat constructed in the head of a plant and on two occasions I have found that the spider prior to laying its eggs seals up the entrance to the retreat with a silk curtain. The eggs are wrapped up in a thick layer of silk.

My experience has been that *Araneus* egg-cocoons are mainly attacked by ichneumons provided with an ovipositor capable of penetrating the loose silk wrapping, and occasionally by the larviparous *Sarcophaga* flies whose larvae are active and persistent. I have sometimes found beetles, earwigs and woodlice within *cornutus* retreats, where they had probably crawled for shelter. I would suggest that Lundbeck's record had its origin in a parasitised woodlouse crawling into a *cornutus* retreat and dying; and that the larvae Hoffmeyer found "Not uncommon" were probably those of ichneumons which heavily infest *cornutus* egg sacs.—A. E. LE GROS, 4 Beaconsfield Street, Leamington Spa, Warwicks. 18th February 1956.

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COLEOPTERA

Notes on Some Coleoptera from South Hertfordshire

By BRYAN L. SAGE, F.R.E.S.

During the course of other natural history work at Aldenham Reservoir and the Cuffley Greatwood a small collection of the Coleoptera encountered was made, and it is considered that the results may well be placed on record. Both these localities are scheduled as Nature Conservation Areas. For the sake of consistency nomenclature follows N. H. Joy's *A Practical Handbook of British Beetles* (1932).

ALDENHAM RESERVOIR.

F. D. Buck (1939) has listed twenty species of beetles taken by him at this locality on 15.1.39. I have subsequently taken a number of his species myself, and have also taken the following additional species:—

CURCULIONIDAE.

Notaris acridulus L. On *Carex* sp., 9.6.52.

CARABIDAE.

Loricera pilicornis F. From stump of rotten Willow, 6.2.52.

Bembidion varium Ol. As above.

Badister unipustulatus Bon. As above.

Pterostichus strenuus Pz. From stump of rotten Willow, 15.12.51.

Anchomenus albipes F. Under bark of Willow, 26.4.52.

Anchomenus oblongus F. From stump of rotten Willow, 6.2.52.

CHRYSOMELIDAE.

Chrysolina polita L. Hibernating in roots of *Carex* sp., 17.12.51.

Phyllodecta vitellinae L. On Black Poplar and Willow, 17.5.52.

Phaedon armoraciae L. On bark of Scots Pine, 17.5.52.

ELATERIDAE.

Athous haemorrhoidalis F. Common on low vegetation.

COCCINELLIDAE.

Coccinella bipunctata L. A very common species.

CUFFLEY GREATWOOD.

A mixed deciduous wood on London Clay and the Reading Beds. There is one plantation of Larch.

STAPHYLINIDAE.

Quedius fuliginosus Gr. On damp stones by a stream, 3.5.54.

Philonthus aeneus Ross. As above, 18.5.54.

CURCULIONIDAE.

Strophosomus coryli F. On Silver Birch, 18.5.52.

Phyllobius argentatus L. A number swept from Bracken, 16.6.51.

Coeliodes rubicundus Hbst. On Silver Birch, 20.5.54.

Orchestes salicis L. On Sallow, 18.5.52. Also swept from grass.

SCARABAEIDAE.

Ceratophylus typhoeus L. Taken from Rabbit burrow, 28.4.51.

SPHAERIDIIDAE.

Sphaeridium bipustulatum F. Four taken from a fungus inside a rotten Silver Birch, 24.4.48.

CARABIDAE.

Calosoma inquisitor L. On bark of Oak, 18.5.52.

Notiophilus substriatus Wat. Running on ground, 17.7.55.

Notiophilus biguttatus F. Under damp log, 18.5.52.

Leistus ferrugineus L. Under stones, 15.8.54.

Nebria brevicollis F. A common species under stones, logs, etc.

Abax ater Vill. Under bark of rotten Silver Birch, 16.5.54.

Poecilus cupreus L. On Bracken, 11.10.52.

Lyperosomus oblongopunctatus F. Rotten Silver Birch, 17.7.55.

Pterostichus madidus F. On ground under Bracken, 20.4.52.

Pterostichus niger Schal. A common species under logs, etc.

Anchomenus angusticollis F. Another common species under logs, bark, and stones, etc.

Calathus piceus Marsh. In small sand pit, 28.7.51.

CERAMBYCIDAE.

Rhagium mordax De G. On Oak tree, 18.5.52.

Leptura maculata Poda. Probably the commonest Longhorn in the wood. Usually on Silver Birch.

Clytus arietis L. Another fairly common species, frequently taken in flight.

LAMIIDAE.

Leiopus nebulosus L. One taken on Bracken, 16.6.51.

CHRYSOMELIDAE.

Phytodecta rufipes De G. A single specimen taken from rotten Silver Birch on 16.6.51.

Chalcoides plutus Lat. Taken on Bracken, 11.5.52.

Chalcoides aurea Geof. As above.

SILPHIDAE.

Xylodrepa quadripunctata Sch. One taken from Hornbeam, 8.5.48.

Phosphuga atrata L. Taken from rotten Silver Birch, 17.3.53.

SCAPHIDIIDAE.

Scaphidium quadrimaculatum Ol. Frequently found among dead sticks in the winter.

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Current Notes

An important new nature reserve has been declared by the Nature Conservancy in Wiltshire, an area of no less than 610 acres. Fyfield Down, the Reserve in question, is one of the finest remaining tracts of unreclaimed high chalk downland in England. It lies about three

miles west of Marlborough and being close to Avebury is of particular interest to students of prehistory; for it is rich in sarsen stones and the great 20 ft. monoliths in the circle at Avebury may well have been brought there from Fyfield nearly 4,000 years ago. The sarsens—they are locally known as 'grey wethers', for at a distance they resemble a flock of sheep—on Fyfield have an interest for the botanist also: in the course of centuries these great stones have formed pockets of acid soil in the chalk, and in these pockets grow acid-loving plants such as *Rumex acetosella*. The meadow saxifrage, *S. granulata*, is also abundant. Years ago we remember seeing *Lysandra coridon*, *L. bellargus*, *Hesperia comma* and *Cupido minimus* flying there.

Another new acquisition by the Nature Conservancy is an area of 117 acres on Westleton Heath, Suffolk, a district well known to lepidopterists. Part of this heath—which straddles the road between Westleton and Dunwich—is already included in the Minsmere Bird Reserve (managed by the Royal Society for the Protection of Birds) and the Conservancy's new acquisition on the eastern side safeguards the remainder up to the boundary of the Forestry Commission's land at Dunwich. Since most of the former extensive Suffolk heathlands have recently been reclaimed for agriculture or afforestation this new Nature Reserve is timely.

In the January number of the *Canadian Entomologist* O. H. Lindqvist details a method of setting small microlepidoptera on a piece of paper-covered balsa wood, the insect being placed on its back and pinned as for an underside specimen. The wings are carefully drawn into position by a fine needle applied without puncturing the wings, to the basal nervures, and secured in position by paper strips. When dry the insect is mounted on polyporus, paper-covered Balsa, or paper-covered cork on a carrier pin, the blunt end of the insects pin being inserted into a hole pierced in the mounting element with a smaller pin, and fastened into position by a drop of an adhesive. This technique is said to be reasonably successful where semi-skilled staff is employed, but care must be taken to avoid damage to the scales of the upper side by reason of rough handling. We still prefer the usual method with small grooved boards.

We quote the following from an African travel book we have recently read:—"The equatorial dusk lasts for a brief half hour, and then night swoops down over the vast steppe. This is the time to relax in a deck chair outside your tent, with a long cool drink in your hand. You can hear the sound of animals in the bush, and watch the glow-worms flashing on and off like excited Morse operators . . ." (*Pori Tupu*. By Oscar Koenig, 1954, p. 13). So even the glow-worms have been speeded up nowadays—the better, we suppose, to illuminate Darkest Africa . . .

Another new book and one much more to our liking, which we have just put down is *The Bristol Channel* by Brian Waters. On page 176 we came upon the following passage: "It is a Bird Sanctuary, but except for a few gulls, I saw no birds, the other winged things being a Marbled White butterfly and a Footman moth emerging from its cocoon anchored to one of last year's grasses". Our first thought on reading this was that "footman" was a slip of the pen for "burnet", but Mr.

Waters is a good naturalist and a good observer. So far as we can recollect, the only "footmen" (or perhaps we should say "Footmen Companions" since the *Nolinae* accompany the *Lithosiinae* in our text-books) which spin cocoons on grass stems are *Celama aerugula* Hb. and *Nola albula* Schiff. But do either of these insects occur in the lands bordering the Bristol Channel?

A burnet emerging from its cocoon is a thing likely to catch the eye of the naturalist, but would a bird observer notice an insignificant moth such as *aerugula* or *albula* in this situation? On the whole, we think it must have been a slip of the pen.

Notes and Observations

COENONYMPHA TULLIA MÜLL. TWO YEARS IN THE LARVAL STAGE.—Is there any record of *C. tullia* taking two years to complete larval growth? I caught a female on Rannoch Moor in Scotland on 2nd August 1954. She laid about 15 eggs between 4th August and 10th August, 1954. The larvae from these eggs overwintered as very small larvae, and by 22nd April there were only 6 survivors. Of these, two were alive on 14th July 1955, when they measured roughly 10 mm. and 11 mm. During this last winter, 1955-6, one larva has been motionless all the time, the other came up to feed on 12th December 1955 and then went right down into the grass and cannot be seen. The visible one looks perfectly healthy but is still very small.—(Miss) C. A. McDERMOTT, The Dene, Borough Green, Sevenoaks, Kent. 1.iii.56.

PLEBEJUS ARGUS L. IN DENBIGHSHIRE.—With regard to the note in the *Entomologist*, (89: 47) by Mr. R. A. Hughes reporting the occurrence of *P. argus caernensis* in the Dulas area, it may be remembered by readers of the *Record* that in an article of mine in 1952 (*Ent. Rec.*, 64: 164) I gave notice that this race had been introduced to this part of Denbighshire by Mr. A. J. Merchant who, in the 1940's, put down a number of ♀♀ from the Great Orme. It seems that this introduction has flourished (we could neither of us watch it as we left North Wales soon afterwards) and that this is the colony which Mr. Hughes has found. I have to-day written to the *Entomologist* giving notice of this fact.—J. ANTONY THOMPSON, Milton Lodge School, Wells, Somerset. 29.ii.56.

DRAGONFLIES IN THE HEBRIDES.—Specimens of an *Aeschna* (probably *juncea* Linn.) turned up on the Island of Canna during the third week of September 1955, a period of strong, but warm, southerly breezes. One was seen above the peninsula of Langanes, on the north side of the island, on 20th September. The next day two were seen in my garden; one or two specimens of *Vanessa atalanta* L. were also around. The *Aeschna* and the *atalanta* were seen in the garden again on the 22nd and the 23rd. The next day I had to leave the island until 1st October, by when both insects had disappeared. This is not the first time an *Aeschna* has turned up on Canna, but it has never appeared so late in the year before.—J. L. CAMPBELL, Isle of Canna. 29.ii.56.

QUEEN BEE IN FEBRUARY.—On the 23rd February, a beautiful calm cloudless day, while working in a plantation I first heard and then

saw a queen *Bombus lucorum* L. Shade temperature was 39° F. I cannot remember having seen a queen bee here before in March. Usually they do not appear until the last week of March. The same evening there were four specimens of *Phigalia pedaria* Fab. in the moth-trap, and on the 24th February there were five.—J. L. CAMPBELL, Isle of Canna. 29.ii.56.

EARLY HATCHING OF STRYMONIDIA W-ALBUM KN. EGGS.—In view of the following occurrence, I was very interested to read the note on *L. coridon* Poda by Major Collier in the February *Record* (68, p. 33).

At the end of the first week of the present cold spell, on 5th February, I passed an old elm tree on which I had found several larvae of *S. w-album* in 1946. Only one branch now hangs down within reach, and I pulled this down to examine the twigs for eggs of *w-album*—rather optimistically, as I thought, for I have several times sought the butterflies around the same tree with no success at all. Rather to my surprise, I quickly found four eggs, all apparently having hatched normally. The obvious conclusion was that these were of 1954-5 vintage, but in view of the fact that three were laid at the junction of last year's growth with the older wood—a very common choice for *w-album*—I am inclined to think that they were laid in 1955.

A careful search produced no unhatched eggs and one near-by blossom bud had on it two or three tiny black specks which could conceivably have indicated a larva within. Larvae would hardly have emerged during the very cold weather commencing 31st January, and hence must have done so before that date. A search of the same twigs in a month or so's time will, I hope, decide the question, but it would be interesting to hear of any other evidence on the same point.—H. G. SHORT, 8 Milbourne Lane, Esher, Surrey. 24.ii.56.

[Is Mr. Short *quite* sure the eggs had "hatched normally"? Earwigs are very fond of lepidopterous eggs; a pocket lens is sometimes necessary to discriminate between their evil work and the orifice made by an emerging larva.—ED.]

Current Literature

THE BUTTERFLIES OF THE MALAY PENINSULA by A. Steven Corbet and H. M. Pendlebury; Oliver & Boyd (£5 5/-).

The second edition of this work, originally published in 1934, made its appearance on 7th March of this year. This is a book which combines the virtues of being a scientific work useful equally to the beginner and to the professional, and to this must be added the beautiful production in print, paper and plates.

The present volume consists of 537 pages (223 in the first edition) with 55 plates, of which eight are in colour, and is the result of the work done by Dr. Corbet after his return to this country, only his untimely death in 1948 preventing its appearance at an earlier date.

The preface, dated 15th September 1947, is written by Dr. Corbet and is followed by a short note of subsequent events by his wife. It is a well-known bad habit of readers to skip the preface, but this must on no account be done in the present case, for, in surprisingly few words, he sets out his reasons for preparing this second edition.

During the latter part of the war, Dr. Corbet was seconded to the Infestation Division of the Ministry of Food, and it was here that this reviewer had the honour and pleasure of working under such an accomplished gentleman, and, from the start, he was filled with admiration for the clarity and precision of all Dr. Corbet's work, so that these characteristics came as no surprise to him, but they cannot but impress themselves on the reader of this book. In conversation on his collecting experiences in Malay, Dr. Corbet explained that taking risks paid good dividends, and instead of treasuring a single specimen of what seemed to be a new species, he would remove a pair of wings and return them to the sender with a request for more material of the same species, and this was in many cases forthcoming, thus providing material for further research.

The book is divided into three parts: Part I is the introduction, and might well serve as a biological text book for the student of the butterflies, Chapter I giving an outline of the constitution of the Animal kingdom, very rapidly pinpointing the place of the Lepidoptera in it, and of the Rhopalocera in the Lepidoptera. The anatomy is then discussed and the two main conventional ways of describing the neururation of wings are explained, as also are the various parts of the genitalia, so that these may be understood in Part II when such references are made. There follow chapters on life history, classification, and geographical distribution, this last having special reference to the Malaysian sub-region with explanatory maps, and relevant details of all aspects of the country such as rainfall, distribution of butterflies, plant zones and migration.

Chapter V deals with wing pattern and variation, sub-species, Mendelism, mimicry, and protective resemblance. Chapter VI explains duplex species, VII gives some ingenious applications of mathematics to various aspects of the study of Malaysian butterflies, while an interesting history of collecting in the Malay Peninsular appears in Chapter VIII. Chapters IX and X deal with collecting methods, setting and preserving.

Part II is the discussion of species, commencing with an explanation of the use of keys. The main families are first of all keyed, and thereafter the genera of each family are duly keyed, and again the species are keyed in their respective genera. The details mentioned in the keys are often not repeated in the descriptions, so they should be borne in mind—this omission of course is in the interests of clarity and the avoidance of prolixity.

Part III commences with a complete synonymic list of 898 species plus 16 doubtful species, and 89 sub-species plus 1 doubtful sub-species. This is followed by a short table setting out the food-plants of the various genera of Malayan butterflies, and the part closes with a long bibliography, notes, and general and special indices.

The plates are in four main sections, 20 giving 342 figures of genitalia dissections, 8 in beautifully-produced colour photography of species notable for their beauty, rarity, or difficulty of determination from uncoloured plates. These are followed by two plates of historical specimens, one plate being of Linnean types, and the other of specimens collected by Joseph Banks, in the British Museum collection. The remaining 25 plates show 322 photographic figures of excellent clarity in black and white.

In conclusion, I would suggest that this book not only has a place on the shelves of the specialist but is an item for the collector of beautiful books and for the collector of the British species who from time to time likes to spare a moment to look at the wider picture and appreciate where the material in his collection finds its place amongst the butterflies of distant regions.

S. N. A. J.

THE MITTEILUNGEN DER MUNCHER ENT. GESELLSCHAFT for 1954-55 is a commemorative number of the fiftieth anniversary of the society; it consists of VII + 555 pp. with 9 plates, and contains many interesting papers, mainly on Lepidoptera and Coleoptera and also on Hymenoptera, Diptera and Mallophaga.

For Lepidopterists, Otto Holik and Leo Sheljuzhko give a continuation (132 pp.) of their work on the Zygaenidae of Eastern Europe, Asia Minor, Iran, Central Asia and Siberia; a further 23 species being dealt with very thoroughly. Franz Daniel gives a critical review of the species allotted to the genus *Stygia* Latr. This forms the first of a series constituting a monograph of the Cossidae. He erects a new genus, *Psychidostygia* covering four species.

S. G. Kiriakoff writes on the Thyretidae (Notodontoidea) in the Munich Zoological Museum, with a ten figure plate, while Leo Sheljuzhko also writes on "New and Little Known Noctuidae and Geometridae" from the same collection with a 15 figure plate of the new species.

As No. 4 of a series on the knowledge of the South Bavarian fauna, Josef Wolfsberger writes on "New and Interesting Macrolepidoptera" of Southern Bavaria and the neighbouring limestone alps, while Hermann Pfister writes on "New and interesting Microlepidoptera of the same district.

Guido Kauffmann writes on *Pyrgus malvae* L., *malvoides* Elw. & Edw. in the northern Tyrol pointing out the status of *malvae* and *malvoides*, Karl Burmann of Innsbruck having produced two so-called hybrids between the species and the subspecies. This paper is accompanied by Plate VII (not XIII as mentioned in the heading) showing a map of Lower Austria with the localities mentioned duly marked, and four genitalia photographs, two showing the two hybrids, and one each of *malvoides* and *malvae*.

Dr Amsel and Joseph Klimesch write on a new *Moodna* species inhabiting humble-bee nests, *M. bombylicolella*. This paper has text figures of wing neuration and larval chaetotaxy while Plate VIII gives natural size photographs of the ♂ Holotype and the ♀ Allotype, and also ♂ and ♀ genitalia dissections.

Sergius Toll writes on the difficult Tortricid family Dichrorampha (Hemimene) and describes a new species, *D. klimeschiana* (♂ and ♀ genitalia text figures), with other text figures of wing contour, genitalia, etc.

Coleopterists will be interested in the many papers on this order. Karl E. Schedl writes on the morphology and systematics of the Scolytoidea as part VII of a work on the Palaearctic bark beetles. The Curculionidae have three papers: Eduard Vosz writes on the synonymy and systematic position of European genera of the *Cossoninae* with 17 text figures, and also a note describing a new species from Guatemala,

Pissodes guatemalicus. R. Frieser describes three new subspecies in the family *Acalles*, namely *A. barbarus* ssp. *interpositus*, *A. roboris* ssp. *monstrosus* and *A. variegatus* ab. *grossus*, and also a new species, *A. pelionis*, which, as its name implies is from Mount Pelion in Thessaly.

Antonio Martinez describes a new Scarabeid genus and species, *Surutu dytiscoides* from Bolivia; there are two plates, one of line drawings of anatomical details, and the other, photographs of the ♂ and ♀ in dorsal and lateral views, presumably life size. The paper is in Spanish.

A note on the neotropical *Malacodermata* is contributed by W. Wittmer with eight text figures of anatomical details. Dr Vladimir Balthasar describes a new species and subspecies of the Scarabeid family *Gymnopleurus* Klig., *G. martinezi* nov. and *G. stipes* ssp. *japonicus* nov. There is a monograph of the genus *Carabus* in the Bavarian forest land by Ferdinand von Poschinger and Lilly Wachnitz.

R. Frieser also describes a new form of the Anthribid species *Phaeonotherion fasciculatum* Rtt. under the name of *kuchtae*; he also gives a key to the European species of this family. Erich Uhmann writes on the *Hispinæ* (*Chrysomelidae*) of South and East Africa with a new species, *Pseudispella radiata*, and Leopold Mader describes two new South American species, *Neda nigrotifasciata* from Ecuador and *Microtretus major* from Paraguay. Finally there are two papers on the Staphylinid family *Lesteva* with a new species, *L. carinthiaca* from the Austrian Tyrol in one, and two new species from material in the Bavarian State Museum, *L. taygetana* from Taygetos in the Peloponese and *L. lusitana*.

Papers on Hymenoptera include an account of the *Polistes* species in the Bavarian State Collection, by Lothar Zirngiebt describing three new varieties; Paul Blüthgen writes "a further note on the Synonymy of the Palaearctic 'Moth-Wasps'" and Walter Soyka presents a revision of the genus *Myrmar* Curtis, and Alejandro Ogloblin writes on new species of the family from the Argentine Republic.

There is one paper on Diptera, giving an account of Microspore parasitisation of larvae of *Mochlonyx culiciformis* de Geer, by Ilse Rapsch, and Wolfdietrich Eichler contributes a paper on the Mallophagid genus *Ornithobius*, with Plate VI giving two microphotographs of bird lice.

LAMBILLIONEA, Vol. 56, Nos. 1-2 (25.ii.56) mentions *Coleophora galactaula* Meyr. as a species new to Belgium. Pierre Viette describes the new genus *Beforona* with the new species *B. mirabilella* Viette from Madagascar, with a text figure of the ♀ genitalia. H. de Lesse gives an account of a five-day collecting tour in Central Italy, mentioning the discovery of *Erebia pandrose* Bkh. J. Hackray contributes a note on *Apatura serarum* Obth., and Paul Marechal analyses the entomological year 1955, month by month from a weather angle.

Fifty Years Ago

(From *The Entomologist's Record* of 1906)

ANTIOPA ON THE RAILWAY.—Reaching Berne on . . . 28th June my observations commenced through the window of the railway car-

riage, when I noticed a white willow bush largely stripped of its leaves, with apparently some black objects amongst the denuded stems; the train, however, sped by too swiftly to determine whether they were larvae of *Euvanessa antiopa* Towards the end of my short stay my restless curiosity compelled me to return to Berne to see what it was that had stripped that bush by the line-side. The journey was made on 4th July, the hottest day that summer, I believe and I spent rather over seven hours *en route*, and, what is more, I went armed with a ladies' hat-box of large size which should carry home the prize, when obtained. . . . I began to get nervous as we approached the town, fearing that the day's quest would come to nothing. However, planting myself at the carriage window I watched and waited, and once more the stripped boughs were quickly scanned as the train sped by, and once more black objects were detected, but to my dismay a small bird was fluttering in their very midst. . . . Another mile brought us to a standstill in Berne station. At a chemist's shop I bought some oil of geranium, which I rubbed over my face to keep the flies off. . . . I then crossed the great bridge over the river, and made my way with all speed through the town in the direction which I knew must sooner or later bring me to the railway line; and to make a long story short I hit the spot at once, and my efforts were rewarded. *There* was the white willow bush, or all that was left of it, and *there* were twenty-seven magnificent full-sized *E. antiopa* larvae, black as coal, with vermilion spots on the back and red legs, eating voraciously, and moving about with electric rapidity, their movements being accentuated by the heat and brilliance of the day. The hat-box was soon opened out, the bough snipped, and in ten minutes I was marching back to the town to refresh the inner man at the nearest beer-garden. . . ."—Rev. MILES MOSS.

Obituary

Many readers will be grieved to hear of the death, on 20th February, of Dr. Harold King, C.B.E., D.Sc., F.R.S., at his home at Parley Cross, near Bournemouth, at the age of 68. He had been ill with heart trouble for a fortnight, but the end came suddenly, just when it seemed that he was beginning to recover. Had he lived, he would have been unable to pursue his entomological activities with the energy that was so characteristic of him.

Dr. King was a distinguished scientist, but this is not the place to deal with his achievements in that sphere. It was as an all-round naturalist that we knew him. He was not only a first rate field entomologist, with a particular interest in the Eupithecias, but he also had a good working knowledge of botany and ornithology, and his interests extended to archaeology. A very modest man, he was most helpful and generous to those who went out collecting with him, and his boundless enthusiasm acted like a tonic. He will be very much missed by his friends, and to his wife and son we offer our deepest sympathy in their bereavement.

H. S.

As we go to press we learn, with deep regret, of the death of JOHN ANTONY THOMPSON of Milton Lodge, Wells, who died on 6th March. We hope to publish an obituary note in a forthcoming issue of this magazine.

EXCHANGES AND WANTS

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—*B. R. Laurence, Birkbeck College, London, W.C.1.*

Warwickshire Lepidoptera.—Will Entomologists please assist in compiling a new "County of Warwickshire Local List of Lepidoptera" (Macro and Micro)? Records giving date and year, and locality of capture should be sent to *Trevor Trought, F.R.E.S., c/o The Curator, County Museum, Warwick.* All assistance will be acknowledged

Wanted.—Mahogany cabinet, 40 drawers; Brady or Gurney preferred.—*J. M. Chalmers-Hunt, 70 Chestnut Avenue, West Wickham, Kent.*

Wanted.—A copy of *The Entomologist's Record* for January 1951. Will pay 10s. for a good clean copy.—*J. F. Reid, 19 High Street, Leighton Buzzard, Beds.*

Wanted.—European (excluding Great Britain) Rhopalocera. Would collect English insects of any order in exchange. Fresh or papered butterflies preferred. Any offers?—*Dr. N. L. Birkett, 3 Thorny Hills, Kendal, Westmorland.*

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TO OUR CONTRIBUTORS

All material for the magazine should be sent to the Editor.

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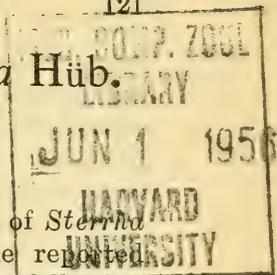
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Sterrha rusticata Schiff. and *S. degeneraria* Hüb.
at Torquay, Devon

By A. H. DOBSON.



With regard to A. J. Showler's papers on the distribution of *Sterrha rusticata* Schiff. in the British Isles I wish to clarify the reported occurrences of this species in Devon and Cornwall. The following records are taken from the 'records' book of the Torquay Natural History Society:—

Exeter district, one (E. Parfitt)
Rame Head, Cornwall (H. S. Bishop)
Rock Walk, Torquay, one, 1.8.12 (H. Lupton)
Torquay, one, 1922 (J. W. Metcalfe).

The Exeter and Rame Head records were most probably about the end of the last century. On looking through the collections at the T.N.H.S. Museum I found only one local specimen there, and that was caught by Lupton, but is labelled 7.7.18.

I have been actively collecting in this district since 1946, and in 1949 I caught one specimen of *S. rusticata* flying about four feet above a path in our small walled-in garden at dusk on the 2nd June. Since that date I have searched intensively for this species in this area. Lupton's specimen was found resting on the leaves of an evergreen in the Rock Walk. I have searched every possible place between our garden and the Rock Walk, a distance of half a mile. Last year I extended my search to other parts of the town, but never did I find this species.

At present I am convinced that the specimen I obtained on 2nd June 1949 was an immigrant. All the specimens taken in Devon, so far as I can find out, are single specimens taken at irregular dates. I feel certain that the species is not a resident of Devon nor Cornwall. Only a few days after my capture of this specimen there was a large immigration of moths, including *Celerio livornica* Esp. and *Heliothis peltigera* Schiff. to Torbay.

According to Air Ministry weather records, a front passed westwards over the Channel and North-West France in the early morning of 1st June, and during the previous part of the night a moderate to light southerly wind blew across North-West France and the Channel. It is quite possible that this small flimsy moth was carried over in the late evening and night of 31st May, or was carried in an upper air-stream, by a moderate south-easterly wind, in the late evening and night of 1st June.

Also, I have never heard of *S. rusticata* being taken so early in June. July being the usual month for flight; but on the Continent, I believe this species is in flight during June and July. Immigration will probably account for odd specimens being caught in South-West Ireland, Dorset and Suffolk, and for why there appears to have been a concentration of records in the South-East of England.

With regard to South Devon, I am certain that this area lies within a "migration corridor" which spreads from the West coast of France up to Brittany and Normandy and across the Channel to South Devon.

I have also been searching for *Sterrha degeneraria* Hüb., which at one time was definitely a resident species at Torquay. The occurrences

recorded by the T.N.H.S. are as follows:—J. Walker, 1897, 1904 till the last specimen captured by him in June 1908, 1927 in a local cove, and it was also to be found on cliffs above a beach near the cove (E. D. Morgan). However, during 1954 and 1955 I searched the localities but found no existence of this species. Since the last War there have been 'improvements', for the visitors' benefits, to the base of the cliffs in the cove, and the cliffs above the nearby beach have been falling and making landslides. I have searched all the cliffs around the cove, and all the safe parts of the cliffs above the beach, and I fear I must consider this species to be at present extinct at Torquay.

Lepidoptera at Byfleet, Surrey, July-August 1955

By S. WAKELY.

On the 15th of July I returned from my holiday at Camber, Sussex, and decided to visit my daughter living on the new L.C.C. housing estate at Sheerwater, Byfleet. The canal tow-path and beautiful heathlands there had been a happy hunting ground of mine for many years, and no doubt I am not alone in regretting the great changes taking place there nowadays. However, the opportunity arising, it seemed a pity not to try a mercury-vapour light there—at Paxton Gardens to be more exact. My daughter's garden is bordered by the canal, and there is a small reed bed about 10 yards from where the light was used. I used the light suspended over a sheet with no trap, and the results the first night were such that I continued to work the light there once a week for the ensuing six weeks. Several of the species were ones I had never had the good fortune to take previously, and some which I had looked upon as comparatively rare turned up in numbers. The following is a list of the more interesting species:—

Hyloicus pinastri L., *Cerura furcula* L., *Stauropus fagi* L., *Pheosia tremula* Clerck, *P. gnoma* F., *Notodonta dromedarius* L., *Habrosyne detersa* L., *Thyatira batis* L., *Tethea duplaris* L., *Drepana binaria* Hufn., *D. lacertinaria* L., *Mitochrista miniata* Forst., *Eilema griseola* Hb., *E. lurideola* Zinck., *E. complana* L., *Colocasia coryli* L., *Apatele leporina* L., *A. rumicis* L., *Cryphia perla* F., *Agrotis vestigialis* Rott., *Euxoa tritici* L., *Apamea scolopacina* Esp., *Coenobia rufa* Haw., *Nonagria typhae* Thunb., *N. geminipuncta* Haw., *Petilampa minima* Haw., *Dicycla oo* L. (v. *renago* Haw.), *Cosmia diffinis* L., *Cirrhia icteritia* Hufn., *Anchoscelis litura* L., *Parastichtis suspecta* Hb., *Polychrisia moneta* F., *Lygephila pastinum* Treits., *Laspeyria flexula* Schiff., *Parascotia fuliginaria* L., *Chesias rufata* F., *Mysticoptera sexalisata* Hb., *Calocalpe undulata* L., *Xanthorhoe quadrifasciata* Clerck, *Hydrelia flammeolaria* Hufn., *Euphyia unangulata* Haw., *Perizoma alchemillata* L., *Eupithecia pulchellata* Steph., *E. goossensata* Mab., *E. succenturiata* L., *Semiothisa alternaria* Hb., *Itame wauaria* L., *Ennomos quercinaria* Hufn., *Deuteronomos alniaria* L., *D. fuscantaria* Haw., *D. erosaria* Borkh., *Apeira syringaria* L., *Epione repandaria* Hufn., *Biston betularia* L., *Schoenobius forficellus* Thunb., *Dioryctria fusca* Haw., *D. splendidella* H.S., *D. abietella* F., *Phycita betulae* Goeze, *Nephopteryx similella* Zinck., *Crambus falsellus* Schiff., *Anania nubilalis* Hb., *Eulia formosana* Hb., *Hyponomeuta evonymella* L.

Hyloicus pinastri was represented by a single specimen which appeared on the 15th July. On the same night a grand var. *renago* of *Dicycla oo* turned up, together with one *Stauropus fagi*, two *Xanthorhoe quadrifasciata*, a very faded *Nephopteryx similella*, and two *Eulia formosana*. Four of these species were new to me in the field and this fact spurred me on to try for still more rarities as soon as possible. *Habrosyne derasa* was very common, but *Thyatira batis* occurred only on the 19th August, when four suddenly put in an appearance. The Hook-tips were also plentiful and a nice supply of eggs was obtained from *Drepana binaria*. During the many years I have been interested in lepidoptera not more than half-a-dozen *Mitochondria miniata* had ever come my way, but on several nights here over a dozen came to the sheet. Both *Notodonta dromedarius* and *Apatele leporina* appeared in numbers most nights, and a fine yellow-ground variety of *Cryphia perla* was taken on 19th August. I had been told that *Agrotis vestigialis* could be taken on our Surrey heathlands, but nevertheless I was rather surprised to take five on one night (29th July), all in first class condition. Two dark *Euxoa tritici* were taken, so unlike my series from the south coast that I thought they must be another species. I am told that this dark form is peculiar to the heaths in Surrey. *Apamea scolopacina*, two of which were taken, was a pleasant surprise. My daughter gave me a noctuid larva which was feeding voraciously on the flower petals of Iceland Poppies growing in the garden, and this later emerged as *Anchoscelis litura*. A pair of *Parascotia fuliginaria* were taken and from eggs obtained a number of larvae are looking quite healthy at the time of writing (February). The two *Xanthorhoe quadrifasciata* which turned up proved to be a pair, and a lot of eggs were obtained and distributed to friends. I kept some myself and the larvae fed freely on groundsel and other weeds. Unfortunately they were kept too long in a tin, and eventually the half-dozen survivors were transferred to an outdoor pot, where they seemed to be quite happy during the cold weather in their characteristic coiled-up attitudes on dead grass stems. The Thorns were well represented, *Deuteronomos alniaria* coming by the dozen. *Ennomos quercinaria* was represented by a single specimen and this species appears to be much more rare than it was twenty years ago. The single *Apeira syringaria* which appeared on 15th July was a female and deposited scores of eggs. Some of my friends bred a second brood from these, but the majority of the larvae went into hibernation. I was rather surprised that all the eggs laid by *Epione repandaria* hatched after a few days and the larvae fed up rapidly and produced moths in September. *Biston betularia* came freely to the light, and included type specimens, var. *carbonaria*, and various degrees of intermediates. *Dioryetria splendidella*, of which there were two, appeared on 22nd July and were very different in coloration, one being very dark with obscure markings. About 10 *Eulia formosana* appeared on various dates, some being too worn to keep. A female of this species was kept for eggs, confined in a tin with a sprig of fir. After a week a search was made for eggs, and at last they were spotted. They were most difficult to detect, being laid in lines down the centre of a pine needle and covered by a transparent gum-like substance. Most of these were distributed to friends who later reported they had had no luck with the larvae. A few I kept hatched all right, and the active larvae appeared to burrow into the tiny red buds among the pine needles. I was able

to get one larva to survive up to the present, and hope to rear it. At present it is feeding on the needles, living under cover of a loose silk web. Various common Tineids also came to light, one which specially interested me being *Hyponomeuta evonymella*. The larvae of this species feed gregariously in a web on wild cherry, but I have never heard of any larvae being found in the south of England, although the moth itself is widely distributed in Kent and Surrey. In North Wales and Scotland the webs are often to be seen in great profusion. Are webs overlooked in the south, or are the moths actually migrants? Perhaps some reader can clear up the mystery.

It will be interesting to see if many of the rarities mentioned survive for long among the many houses being built in this district.

The Macrolepidoptera of Abbey Wood

By A. J. SHOWLER, M.Sc.

Abbey Wood lies on the border of Kent and London, and about two miles south of the Thames. Its lepidoptera have been dealt with in two earlier publications, the Woolwich Surveys (1909) (1) and a monograph by Marriott (1925) (2), the latter dealing specifically with Abbey Wood, and giving an excellent account of the flora and remaining fauna of the area, and of the geology, to which the reader can be recommended.

There are three distinct habitats:—

(1) *Marshland*. This comprises Plumstead Marshes (in the west) and Abbey Wood Marshes (in the east). This area is freshwater marsh, but nevertheless has produced some interesting insects in the past, and may well do so still, for my records are far from complete, especially of the Marshes. Part of Woolwich Arsenal encroaches on this land, but far more serious is the L.C.C. scheme to drain and build on the whole of Plumstead Marshes (in spite of the whole area having been under water in the winter floods of 1954).

(2) *Woodland*. The marshland is more or less delineated by the railway line from Plumstead to Belvedere, and beyond a strip of houses the land starts to rise as we move south. The whole slope is wooded, with Bostall Woods in the west comprised mainly of oak and birch, with some pine, and very little ground flora, and the more dense area of Lessness Woods in the east, mostly of sweet chestnut and oak, with scarcely any ground flora except in the clearings, which are carpeted in Spring with daffodil, bluebell (*Scilla*), violet and wood anemone.

Geologically, the woodland is on the Blackheath and Woolwich Pebble Beds, and considerable ravining and scooping is exhibited, so that the Thanet Sand is reached in places, and where the two woods meet there is some chalk outcropping (though most can only be seen in excavations), as evidenced by the growth of *Clematis vitalba* and maple. A few species of moth, e.g., *Melanthia procellata* Schf., *Anaitis plagiata* L., *Eremobia ochroleuca* Schf. and *Lophopteryx cucullina* Schf. have been noted which suggest that this chalk has its own limited calcicole flora and fauna.

(3) *Heathland*. At the top of the woodland slope the land is flat and the pebbles of the Blackheath Beds are much in evidence. Ecologically, the woodland gives way to some form of heathland with birch,

pine and gorse, but only in a small area in the east, near Upper Belvedere, is any heather to be found. Much of the entire area is now built on.

(4) *Surrounding land.* Apart from these three zones, most of the land is occupied by houses, and comprises:—(a) to the east Erith and Belvedere, (b) to the south Bexleyheath and Welling and (c) to the west Plumstead and Woolwich; though there is an almost house-free belt stretching across to the woods of Shooters Hill, well known to the old collectors.

Area under survey. In the immediate neighbourhood of my house, situated at the top of the slope of Lessness Woods (and in Kent), a considerable variety of trees are to be found, and this no doubt has contributed to the number of species at the m.v. trap run (since September 1952) in the garden in far from ideal conditions, for the light has been partly shielded on one side and completely on another, by a garage and the house respectively. Many other species have been taken at lights alongside the woods and on the marshes, while others have been noted at rest or on the wing by day, or have been bred. Many records are due to others, acknowledged later. The actual area covered is of approximately two miles radius around my house, and, it should be noted, therefore excludes Shooters Hill Woods.

Species occurring. This list cannot be claimed to be complete, or even nearly so, and many species which almost certainly still occur, for they have been previously recorded, have failed to come under observation in the past four or five years, but there is no reason to assume that they no longer occur in this locality.

On the other hand, several other uncommon insects have appeared singly in recent years, e.g., *L. cucullina* Schiff., *Spilosoma urticae* Esp. and *Lampropteryx suffumata* Schf. and it is probable that these are resident in the area; even *Angerona prunaria* L., a most unexpected visitor to the trap, may be of similar status. Several other more common species have been added to the lists, either because they had been inadvertently omitted from them or due to an extension in range such as has been seen in recent years with *Polygonia c-album* L. and *Limenitis camilla* L.

Surprisingly few species can be asserted to have disappeared, probably the only certain example being that of *Maniola tithonus* L. This excludes, of course insects such as *Celaena haworthii* Curt. and *Pachynemina hippocastanaria* Hb. for which in any case there were only odd single records. Several long-established and rather local insects are still to be found in numbers, notably *Scopula marginepunctata* Göze, *Sterrha rusticata* Schf. and the well-known colony of *Abraxas sylvata* Scop.

There have been, it must be admitted, some surprises amongst the species still occurring; for example I had never looked for *Callophrys rubi* less than five miles away until 1954, when it was found within $\frac{1}{4}$ mile of my house in Lessness Woods. *Anthocaris cardamines* L., too, was found similarly after a lapse of several years in which I had not searched for it. Here lies a moral for the entomologist, for I feel I am not alone in knowing less about my own door-step than about some far-off wood, and in going fifty miles for a species to be found one mile away.

Migrants are represented, as would be expected, fairly well on the list, though these records are of less interest than those of the residents.

Further Records. Undoubtedly there are a considerable number of species still to be recorded, especially from the marshes, and it is hoped to continue the survey next year when I am again free to do so.

Summary. From the subsequent list, and a comparison with those of Marriott (2), and the Woolwich Surveys (1) it will be seen that, allowing that most of the more common species not yet recorded still occur, very little change has taken place over the last fifty years, despite the extensive building and development of the land roundabout. Several new species have moved in, as they have done in other parts of the country, (though a notable exception is *Pararge aegeria* L.) and some have disappeared, though this is less easy to prove. Some of the "new" species may well only be omissions from the old lists. The reader may care to compare this list with a very jumbled list of the lepidoptera of Greenwich Park (1902) (3), wherein both specific and generic names appear in columns, together, without any distinction.

That the lepidoptera of Abbey Wood are to-day very much unchanged when the area round about has changed so much, must be due to a great extent to the lease of the woods by the London County Council and the inability of any authority to find a good use for the Marshes.

Acknowledgments. I should like to thank the following for their help in the compilation of this list (their records are acknowledged in the text):—Messrs. J. Burton (J.B.), C. Hards (C.H.) (who compiled the list in Marriott's publication), J. Green (J.G.), D. F. Owen (D.F.O.), R. G. Rigden (R.G.R.) (Assistant Curator, Plumstead Museum) and M. D. Smith (M.D.S.); to J. M. Chalmers-Hunt for advice and identifications; and to D. S. Fletcher for the determination of several species of *Eupithecia*.

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- (1) A Survey and Record of Woolwich and West Kent. *Ed.* Grinling, Ingram and Polkinghorne (S.E.U.S.S.). Labour Representation Printing Co. Ltd., Woolwich, 1909.
- (2) British Woodlands as Illustrated by Lessness Abbey Woods. *Ed.* Marriott. Routledge and Sons, Ltd., London, 1925.
- (3) Greenwich Park: Its History and Associations. *Ed.* A. D. Webster. Pp. 59 61—Entomology of the Park. Printers not given. November, 1902.

An attempt has been made in this list to assess the relative degree of rarity of an insect, but as this is based to a considerable extent on captures at the m.v. trap, this cannot always be accurate, especially for the Geometers.

Unless mentioned, it may be assumed that the insect occurs in suitable habitats over the entire area previously described. Where records are not my own, the authority concerned is given (see acknowledgments). Several of the insects listed in the Woolwich Surveys but not recently recorded are commented on in brackets.

Pararge aegeria Linn. One seen in Plumstead High Street, 1952 (R.G.R.). Although providing an ideal habitat, none have yet been seen in the woods.

P. megera Linn. Common.

Eumenis semele Linn. One seen at Abbey Wood, 1951 (R.G.R.).

(*Maniola tithonus* Linn. A species which has disappeared.)

Maniola jurtina Linn. Common everywhere.

- Coenonympha pamphilus* Linn. Common everywhere.
- Argynnis paphia* Linn. One ♂ on *Buddleia*, 10.vii.46 (R.G.R.).
- Vanessa atalanta* Linn. A common migrant in most years.
- V. cardui* Linn. Common, but less so than *atalanta*.
- Aglais urticae* Linn. Common.
- (*Nymphalis polychloros* Linn. Recorded in the past, but not recently.)
- Nymphalis io* Linn. Common.
- N. antiopa* Linn. One seen at Plumstead, 1945 (?), by W. Cox (C.H.).
- Polygonia c-album* Linn. Fairly common.
- Limenitis camilla* Linn. One seen in Wickham Lane, Abbey Wood, in June 1949. The only place where honeysuckle is found is Lessness Woods, but I have never seen *camilla* there.
- Aricia agestis* Schiff. A few colonies are found on the Marshes (J.B.).
- Polyommatus icarus* Rott. Common.
- Celastrina argiolus* Linn. Found in Lessness and Bostall Woods. In recent years it has become less common, not only here, but in many places in Kent.
- Lycaena phlaeas* Linn. Fairly common.
- Callophrys rubi* Linn. A small colony exists in Lessness Woods.
- Pieris brassicae* Linn. Common.
- P. rapae* Linn. Common.
- P. napi* Linn. Common.
- Anthocharis cardamines* Linn. Was often seen in the 1940's on Plumstead Marshes. One ♂ was seen in Lessness Woods in 1954, and almost certainly a colony exists.
- Colias croceus* Fourc. Has been seen in most parts of the area in suitable years.
- Gonepteryx rhamni* Linn. Occasionally seen as a wanderer in spring, e.g. 1952.
- Erynnis tages* Linn. Occurs on the Marshes.
- Pyrgus malvae* Linn. Occurs on the Marshes, on the bank bordering Woolwich Arsenal.
- Thymelicus lineola* Ochs. Common.
- T. sylvestris* Poda. About equal in numbers with *lineola*.
- Ochlodes venata* Br. & Grey. Common.
- Mimas tiliae* Linn. Common. Larvae on roadside limes.
- Laothoe populi* Linn. Common, especially on the Marshes.
- Smerinthus ocellata* Linn. Common.
- Herse convolvuli* Linn. One found near Plumstead Library, and taken into the Museum to R. G. Rigden, 1952.
- Sphinx ligustri* Linn. Common.
- Deilephila elpenor* Linn. Fairly common at m.v.
- Macroglossum stellatarum* Linn. Found in most years.
- Cerura vinula* Linn. Common amongst willows and poplars.
- Pheosia gnoma* Fab. Only one, at m.v. in 1953.
- Notodonta ziczac* Linn. Almost certainly occurs, as it has been bred from larvae found in Woolwich (J.G.).
- N. dromedarius* Linn. Common, possibly from the oak tree in my garden.
- Lophopteryx cucullina* Schiff. One specimen of this moth was taken at m.v. in 1953, probably breeding amongst the maple on the nearby chalk.
- L. capucina* Linn. Common.

- Pterostoma palpina* Cl. Taken at Abbey Wood, 1952 (J.G.).
- Phalera bucephala* Linn. Common, especially as a larva.
- Clostera curtula* Linn. On the Marshes. Bred in 1947.
- Habrosyne derasa* Linn. Common at m.v.
- Thyatira batis* Linn. Taken at Abbey Wood (J.G.).
- Tethea ocularis* Linn. Fairly common.
- T. duplaris* Linn. Fairly common, normally melanics.
- Achlya flavicornis* Linn. Common in spring.
- Orgyia antiqua* Linn. Common. Males have even assembled to breed *recens* females.
- Dasychira pudibunda* Linn. Common.
- Euproctis similis* Fuessly. Taken in 1953 (J.G.).
- Leucoma salicis* Linn. On the Marshes. Bred in 1947.
- Saturnia pavonia* Linn. Has been found in most parts of the area, but probably breeds only on the Marshes. A ♂ was brought to me in 1947, while in 1952 three ♂'s were assembled to a bred ♀ put out in my garden (over two days). Also a ♀ was found in 1952 and a ♂ in 1954 (R.G.R.). This species has not been recorded previously in Abbey Wood, and is indeed uncommon in Kent, being found there mainly on the Thames marshes.
- Drepana falcataria* Linn. Common amongst birches in the woods and on the heath.
- D. binaria* Linn. Very common at m.v. (both broods), probably from the oak in my garden.
- D. lacertinaria* Linn. A little less common than *falcataria*.
- Cilix glaucata* Scop. Fairly common in the woods.
- Nola cucullatella* Linn. Common on the heath and borders of the woods.
- Bena prasinana* Linn. Fairly common on the heathland and in the woods.
- Pseudoips bicolorana* Fuessly. One found dead on the road on Bostall Heath, 1952.
- Earis clorana* Linn. Taken at m.v. in Plumstead in 1952 by W. J. Popham (J.G.).
- Sarrothripus revayana* Scop. Found in the Woods (C.H.).
- Spilosoma lubricipeda* Linn. Very common.
- S. urticae* Esp. One bred in 1952 from a larva found on Abbey Wood Marshes (D.F.O.).
- S. lutea* Hufn. Common.
- Cyenia mendica* Cl. Found on Plumstead Common (M.D.S.), but not yet at Abbey Wood.
- Phragmatobia fuliginosa* Linn. One taken at m.v. at Plumstead in 1953 (J.G.).
- Arctia caja* Linn. Very common.
- A. villica* Linn. One taken in Woolwich Arsenal (Abbey Wood Marshes) in 1953 (C.H.).
- Callimorpha jacobaeae* Linn. Uncommon. One at m.v. in the garden in 1954. Two seen on Plumstead Common, 1951-2.
- Miltochrista miniata* Forst. At m.v. in Lessness Woods in 1953 (J.G.).
- Eilema complana* Linn. Occurs on the heathland at Upper Belvedere (C.H.).
- Apatele leporina* Linn. Fairly common at m.v. in 1954.
- A. aceris* Linn. Common.
- A. megacephala* Schiff. Common.

- A. psi* Linn. Common. (None have been examined for *tridens*.)
A. rumicis Linn. Common in the woods.
Cryphia perla Schiff. Very common, and over a long period.
Agrotis segetum Schiff. Abundant at m.v. and throughout the area.
A. clavis Hufn. Uncommon at m.v.
A. puta Hb. Abundant.
A. exclamationis Linn. Another abundant species.
A. epsilon Hufn. Common.
Euxoa nigricans Linn. Common.
E. tritici Linn. At m.v., 1953.
Peridroma porphyrea Schiff. (*saucia* Hb.). Taken at Abbey Wood in 1952 (J.G.).
Amathes c-nigrum Linn. Abundant.
A. triangulum Hufn. A few at m.v. in 1954.

(To be continued.)

Gentians and Moths

By AN OLD MOTH-HUNTER.

An interesting quinquagenary falls this year: it was on the 29th August 1906 that Paymaster-in-Chief Gervase F. Mathew, R.N., bred the first specimen of the Plume moth *Stenoptilia pneumonantes* to be reared in this country.

The account of Mathew's discovery of this insect was printed in the *Record*, vol. 18, at page 245, and since his account is most interesting, and many of our readers may not possess the volume containing it, I reproduce it here in full.

"I have quite recently bred from marsh gentian (*Gentiana pneumonante*) a few imagines of a plume which appear to me to be different from *Adkinia zophodactylus*, to which, of our British species, it seemed to be most closely allied, and which I now learn from Mr. Tutt is *Stenoptilia graphodactyla*, and near to var. *pneumonantes* Schleich. The credit of the discovery of the species, whatever it may be, is due to my wife. She collects plants, and, among a number of specimens she was drying, that had been obtained near Wimborne, was a head of marsh gentian containing several flowers. After they had been pressing for several days, under a considerable weight, she examined them to see if they required placing between dry sheets, and was not best pleased to discover that some of the flowers had been much eaten by a couple of little larvae, which looked none the worse for having been subjected to such pressure. She brought them to me as she thought they might be something good, as they were feeding upon rather an uncommon plant, and I at once saw they were the larvae of some kind of plume. I consulted the only book I had with me, Leech's *British Pyralides*, but could find no gentian-feeder, but thought the larvae might possibly be that of *Adkinia zophodactylus*, which feeds on *Erythraea*, an allied plant. This was about the middle of August, and these two larvae were then nearly full-grown. I placed them in a large glass-topped box with some flowers of gentian, into which they crawled, but in a day or two they came out, spun pads of silk on the glass, and, in about 48 hours changed to pupae, hanging head downwards. The first moth appeared on August 29th, and the second on the 31st, and I noticed that they

were not a bit like the figure of *A. zophodactylus* in Leech's book. These larvae appeared to be rare, for, after several days' careful search among the gentian, which itself was by no means plentiful, I could only find about a dozen, and two or three more were found among the drying plants. On September 1st I netted one of the perfect insects, and on the 4th two more, which were beaten from mixed herbage in the locality where the gentian occurred. On this latter date I also took three pale brown plumes, much the worse for wear, which I thought might be *A. zophodactylus*, but proved to be *A. bipunctidactyla*." Mathew then gave a description of the larva, made on 25th August, and ended with these words: "I may add that there was no *Erythraea* growing where these plume larvae were taken. The last moth was bred on September 20th." His paper was dated October 15th, 1906.

The only record of this species in England, in addition to that of Mathew, quoted by B. P. Beirne in *Brit. Pyralid and Plume Moths* (1954, p. 173) is one by S. C. S. Brown, who contributed a Note on the species to the *Record* in November 1938 (vol. 50, p. 149). This latter record, it would seem, was from Hampshire, since Beirne gives only "certain heaths in east Dorset and in Hampshire" and Wimborne of course is in Dorset. Hence one may lawfully conclude that the area in which Mr. Brown found the insect was adjacent to, perhaps even conterminous with, the Paymaster-in-Chief's locality.

Lhomme, in his *Cat. des Lép. de France et de Belgique, II* (1939), p. 199, gives—as did Mathew—Schleich (1880) as the authority for the specific name of the moth, whereas Beirne gives 'Buettner', and says that so far as France is concerned the species is *très rare*, having been recorded only once—from a pool near *Chantilly*, called the *Etang de Thèves*, by P. Chrétien and that a record from Oloron in Basses-Pyrénées needs confirmation. In Belgium *pneumonantes* is said to have occurred once at Heide. Lhomme adds that the species is perhaps double brooded.

S. graphodactyla Treits., the species to which Tutt thought Mathew's insects should be referred, is also a gentian feeder; but its larva is not confined to *G. pneumonante*, occurring also on *G. lutea*, *G. verna*, *G. asclepiadea*, and perhaps other European gentians as well. S. C. S. Brown also referred his (?) Hampshire specimens to this species; but in a note on page 177 of his above-mentioned book Beirne remarks "This species has not been taken in the British Isles. English records refer to *pneumonantes* and Irish records to *saxifragae*". There seems to be no doubt that Mr. Brown's insects were actually *pneumonantes* because he describes the larva as feeding only "on the ovary of a flower, and when this is finished it moves to a fresh bud, which it enters by eating a hole at the base of a petal". *S. graphodactyla* on the other hand inhabits the shoots between leaves, and mines in the stem. It seems to be fairly well distributed in France, being recorded from nine Departments, from Haut-Rhin to Basses-Pyrénées.

Why has not *S. pneumonantes* been recorded from other parts of this country where its foodplant grows? Is the reason the fact that in Dorset and Hampshire it has reached the northern limit of its range? Maybe; yet I suspect it is equally likely, if truth must be told, that so very few lepidopterists could find *Gentiana pneumonante* even if they searched for it in a locality where it occurs, and that fewer still would recognise the plant if they saw it.

The Marsh Gentian is a more common plant in England than many of us lepidopterists have supposed. When not in bloom (it flowers Aug.-Sept.) it is inconspicuous: the flowering stems do not usually exceed six inches in height though occasional stems may reach a foot or more. Unless diligently looked for by one who is already acquainted with it the chances of finding it are small. Like all our gentians it is a colony species though its gregariousness varies from a single plant to thirty in a square yard, and indeed unless one happens to come across a patch of gentian in full bloom it may be years before one notices even so common a species as *G. campestre*, the Field Gentian, though this is a common plant in upland pastures all over Wales and Scotland.

During the years when I lived in Montgomeryshire my usual walk, where I went perhaps three or four times a week, led across a small grassy mead, a little plateau on a hillside some four hundred feet above the Severn. It was bordered by limestone rocks on one hand and a beechwood on the other. The most obvious plants in this little meadow, which was no more than an acre in extent, were Marsh Lousewort and Bog Asphodel, and there was a sprinkling of Harebell (*Campanula rotundifolia* L.): no other noteworthy plant caught my eyes as I strode across the grass during the first year of my visit. Then one day while crossing this spot I suddenly became aware of a new plant—a Field Gentian in bloom. A few days later the greater part of that little meadow was sprinkled with mauve gentian blooms, peeping through the grass some three or four inches above the soil. Marsh Gentian grows a little taller than Field Gentian but is scarcely more conspicuous, for its funnel-shaped flowers are blue only on the inside, being dull green without.

In England Marsh Gentian is a lowland species—though it occurs up to 800 feet in Westmorland—and is practically confined to damp peaty heaths, with acid soil, in England and Wales. Locally it is fairly common. South of the Thames it occurs in Dorset, Hampshire, Sussex, Kent and Surrey; northwards it is commonest in Yorkshire and Cheshire but grows in many places in Norfolk, Lincolnshire, Nottinghamshire, Lancashire and Westmorland and, in Wales, Carmarthen, Caernarvon, and Anglesey. In East Norfolk, where it is locally common on a few peaty heaths, it occurs in two localities on the 100-foot contour at the source of streams rising in shallow depressions: its occurrence everywhere seems to be controlled by the presence of water not far below the surface—in other words, it requires a habitat having a high water-table. On Creech Heath, Dorset, it grows in a Sphagnum bog and indeed its commonest habitat appears to be those little hollows where the heather gives place to Sphagnum. The associated plants are most commonly *Calluna*, *Erica*, *Molinia*, Sundew, Bog Asphodel, and sedges such as *Luzula*, and usually one finds it growing between or even among the heather clumps, the flowering stems sometimes pushing up through the heather.

Certainly *G. pneumonanthe* needs looking for; but if you consider that your collection of Plume moths is incomplete without *Stenoptilia pneumonanthes*, or even if you would like the exercise of pitting your wits against the secretive habits of a choice and rare moth, you must find the Marsh Gentian first of all. There is another point, too. *S. graphodactyla*, says Dr. Beirne, "has not been taken in the British Isles". *Has not been taken*—not "does not occur"—a very different

thing. And *S. graphodactyla* feeds on other gentians besides the Marsh one. On the Chilterns, on the west and north-west sides of that noble escarpment which extends from Goring on the Thames through Stokenchurch, Princes Risborough, Wendover and Tring all the way to Dunstable, the large Autumn Gentian, *G. amarella* L., grows more freely than anywhere else in England.

So—having located your gentian, bear in mind that the larva of a pleasant small moth is prone to mine its shoots and stems and that it is possible—I won't put it more strongly than that, but I repeat it is possible—that you may have the honour, one day, of seeing your name linked, in the entomological magazines and in all future books on the English Lepidoptera, with an insect named *graphodactyla* by no less a person than the great Frederick Treitschke himself. Good luck to you.

[The Old Moth-Hunter's note on *Stenoptilia pneumonantes* Schleich reminds me of my introduction to the species at the hands of the late William Fassnidge. In company with our respective wives, we were seeking *Acleris cristana* Fabr. in the New Forest, and when we came to Beaulieu Heath, Fassnidge ordered us into an extended line ten paces apart, and we set to work to "walk up" the Marsh Gentians, picking the flowers we found. On our return to Fassnidge's Southampton home, the flowers were placed in a tall specimen glass, and the following morning two pupae were attached to the neck of the glass, and by the evening several more larvae had left the flowers to spin their silken mats on the vase neck.

With his customary generosity, Fassnidge gave me the flowers and the glass with its attached larvae and pupae to take home with me, and I had the pleasure of seeing the moths emerge during September. I noted, however, that some larvae were still feeding in the flowers and, on examination, these were obviously tortricid larvae. They were left with the flowers and some peat litter, and during the following March and early April they duly produced *Eulia politana* Haw.; how much brighter this insect is when bred than when taken even after a short flight!

To return to the plume, we called it *S. graphodactylus* Treits. at that time, but T. Bainbrigge Fletcher strongly protested that this was *pneumonantes*, and that *graphodactylus* was not a British species, and so far as records go, I firmly believe that he is right, although the challenge of the Old Moth-Hunter's note may prove otherwise.

Lhomme, in his *Catalogue des Lépidoptères de France et de Belgique* II, 198-199 writes under *S. graphodactyla* . . . "Chenille sur *Gentiana lutea* L., *G. verna* L., *G. asclepiadea* L., *G. pneumonante* L., dans les pousses, entre les feuilles, et dans les tiges." while of *pneumonantes* he writes . . . "Chenille sur *Gentiana pneumonante* L. dans les fleurs".

I look forward to notes on the degree of success attending the searches of those inspired by the above note, and it may well be that some of our more northerly readers may find evidence of a plume feeding on *G. verna*, which should indicate the presence of *graphodactyla* in this country.

Reverting to *E. politana*, Lhomme sets up the name *pulchellana* Haw. (*Lep. Brit.* III, 429, No. 110) (1811), pointing out that *politana* Haw. (*ibid.* p. 465-466, No. 227) (1811) is a synonym and is preoccupied by *politana* Schiff. (1755).—S.N.A.J.]

Book Notes

During the cold spell in February, shirking the snow and slush that lay between us and the library, we did what probably a good many of our readers did: we scanned the top and bottom shelves of our book-cases and took out books that had not been opened for years, some of them not since we had bought them dozens of years ago. Among the first that we looked at was a trim octavo volume bound in mulberry cloth, with a life-size golden red admiral on the front cover. It was lettered "British Butterflies and Moths—Stainton" and the titlepage added the further information that the book was "an introduction to the study of our native Lepidoptera". It was published in 1867. As anything that Henry Tibbats Stainton wrote is worth reading—for he was a really great lepidopterist and wrote with a kind of dry humour which prevented his pen from ever becoming dull—we took the book back with us to our armchair.

Opposite the titlepage is a plate depicting a clouded yellow, a male orange-tip, a marbled white, and a rather unusual hedge brown. At the end of the book there are fifteen more coloured plates. These plates were engraved by E. W. Robinson and coloured by hand, and for the most part they are good: no one could doubt for a moment that the red admiral, the orange-tip and the small copper really were *V. atalanta*, *A. cardamines* and *L. phlaeas*. The forester, the bee-hawk-moth and the burnet also are clearly a *Procris*, a *Hemaris* and a *Zygaena*—though the portrait of the map-winged swift suggests that the artist's wife was urging him to come down to dinner. In our copy *Mamestra persicariae* has been endowed with yellow hindwings, and for a moment or two we were completely defeated by *Amathes agathina*—but let that pass, for the portraits of *T. ianthina*, *H. abruptaria* and the brimstone moth are really excellent, while a picture of a ♂ *N. zonaria* is the living spit of a belted beauty. E. W. Robinson was an excellent engraver and of course he did not colour all the plates himself.

The woodcuts with which the text is illustrated were all drawn by Stainton's collaborator on the *Ent. mon. Mag.*, the coleopterist E. C. Rye. Two years later when Dr. Guard Knaggs brought out *The Lepidopterist's Guide, for the Use of the Young Collector*, these woodcuts were lent (or given or sold) by Stainton's printer (Taylor of Little Queen Street) to Alexander Napier, a Scot who had set up a printing house in Seymour Street, near Euston Square, and used by him in Knaggs's book. One wonders if they are in existence to-day? For that matter, where are the admirable woodcuts engraved for Stainton's *Manual*? The *Manual*, first issued in about 30 monthly parts from 1st March 1856 at threepence a part, was printed by the great (as he afterwards became) Edward Newman in Devonshire Street, Bishopsgate, but no mention is made of the artist's name. These beautiful woodcuts, infinitely superior to those in Newman's own books, may still exist in some attic or cellar—if they have not been burnt or bombed. They would be a treasure indeed to-day.

Most of Stainton's remarks on the incidence and distribution of our butterflies and moths are applicable to present-day conditions; but like his confrères in the 'sixties he thought that the painted lady

hibernated in England and "is seen again on the wing in bright warm days in March and April". Of the large tortoiseshell he writes that "Of late years it appears to have become much scarcer than formerly". It was common enough in the New Forest at the end of last century, so its declension again in the first two decades of the present century and increase during the last ten or twelve years suggest that the incidence of this butterfly is subject to notable periodic fluctuations—unless indeed one cares to surmise that the home stock of this insect is at times largely reinforced by immigration. Of the comma, Stainton remarks "Formerly this was common in the Metropolitan district, but now it is very rarely seen there. It still occurs, however, at Dorchester, Bristol, Gloucester, Worcester, Leominster, Burton-on-Trent, Wavendon near Newport-Pagnel, Peterborough, York, and Carlisle; in some of these localities it is extremely plentiful".

Current Notes

The Tenth International Congress of Entomology will be held in Montreal between 17th and 25th August 1956. The provisional circular, printed in English, French, German and Spanish, gives as full an account of the programme as can be foreseen at present, but the preface mentions that difficulties encountered have made it impossible to have all arrangements completed in time for this publication.

The meetings will be held in McGill University, 16th-20th August, an excursion to Ottawa on 21st August and meetings in the University of Montreal, 22nd-25th August. After the official meeting, visitors are invited to stay for one of seven excursions offered, including collecting excursions to South-West Ontario, Laurentide Park, and Mont Tremblant Park; Laboratory visits to the Southern Ontario Laboratory, and to Saulte Ste Forest Biology Laboratory, and tours of Eastern and of Western Canada.

Dr. J. A. Downes is the secretary, and enquiries should be addressed to: The Secretary, Tenth International Congress of Entomology, Science Service Building, Ottawa, Ontario, Canada.

Yarner Wood near Bovey Tracey, Devon, was bought by the Nature Conservancy and declared a Nature Reserve in May, 1952. A part of the wood was burnt by incendiary bombs during a raid on Exeter in 1942; in this section the fire killed about two-thirds of the standing trees and left others badly damaged. This catastrophe was followed by a dense growth of heather, bilberry and bracken, which added to the difficulty of making a detailed survey of the woodland and its fauna and flora in order to prepare a management plan. A plan was, however, completed and adopted early in 1955, part of the wood being set aside for scientific investigations into different methods of regenerating woodland; encouraging colonisation by insectivorous birds; and population studies of small mammals by Exeter University. Otherwise the Reserve is being managed to re-establish woodland of the type which is believed originally to have been there. The threat of fires spreading in from Dartmoor has been countered by ploughing wide fire breaks, and a good start has been made towards the long-term task of restoring the woodland.

Notes and Observations

TILIACEA CITRAGO L. IN NORTH EAST DERBYSHIRE.—On 2nd September 1955 I made a “sugaring” expedition to Hardwick Woods, about five miles south of Chesterfield. The catch was very poor, only four *T. pronuba* L. were attracted. As I began to search for the homeward path I was surprised by the sudden appearance of a fairly large moth which flew straight at my lantern and struck the glass front with a resounding thump. It fell to the ground, folded its wings, and disappeared in the grass where I searched feverishly for it, because one never knows what Fate may throw in one’s way next. After a few minutes I was pleased to find that it was a perfect specimen of *Tiliacea citrago* L. which had so impetuously given itself up. This is the first record I have of this species; the lime is not commonly met with in this part of Derbyshire.—J. H. JOHNSON, 1 Berry Street, Hephthorne Lane, Chesterfield. 17.ii.56.

CALLIMORPHA JACOBÆÆ L. IN MARCH.—You may be interested to know that my friend, Dr. A. L. Davies, has just given me a very nice and freshly emerged *Callimorpha jacobææ* L. which came to light at Porton on the evening of Wednesday, 26th March. Surely this is a most extraordinary early record?—C. M. R. PITMAN, Southampton Road, Clarendon, Salisbury. 30.iii.56.

[We do not call to mind any record of this species occurring, in the imaginal stage, in the wild state in England in March. Can any of our readers assist our memory? Even in the South of France *C. jacobææ* is not usually on the wing until May. Is there a possibility that the specimen above-mentioned was ‘forced’ by some entomologist in the neighbourhood of Salisbury, and released?—Ed.]

AGLAIS URTICÆ L. AB. PALLIDA.—On 9th March 1956, after some days in bed, I got up and saw a Tortoiseshell fluttering on the window pane. A passing glance made me realise that it was a “var.,” which on closer inspection turned out to be a good ab. *PALLIDA*, the ground colour being pale ochreous. This lucky incident may, I think, be of interest to readers. I imagine that a good variety of *A. urticæ* found amongst the hibernators is most unusual; undoubtedly this one must have been inhabiting my garden in the autumn although I was always on the lookout for any variations.—G. H. W. CRUTTWELL, Old Ford House, Frome, Somerset. 16.iii.56.

SECOND BROOD OF AGLAIS URTICÆ LINN.—On page 84 of the March number of the *Record* there is a reference to “the error of referring to two generations of *Aglais urticæ* L.” Surely there are in fact two (summer) generations, at least in southern England?—S. R. BOWDEN, 53 Crouch Hall Lane, Redbourn, St. Albans. 16.iii.56.

[The statement referred to by our correspondent was quoted from *La Revue Française de Lépidoptérologie* (Vol. XV, No. 3). Barrett (*Lept. Brit. Is.*, I, 133) has: “Double-brooded, the first generation emerging in the middle of June, the second in August and September”.

Frohawk (*Complete Book of Brit. Butterflies*, 1934, p. 149) has: "This species is doubled brooded. The first emergence takes place in June and July and the second brood butterflies emerge in August and September."—ED.]

PHIGALIA PEDARIA FAB. AB. MONACHARIA STAUD. IN INVERNESS-SHIRE.—The startling spread of industrial melanism in Lepidoptera during the last hundred years has greatly stimulated the study of the status of both industrial and rural melanism and of its spread in the United Kingdom. Dr. E. B. Ford's book *Moths*, 1950, and the present research work of Dr. H. B. D. Kettlewell are inspiring examples of this work. I think it is therefore worth recording that on 9th March 1956 I took a very dark melanic ♂ *Phigalia pedaria* Fab. at m.v. light in my garden at Newtonmore among 25 normal ♂♂, and on the next night, 10th March, a further extreme melanic ab. *monacharia* Staud. with four type specimens. This species is common in the district, and I have observed from 25-100 individuals every year since 1951, and never noted a melanic specimen previously, nor have I ever heard of its occurrence in Northern Scotland.

The status of these extreme Northern melanics can only be a matter of pure conjecture at present. The gene may have spread into the local population by migration of ♂♂ from the industrial South in recent times, or being a dominant it may have been present as a rare disadvantageous form from pre-industrial ages. I incline to the latter view, but I hope that further examples from rural areas well away from industrial centres will be recorded.—COMMANDER G. W. HARPER, R.N. (Retd.), Neadaich, Newtonmore, Inverness-shire. 18.iii.56.

LYCAENA VIRGAUREAE LINN. IN DEVON.—I am afraid I must take your contribution about the occurrence of *C. virgaureae* in this country in June about 1917 with a grain of salt, and am quite sure what those collectors saw was the Devon form of *athalia*, which is much brighter and larger than the Essex and Kent race and could easily look like a Copper. *Virgaureae*, too, seldom appears till well into July in the north of Europe; in fact, I came across a recent account where it was in prime condition near Berlin on July 27. Besides, what about its foodplant, the golden-rod?—CHARLES DE WORMS, Three Oaks, Shore's Road, Woking. 16.iii.56.

[Unfortunately Baron de Worms's suggestion cannot be made to square with the facts of the case. For these reasons.

Mrs. Castle Russell and Mr. Mills had been watching C.R. netting and boxing Devonshire *athalia* during the two previous days and had even netted some themselves. Hence a suggestion that two persons, both of whom were so recently acquainted with *athalia*, having seen them on the wing and examined them in glass-bottomed boxes, should have mistaken a number of specimens of that insect, flying in the open, *at close quarters*, for "large coppers" *on the following day*, is, it seems to me, most improbable. If there is anything in the suggestion, why did not Mrs. C.R. and Mr. Mills mistake for "large coppers" the Devonshire *athalia* which they watched flying and actually caught on the previous day?

With regard to the date of appearance, in 1907 *virgaureae* was abundant in Switzerland on 27th June; in 1924 it was again "abundant" in France on 24th June. I do not know on how many previous days it had been flying; perhaps for a week or more: in 1926 it was emerging, in France, on 18th June. The specimens seen "in prime condition" near Berlin on 27th July would, of course, be the first emergences of the usual second brood.

The foodplant does not present any difficulty, because the larva of *L. virgaureae* does not feed on golden-rod, its foodplants being confined to the genus *Rumex*. The larva is as easy to find as that of *Lycaena dispar* Haw., and without any doubt so experienced a lepidopterist as the Baron de Worms would have found it on some of his many collecting visits to the Continent if he had searched docks, and not golden-rod for it.

The Castle Russell letters quoted are by no means the only ones that passed between us. We discussed the matter for some months and I put before C.R. every suggestion I could think of, including moths (e.g. a possible, though excessively unlikely, precocious emergence of *Euplagia quadripunctaria* Poda). Later, when we met again, we discussed the whole matter afresh, and I did my best to pick holes, though without any success, in the powers of observation of Mrs. C.R. and W. G. Mills. C.R. had already written to me: "My friend is a man who never makes assertions unless he is quite sure", and of his wife he wrote: "She possessed a remarkable memory and she was rarely wrong. She also was possessed with the idea that the butterflies were coppers, similar to figures I showed her in some book or other".

I stress once again the obvious improbability of either Mrs. C.R. or Mr. Mills mistaking the butterflies for insects well known to both of them which they had been actually netting during the previous days, seeing also that since they were trying to knock down a specimen the butterflies must on occasion have been within three feet of their eyes. (Incidentally, the numbers seen support the suggestion that they were *virgaureae*, since in Denmark, where this butterfly is common in many places, it often appears "in large numbers" (Hoffmeyer & Knudsen, 1938)). Whatever the insects were, plainly they were of a kind which neither Mrs. C.R. nor Mr. Mills had ever seen before. It is also plain that both had seen at some time or other, and mentally noted, coloured pictures of "large coppers".

I would also stress that Mrs. C.R.'s knowledge of the British Rhopalocera was quite considerable. For many years she had accompanied her husband on virtually every collecting expedition that he made, and had watched him setting butterflies by the hour. C.R. was of opinion that she could no more have mistaken a fritillary for a "large copper" than he could. It was only after an exhaustive examination of every possibility that I decided, at long last, to commit the matter to print. For although I had realised at the first telling how interesting it would be to readers of the *Record*, further consideration prompted a close examination of every detail.

I don't think anybody could accuse me of being credulous: I fear I am very much the reverse (see my paper on "Wishful Thinking" in *Ent. Rec.* 63: 73 and many pages in my books on moth-hunting); but

like my friend Castle Russell—who was *primus inter pares* so far as knowledge of the British Rhopalocera in the wild was concerned—I am unable to suggest any butterfly other than *L. virgaureae* which two such knowledgeable persons as Mrs. Castle Russell and Mr. W. G. Mills could have mistaken for “large coppers” when seen in numbers at such very close quarters. Could Baron de Worms himself mistake Devonshire *athalia* for *virgaureae* if he saw them in numbers close to him after netting several on the previous two days? Even if he admits that he could quite easily do so, I should still hesitate to attribute a like fallibility to Mrs. Castle Russell and Mr. W. G. Mills.

Another correspondent has written to suggest that the butterflies seen were worn and very faded specimens of *M. aurinia*; but if he will refer again to page 73, lines 20-22, he will see that this suggestion also must be ruled out if only for the same reason as *athalia*.—P. B. M. ALLAN].

‘LADY’S SLIPPERS’ IN WALES.—With regard to your query about ‘Lady’s Slippers’ in this month’s *Record* (page 84), in this district it is the name given to Bird’s-foot trefoil (*Lotus corniculatus* L.). It is also known as “Boots and Shoes”, and Briggs, in his *Flora of Plymouth*, called it “Shoes and Stockings”. A strong growth of the plant could very well give the effect you describe.—F. W. JEFFERY, 24 Woodland Terrace, Greenbank, Plymouth. 15.iii.56.

—.—I feel sure that ‘Lady’s Slippers’ refers to *Anthyllis vulneraria* L. (Leguminosae) which is often called ‘Lady’s Fingers’, but has many local names. As a boy (in Edinburgh) I always associated the name ‘Lady’s Slippers’ with this plant and not with the (then) unheard of ‘Slipper Orchid’ (*Cypripedium*).—D. K. McE. KEVAN, Sutton Bonington, Loughborough. 15.iii.56.

—.—I was interested in reading to-day’s *Record*, p. 84, where you query the name ‘Lady’s Slippers’. Some years ago, when I was a small boy, I remember the name ‘Lady’s Slippers’ being given to the common Bird’s-foot trefoil (*Lotus corniculatus*) at any rate in Hampshire. In fact my mother always referred to the flower as such, and so did the ‘locals’ in that particular part of the world, the Test Valley.—B. R. STALLWOOD, 19 Southfield Gardens, Strawberry Hill, Twickenham. 16.iii.56.

—.—No doubt you will be inundated with replies to your query about ‘Lady’s Slipper’. This is one of the popular names of the Bird’s-foot trefoil, *Lotus corniculatus*; is in fact the name by which I knew it as a child (my family comes from Somerset and Devon).—S. R. BOWDEN, 53 Crouch Hall Lane, Redbourn, St. Albans. 16.iii.56.

—.—As a Hampshire man the plant ‘Lady’s Slippers’ is well known to me, but it was not until later years that I learnt to call it ‘Bird’s-foot Trefoil’ and, later still, *Lotus corniculatus*. It may well be that the men of Gower know it by the same name.—B. C. BARTON, Castle Mead, Highcliffe, Christchurch. 17.iii.56.

—.—In reply to your query in the March number of the *Record* (p. 84) I should like to suggest that the plant in question is our old friend *Lotus corniculatus*. C. A. Johns, in *Flowers of the Field*, says that a children’s name for this species is “Shoes and Stockings”. Referring to the closely allied species, *Anthyllis vulneraria* (Lady’s Fingers), Robert Gathorne-Hardy in *Wild Flowers in Britain* (Batsford,

1938), writes "Do not commit the common blasphemy and error of mis-calling this 'Lady's Slipper': that name belongs to a very different plant, the grandest, the rarest, the noblest of all our British flowers". It seems to me quite possible that confusion may have arisen between popular names for these two species. Having seen a carpet of *Lotus corniculatus* on the steep slopes of the ramparts at Hod Hill and in other localities, I think the phrase "a golden curtain" is not at all unsuitable to describe the growth of this plant over a piece of rock.—H. SYMES, 52 Lowther Road, Bournemouth. 18.iii.56.

—.—Would your 'Lady's Slippers' by any chance be *Lotus corniculatus* or *Ornithopus* sp.? A country name for these in Cornwall is 'Goodie Two-Shoes'. Perhaps there is some connection between 'two shoes' and 'slippers'!—W. G. TREMEWAN, Wheal Rose, Scorrier, Cornwall. 28.iii.56.

[Much obliged to our correspondents for the above information. Another learned reader writes from Cambridge: "I have certainly heard this name applied in Hampshire and elsewhere to *Lotus corniculatus*, and to other *Lotus* species no doubt. 'Ladies' Slippers' is not given in the Cambridge Flora as the common name for this plant, but it would certainly fit your description of a golden cascade down a cliff face".—P. B. M. ALLAN.]

Current Literature

GALL MIDGES OF ECONOMIC IMPORTANCE VII, GALL MIDGES OF CEREAL CROPS. Dr. H. F. Barnes. Crosby, Lockwood & Sons Ltd., 21/-. This book contains a great amount of information which should be most useful to all those concerned with the production of cereal crops. The author gives details of his own extensive studies, and those of others who have worked on these insects, in an endeavour to find means to prevent the losses caused by their ravages.

Attention is drawn to biological features which are frequently overlooked or ignored, also to the fluctuating periods of insect infestation. There are also interesting notes on the varying lengths of diapause in the final larval instar. Methods of sampling the numbers of insects and suggestions for their control are also given. A very extensive bibliography is included.

M. N.

BULLETIN AND ANNALES DE LA SOCIÉTÉ ROYALE D'ENTOMOLOGIE DE BELGIQUE, Vol. 91, XI-XII (31st Dec. 1955), gives three papers by J. Leclercq on Sphecidae, Crabroninae. The first describes two new species of *Quexua* from material in the Vienna Nat. Hist. Museum, one from Costa Rica, the other from Peru. The second paper revises the subgenus *Euphiloides* of the genus *Crossocerus* adding a new species found in the material collected by Miss Cheesman in Papua. The third paper deals with *Podagritys* material examined from museum collections in London, Melbourne, Washington and Munich, and out of 72 specimens examined, 14 species were distinguished and of these nine are new. The latter two papers appear under the heading "Revision", and the general point occurs to us that there seems to be rather more revisions than might seem necessary. Where nine of fourteen species are new this of course would be a necessity; but is it necessary to "revise"

a genus when adding a single new species? Did our fathers do nothing right?

The Ephemeroptera have three papers by G. Demoulin, one a "revision" of six species described from the Belgian Congo; another sets up a new genus to cover a new species.

L. A. Berger writes on the Rhopalocera collected in Greece by E. Janssens and R. Tollett; Miss Fountain and Mrs. de la B. Nicholl took and described all these many years ago.

IN NACHRICHTENBLATT DER BAYERNISCHEN ENTOMOLOGEN, Vol. 4, 1955. J. Wolfsberger writes on *Harmodia tephroleuca* Bsd. and *Rhyacia castanea* f. *cerasina* Frr. and these species are also the subject of a comment by H. Wagner. Wolfsberger also has papers on migratory Lepidoptera of Southern Bavaria in 1954, on new localities in Central Europe for *Chloridia (Heliothis) maritima bulgarica* Drdt. and on whether *Elaphria (Caradrina) gilva* Droz. is a native species in the flat country of Southern Bavaria. K. Burmann writes on the life history of the larva of *Aecasis (Lobophora) appensata* Ev.

F. Daniel deals with the problem of the Upper Bavarian forms of *Zygaena transalpina* Esp., and in another paper he adds 40 further species of Macrolepidoptera to his list of species from the Steiermark. H. Präse contributes notes on the "dual species" *Pyrgus armoricanus* Obth.—*alveus* Hbn. H. Pfister deals with "Peculiar, Solitary and Migratory" Lepidoptera, both Macro- and Micro-.

Walter Forster gives a note on *Melitaea (Melicta) parthenie* Borkh. (= *aurelia* Nick.) in Southern Bavaria, and W. Schätz on *Psyche viciella* Schiff. H. Menhofer writes on interesting Lepidoptera in Northern Bavaria, with three new aberrations: *Apamea platinea* Tr. ssp. n. *franconiae* and ssp. n. *flavens*, and *Selenephra lunigera* Esp. *contracta* ab. n. Finally J. Moucha contributes a note on *Phytometra zosimi* Hb. in Central Europe.

For the Coleopterist, K. Witzgall deals with 22 noteworthy species of beetles in the South of Bavaria and the neighbouring Limestone Alps, and G. Schmidt gives a note on *Evodinus interrogationis* L. describing four new varieties with text figures and a correction. Anna Muller writes on the Parsnip Beetle and M. Linke on interesting Coleoptera from Berchtesgaden. G. Schadewald gives two papers, one on light- and the other on bait-trapping.

On the Odonata, A. Bilek describes the hitherto unknown male of *Agrion* (= *Coenagrion*) *freyi* Bilek 1955 with good text figures of anatomical details; he also mentions a case of a hybrid *Anax* sp. with text figures of anatomical details.

H. Buhr gives an account of some Agromyzidae with three text figures illustrative of the mines. K. Harz writes on the drumming of *Meconema thalassinum* De Geer and L. Zirngrebl on the genus *Fenusia* Leach (*Tenthredinidae*). Seventeen species of "shield louse" are noted by H. Schmutterer.

ENTOMOLOGISCHE ZEITSCHRIFT, Vol. 66, No. 5 (March 1956) has an account by G. Kauffmann of Lugano on the breeding of *Ochlodes venatum* Bremer & Grey, the European subspecies, with some systematic notes. Dr. Werner Marten continues his monograph of the Zygaenidae of the Iberian Peninsular.

Forestry Commission Leaflet, 10, on THE OAK LEAF ROLLER MOTH (*Tortrix viridana* L.), (Stationery Office, price 6d.) has been re-written by Dr. N. W. Hussey, with photographs by Mr. H. Bastin. It gives a very complete life history of the species and lists insect controls, including Hymenopterous and Dipterous parasites, and Coleopterous, Hemipterous and Dipterous predators, and also the small birds whose feeding habits have an appreciable effect on populations.

It is pointed out that severe infestations only occur at intervals of several years as a general rule, but a run of twenty consecutive years of heavy infestation in Germany is cited. Serious damage to trees is rare, because the lost foliage is usually replaced by Lammas shoots.

Artificial controls are considered uneconomic, having in mind the facts that the damage is not very serious and the feeding site of the young larvae is in the higher levels of large trees; insecticide sprays from the ground would not be practicable, and from aircraft they would be unwarrantably expensive.

What a pleasure to read an account of an injurious insect without the cry heard much too often to-day: "Off with his head!"

A.E.S. Leaflet, No. 28, KILLING, SETTING AND STORING BUTTERFLIES AND MOTHS (10½d. post free from the Secretary, A.E.S., 1 West Ham Lane, London, E.15) is compiled by Mr. L. W. Siggs, the former publication under this title being out of print.

This is an excellent pamphlet for the beginner, and should not be beneath the dignity of the more advanced lepidopterist. The question of killing is first dealt with and the dozen different agents mentioned are fully discussed and their advantages and disadvantages explained.

The transport of specimens from the field, relaxing, setting and storing are dealt with in order, and finally there is a useful section on the equipment required with notes on the making of many items, thus enabling the young collector to start with apparatus which might otherwise have been out of his reach. Another consideration is that making such apparatus will provide interesting work for the winter evenings.

OPUSCULA ENTOMOLOGICA, 21 (1956), Pt. 1, has a description of a new Trypetid fly, *Tephritis rydeni*, from Sweden, by Dr. Erich M. Hering, with a text figure of the wing-pattern. Arne Sundholm writes on the genus *Phyllodecta* Kirby (Col. Chrysomelidae) with twelve text figures. Sven Olof Larsson deals with the shore Coleoptera in the North Goteborg Archipeligo with a map and four half-tone views of collecting sites. The main paper is by Einar Wahlgren, Part II of his work on gall-causing plant lice, listing the species under the plants they infest. Another major paper is by Per Bruck, in English, on the reproductive system and mating of *Plecoptera* with many text figures of anatomical details.

In the BULLETIN DE LA SOCIÉTÉ ENTOMOLOGIQUE DE FRANCE, 59, 151, there is an account of some interesting experiments on the directional movement of the female *Operophtera brumata* L. given by P. Grison and R. Silvestre de Sacy. Desiring to establish how the female winter moth found its way from its place of pupation in the soil, to its food plant, the authors set out on a series of experiments.

In the first experiment, a wooden fence 15 cm. high was set up

around and at a distance of 2.50 M. from an apple tree, the top of the fence and the apple tree being sticky-banded. In twenty days, 60 females were found adhering to the band on the tree, but none were found on the fence.

The next experiment involved an enclosure with 2 M. sides. This was placed against an apple tree or a 10 cm. stake, and a pot containing sometimes a considerable number of pupae, and sometimes of females which had emerged in breeding cages, placed in the middle. Sticky-banding was again employed, and again it was found that practically without exception, all the insects found the tree or stake at whatever cardinal point this stood with relation to the frame.

To assess the vision of the females, an experiment similar to the last, but employing stakes of various sizes, was made, and it was found that while practically all moved towards a stake 8 cm. diameter or larger, only about 50 per cent appreciated the presence of a 5 cm. stake, and 3.50 cm. seemed to be about the limit of discernment.

ANNALES DE LA SOCIÉTÉ ENTOMOLOGIQUE DE FRANCE has a comprehensive and well illustrated monograph of the Tenebrionid genus *Leptonychus* Chevrolat (Col.), describing as new species *L. reymondi*, *L. lislei* and *L. grassei* and a new subspecies of *L. pellucidus* which he names *iguidiensis*.

A Simon monographs *Rhopalopus insubricus* Germ. (Col. Cerambycidae) with text sketches and a fine figure of this beetle, while H. Coiffait writes on the *Tachinus* (Col. Staphylinidae) of France with a key and description of a new species, *T. ochsi* and G. Guignot describes 14 new species of Dytiscidae (Col.) from the Zimmermann collection (Brazil, India, Oceania, etc.).

For the lepidopterist, Pierre Viette describes 41 new species of Tineoidea, and C. Herbulet 16 new Geometrinae from Madagascar, being part of the material collected by them during their recent visits to that country together with other recent Madagascar collections. Both papers are illustrated by genitalia drawings, and that of P. Viette also has figures of several of the species described.

A Steiner writes on the predatory Hymenoptera of the Black Périgord district, while C. Quénu writes on the bees of that district. R. Benoist describes seven new bees from Madagascar.

ZEITSCHRIFT DER WIENER ENT. GESELLSCHAFT, 67, No. 1, has an account of ultra-violet lamp collecting with a long list of macrolepidoptera taken by Hermann Amanshauser of Salzburg. L. G. Higgins and E. P. Wiltshire write a joint paper in which the former deals with the *Melitaea* and the latter the *Pararge* of the Middle East.

Dr. H. G. Amsel describes microlepidoptera collected by Emmanuel de Bros. in Spanish Morocco, with a photographic plate of the species and three plates of ♂ genitalia dissections; these include a new subspecies, *maroccanensis* of *Mecyna* (*Pyralis*) *lutealis* a new Pterophorid, *Oxyptilus maroccanensis* and two new Tortricidae, *Steganoptycha* (*Epiblema*) *ketamana* and *Epagoge pygmaeana*. In the Tineoidea, we have a new Oecophorid species, *Pleurota dissimilella*, while in the Tineidae two new genera are set up, *Tineomorpha* to accommodate Meyrick's *Tinea hirundinella*, and *Praelongicera* for *P. palaestinella*, a new species.

IN *OPUSCULA ENTOMOLOGICA*, Vol. 20, Nos. 2-3 (1955), H. Rambring notes *Vanessa xanthomelas* Esp. as a species new to Sweden, a specimen having been taken at Sandhammaren, S. E. Scania. It will be remembered that an example of this species was taken within the past two years in this country. There is a paper in English on Cockroaches from Trinidad by K. Princis and D. K. McE. Kevan, and Thure Palm contributes two papers on Swedish Coleoptera. Stellan Erlandsson monographs bees of the family *Coelioxys* Latr.

Bo. Tjeder, writing in English, gives preliminary descriptions of five new species of crane fly from Sweden: *Austrolimnophila consobrina*, *Limnophila (Idioptera) macropteryx*, *Nephrotoma ramulifera*, *Rhabdomastix cunctans* and *Erioptera (Psiloconopa) lindrothi*, and the same author gives a list of the Swedish Tipulidae in tabular form showing the distribution, to be read in conjunction with an explanatory map.

CANADIAN ENTOMOLOGIST, Vol. 88, No. 1 (Jan. 1956), has an interesting note on the Limitations of Natural Control of Phytophagous Insects and Mites in a British Columbia Orchard, by J. Marshall and C. V. G. Morgan of the Entomological Laboratory, Summerland, B.C. It is pointed out that when an apple orchard is abandoned in Eastern Canada, the trees grow reasonably well for many years, and although the fruit is usually ruined by Scab, the damage by insects is relatively of minor account, while in B.C., trees die from desiccation in a short time, although in places favoured by sub-irrigation, they may last ten years or more, but produce no marketable fruit due mainly to Codlin Moth (*Carpocapsa pomonella* L.) and Blister Mite (*Eriophyes pyri* Pgst.) also other pests.

W. C. McGuffin writes on larvae of the Geometrid genus *Itame*, with a key to the "mature" (is not full-fed a better description) larvae, based on head, colour pattern, and chaetotaxy, the various features being also described by text figures. Ten species are dealt with of which *I. brunneata* Thbg. is the only species represented here.

Fifty Years Ago

(From *The Entomologist's Record* of 1906)

BETLES AND BUTTERFLIES.—Between the end of last May and the beginning of October I took from a dozen traps in my butterfly-house nearly 3,000 carnivorous beetles, including many of the larger kinds, one of which I think I have identified as *C. violaceus*, and towards the end of the period I found that my butterflies did not disappear with anything like the frequency with which they used to during the early summer. Chary as I know one should be of hasty generalisations in matters of this kind, I should like to suggest that the danger from carnivorous beetles and other nocturnal enemies may have had much to do with evolving the sleeping habits, and appearance when at rest, of the Rhopalocera as we know them. The vertically-folded wings would protect the insect from a sudden attack from behind on its head, which I have observed to be the point generally chosen, whilst the wing-cases, legs, etc., would adequately shield the sides. . . . I have noticed that the Papilios, which represent a somewhat primitive form of butterfly, sleep with their antennae outstretched as though to warn them of any

danger, while the more highly specialised kinds, such as the Vanessids, sleep with their antennae pressed up against the costa of the forewings, and evidently rely for protection upon their resemblance to surrounding objects I have noticed, too, that I lose butterflies protected like *Pyrameis cardui*, *Vanessa io*, *Eugonia polychloros*, etc., much less frequently than the Papilios. Again, the habit of so many butterflies such as the Lycaenidae, Satyridae, etc., of roosting on slender grass stems, may serve as a protection against bulky enemies such as the larger beetles, which would bear them down in the effort to climb, and so awaken their prey.—CECIL FLOERSHEIM.

HIBERNATION OF ALUCITA GALACTODACTYLA.—The fact that the larva of *galactodactyla* hibernates as a comparatively small larva is well known, but the further fact that its foodplant, burdock, dies down in winter has always made the exact position it was likely to take up during the winter rather problematical, nor do any observations on the point appear to have been recorded. It may, therefore, be advisable to note that whilst Mr. Foreman and myself were entomologising at Cuxton to-day we found the small larvae of this species attached to the half-decayed fibres of the main stem of a plant of burdock, but under the outer skin, which was less decayed. There was no trace of green leaves, nor had the main bud broken at all through the crown of the plant.—J. OVENDON, 28th February 1906.

Obituary

JOHN ANTONY THOMPSON, whose death was announced in our last issue, was born at Bucklow, Cheshire, on 14th May 1907. He graduated in Classics, with honours, at Caius College, Cambridge, and on leaving the university settled in North Wales, where he founded a preparatory school. In 1940 he married Lucy Elizabeth, younger daughter of the late Mr. and Mrs. Henry Sutcliffe of Coed Mawr Hall, North Wales.

It was while living in North Wales that Thompson began to study the Welsh forms of our Rhopalocera, and soon he acquired an outstanding knowledge of the butterflies of that area and of Cheshire. He probably knew more than anyone else of the distribution of *Coenonympha tullia* Mull. in Caernarvonshire and was the discoverer of the remarkable dwarf and early races of *Plebeius argus* (ssp. *caernensis* Thompson) and *Eumenis semele* (ssp. *thyone* Thompson) which occur on the Great Orme.

After the War he moved to Wells, Somerset, where he founded Milton Lodge School, and devoted his limited leisure to the study of the butterflies of that area and to breeding *Pieris napi* L. and its aberrations, in which he met with remarkable success. It was at Milton that he was attacked by his last illness, a seizure which left him partly paralysed last December, and although he was making a good recovery he suffered a further attack last March, from which he never regained consciousness, and after lingering for a few days passed away on 6th March.

We are indebted to his widow, Mrs. L. E. Thompson, to whom we offer our sincere sympathy, and to Dr. H. B. Williams, Q.C., LL.D., for the above particulars.

EXCHANGES AND WANTS

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—*B. R. Laurence, Birkbeck College, London, W.C.1.*

Warwickshire Lepidoptera.—Will Entomologists please assist in compiling a new "County of Warwickshire Local List of Lepidoptera" (Macro and Micro)? Records giving date and year, and locality of capture should be sent to *Trevor Trought, F.R.E.S., c/o The Curator, County Museum, Warwick.* All assistance will be acknowledged.

Wanted.—European (excluding Great Britain) Rhopalocera. Would collect English insects of any order in exchange. Fresh or papered butterflies preferred. Any offers?—*Dr. N. L. Birkett, 3 Thorny Hills, Kendal, Westmorland.*

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d'ASSIS-FONSECA, F.R.E.S.

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TO OUR CONTRIBUTORS

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JUL 13 1956

Collecting Experiences During 1955

By M. J. LEECH.

The season opened on 3rd February with a visit to Delamere Forest in Cheshire. The weather was quite mild for the time of the year and insects seen included *Phigalia pedaria* both type and var. *monacharia* and *Erannis marginaria*. Conditions deteriorated within an hour of collecting, heavy rain set in which brought a close to any further activities. On 23rd March, in the company of Mr. S. Coxey, we returned in the hope of obtaining *Apocheima hispidaria*; for the past few years we have been intent on obtaining this species from Delamere but always without success. This season, however; we were lucky. Altogether we obtained nine males, some of which were attracted to m.v. light, the others to paraffin lamps and one came to the car head-lights. Their arrival to light is rather similar to that of *Odontosia carmelita* in that their actual flight is not observed until they are quite close to the source of light when they are to be seen fluttering near the sheet. Other species included *P. pedaria*, *Erannis marginaria*, *E. leucophaearia*, *Conistra vaccinii* and *Orthosia incerta*.

On 4th April we went over to Wallasey in search of *Nyssia zonaria*. We were apparently too early, due to the backward season. We spent two hours examining the area but were not successful. Examining the golf links area for eggs of *Orthosia advena* also resulted in failure.

Formby Moss claimed my attention on 8th April. The usual spring insects were in evidence, although the sallows were backward owing to the lateness of the season. Assembling with a female *Biston strataria* produced no males. On 16th April the same area was visited—species as already mentioned were in evidence. The *O. advena*, which have become common in this area recently, appeared to be scarce this spring.

Our first visit to the Witherslack district was on 20th April. Moths were flying freely at dusk, but afterwards the sallows were untenanted. We took one *Gypsitesa leucographa* in company with the commoner species. Both *Nothopteryx carpinata* and *Nothopteryx polyommata* were quite common and we also took two hibernated specimens of *Triphosa dubitata*; *Ectropis bistortata* was just making an appearance.

Back in Formby on 23rd April produced very little, only common species were taken at sallows—a single specimen of *Orthosia cruda* turned up at mercury vapour light—a scarce insect in the district. The following day was spent in the company of Mr. and Mrs. S. Gordon Smith. No collecting was undertaken but a pleasant day was had browsing through the collections and the breeding quarters. A few larvae of *Arctia caja* and *Lasiocampa quercus* were obtained on 30th April from the shore area. A freshly-emerged *Cerura vinula* was also seen at rest.

May 7th saw us again in the Witherslack district. That evening we visited Holker Moss. The evening sky clouded over after a clear day but moths were very scarce; at dusk we saw *Lampropteryx suffumata*, *Lithina chlorosata*, *Selenia bilunaria*, *Ectropis bistortata* and *Aethalura punctulata*. The mercury vapour trap produced only about a dozen noctuae. We obtained larvae of *Apeira syringaria* off honey-suckle, which later in the year produced mature insects.

Very cold conditions were experienced in the north during May; we had a mixture of rain, hail and sleet with the thermometer down in the 30's for much of the time. On 18th May we paid another visit to Delamere Forest. The temperature dropped to 34° F. which produced such poor conditions that no moths were obtained. On the 21st May we paid a visit to Cannock Chase in Staffordshire in the hope of catching *Cerura bicuspis*. About half a dozen common moths visited the light in three hours. On the following morning we visited Burnt Wood and here, again, the same story prevailed. In the whole of the morning we saw one moth, *Ematurga atomaria*. We found a few *Hydriomena furcata* larvae on sallow. That evening we motored over to Mold in North Wales and were rewarded with a single *Orthosia gothica* in the trap.

The Whitsun week-end passed without conditions improving much. The first *Polyommatus icarus* of the year was observed on 31st May; a week later this insect was well out but could not be considered plentiful as in previous years. On 6th June in the company of Mr. and Mrs. Coxey I visited Beetham. We had by far the best night's collecting of the season to date, although insects were not really common. Approximately 40 species put in an appearance at the mercury vapour, one of these was *Triphaena pronuba*—an early date. Ten days later, we paid another visit to Delamere, the commonest insect to light being *Pheosia gnoma*. *Plagodis dolabraria* and *Semiothisa liturata* were also observed. Beating hawthorns on the outskirts of Bolton a few days later produced larvae of *Allophyes oxycanthae* and *P. pediaia*.

The mercury vapour light was worked in the garden at home on 25th June. Nothing had arrived up to midnight but by morning there were about 30 species in the trap, including fresh specimens of *Pyrrhia umbra* and a single *Hydrelia flammeolaria*, obviously a wanderer as there is no alder in the vicinity of the house. Two days later, a visit was paid to the local moss land in search of *Ochlodes venata* and *Procris statices*. Not a specimen of either species was observed, however. Insects on the whole were very scarce although a few *Eustrotia uncula* were obtained. On 29th June, we motored over to the Great Orme for *Plebeius argus* form *caernensis*. Shortly after our arrival we found as many as we required; the butterflies were all at rest as the day was cloudy and rather windy with some rain. Later the same day, in another part of Wales, we netted a specimen of *Bomolocha crassalis* (*fontis*) and *Jaspidia pygarga*. Only common insects came to the light that evening.

July 7th saw us once more in the Beetham district when 61 species of macrolepidoptera were observed. During the day in Bolton, the temperature was as high as 85° F. in the shade. By night the mercury dropped down to the 60's. The dusk flight was almost non-existent but this was compensated for by a good flight after dark. The most interesting species of the night was *Agrotis clavis*. Only one arrived at our mercury vapour lamp—this was the first time I had taken this species. *Anaplectoides prasina* again only one; this was the first time we had recorded this species for the district. *Plusia bractea*, once more was a singleton: we had hoped to obtain some from thistle heads but found that these were not in full bloom. In addition, *Cidaria fulvata* was quite common.

By this time of the year the country was experiencing a pleasant heat wave which appeared to have its effect on the moths as a general increase in numbers was experienced. On the 31st July we visited the Sychnant Pass at Conway. On arrival we noticed that wind, which is usually a constant deterrent to satisfactory mothing conditions in this spot, was almost non-existent except for a slight breeze on the more exposed sections of the scar. The temperature was very high, well up in the 60's—we did not have a thermometer with us on this occasion so an accurate reading was unobtainable. We enjoyed an excellent night under very favourable conditions. *Amathes ashworthii* and *Agrotis trux* ssp. *lunigera* were both very common, the former more so than the latter. *Apamea furva* was taken both at light and off heather blooms. Another welcome arrival was a single specimen of *Hadena conspersa*. *Nudaria mundana* was plentiful at rest on an old fence near the roadside which we sugared on arrival but which proved unproductive, probably owing to the abundance of heather blooms. We each took a specimen of *Sterrha eburnata* which is still much sought after in this district. *Ammogrotis lucernea*, *Bombycia viminalis*, *Epirrhoe galiata* and *Gnophos obscurata* were also in evidence.

Back at Formby on the 16th July a visit was made to the Moss. The day had been very hot but the temperature dropped considerably at dusk. The result was that everywhere was enveloped in a dense white ground mist which usually restricts considerably the flight of moths. On this occasion, however, they were still flying quite freely. Nothing of special note was taken except *Ortholitha mucronata* which is uncommon in the district. This year seems to have been a good one for it, as it was reported as being not uncommon on a previous visit to the Moss by one of my friends. The following day, whilst working the shore area, male *L. quercus* were flying freely in the bright sunshine. *Maniola jurtina* and *M. tithonus* were everywhere. One of the *jurtina* seen, and eventually netted, had an unusual scale deformity on the left forewing—most of it being entirely bare of scales both on the upper and underside. Specimens of *Plemyria bicolorata* and *Mesoleuca albicillata* were disturbed from one of the alder woods, whilst larva-searching on the balsam poplar produced two young larvae of *Cerura hermelina* which eventually pupated.

Formby Point was again the scene of our operations four days later. The temperature varied from 68° F. to 65° F., the three degrees' fall being observed when a slight breeze from the sea arose. In all we recorded a total of 86 macros, one of the highest totals for some time. Two specimens of *C. hermelina* and two female *Dasychira fascelina* arrived during our stay. One of the latter was kept for eggs which were laid the next day. Unfortunately most of the larvae have perished during the winter; this species always seems to do badly in hibernation. One *Actebia praecox* arrived, an early date for this species. We also took a single specimen of *B. viminalis*, a new record for this district. Another very rare species in the district was also recorded—*Chiasmia clathrata*. On our arrival we saw several *Leucania litoralis* flying around the marram grass; most of these proved to be females which were probably ovipositing on the foodplant.

The outskirts of Bolton claimed our attention on the 25th July. We worked in an area containing an extensive amount of alder trees,

a little birch and the odd yew tree. Two new species to the Bolton list, which we are in the process of compiling, fell to our nets, namely *P. bicolorata* and *Venusia cambrica*. The former we anticipated owing to the expanse of alder, but the latter species came as a pleasant surprise.

Euxoa cursoria was the main quarry the following week-end. Both light and searching ragwort heads produced a few specimens along with *A. praecox*. The following day, the first examples of the second brood of *P. icarus* were in evidence.

On the 6th August I left, in the company of Mr. S. Coxey, for a week's collecting at the Burren, after *Luceria virens*. I do not intend to deal with the expedition at this stage except to remark that we were successful in our quest and did, in fact, manage to obtain a very high percentage of the insects recorded in this delightful collecting locality by the previous parties who have recorded their experiences in the pages of our entomological journals.

Back at Formby on the 18th August proved on the whole to be unprofitable although *Lasiocampa trifolii* were quite numerous. An examination of the contents of the m.v. trap two days later provided two specimens of *Arenostola phragmitides* which is uncommon in the district but which has been established in the locality for several years judging from the records which have accumulated. Also in the trap was a specimen of *Ortholitha lignata* which has not previously been recorded from the precincts of the garden—obviously a wanderer as we are about three miles from what I consider to be the breeding quarters of this insect.

On the 25th August we again visited our new found locality on the outskirts of Bolton. Once again we were pleasantly surprised in our captures considering the close proximity to this industrial centre. We captured two specimens of *Apamea scolopacina*, an insect not only new to our Bolton list but one new to our collections. From all accounts 1955 was a 'year' for this insect as Mr. Reid reported it as being common in the Sheffield outskirts. We also found *Celaena haworthii* at rest and a few visited the lamp. A visit to the same spot later the same month was less productive than the one just related. The only interesting species to arrive at the m.v. light was *C. haworthii*. Working this area in September did not produce any further lepidoptera of any note.

Various routine visits to localities mentioned above were undertaken during the latter half of the autumn, but do not call for special mention. Reviewing the year as a whole, the spring and early summer were disappointing, mainly due to the rather cold weather. With the advent of the warmer weather, the number of lepidoptera increased substantially. The records made for the Bolton district are interesting and go to prove that industrial areas, although having severe restrictions entomologically speaking, do, on occasions, have their highlights. The most interesting week of the year was that spent in Ireland and we were fortunate in being blessed with good weather which resulted in a good holiday, although by no means a restful one.

While going to press we received an important paper on 'Melanism in the Lepidoptera', by Professor J. W. Heslop Harrison, D.Sc., F.R.S. It will appear in our July/August issue.

Vapourings

By H. SYMES.

About twenty years ago I discussed with the late L. W. Newman the possibility of obtaining a cross between *Orgyia antiqua* L. and *O. recens* Hb., then known as *gonostigma* Fab. He said that he did not think it could be done, as the two Vapourers were not out at the same time. I was not convinced. *O. recens* is double-brooded: the first brood appears in the second half of June, and the second brood in September. *O. antiqua* is single-brooded, but the period of emergence is a long one, and moths may be seen on the wing from the beginning of August to the end of September.

On 24th June 1938 I took two newly-emerged female *recens* bred from pupae of Yorkshire stock given me by the late L. F. Burt, to Pamber Forest, near Silchester. Here, on 26th June 1934 I had taken a virgin female which attracted a male, but not until about 4.30 p.m., v.s.t. History repeated itself, for although we reached Pamber Forest at 11.15 a.m., there was no sign of a male until after we had had tea, which would be about 4.30 p.m. On neither occasion did a number of males "assemble" to the female, as I had hoped. I secured the pair, and left the other female, which had not attracted a mate, in Pamber, for the good of the race. A large batch of eggs was laid on 25th June, the larvae thrived on oak, and the first imago, a male, emerged on 2nd September. In the meantime I had collected a few larvae of *antiqua*, which duly pupated.

On 7th September a female *recens* emerged. I put her in a cage inside an open window in a sunny room looking on to my garden, and soon I was watching at least half a dozen male *antiqua* fluttering excitedly around outside the window and eventually making their way into the room. I introduced one into the breeding cage and satisfied myself that pairing took place. Next day, a batch of eggs was laid, to all appearance identical with normal eggs of *recens*, which are totally different from those of *antiqua*. During the following days a number of male *recens* emerged from their pupae, and at last a female *antiqua* appeared. Pairing took place between this *antiqua* ♀ and a *recens* ♂, and in due course eggs were laid that looked just like normal eggs of *antiqua*. In both cases the appearance of the eggs could not have been otherwise. Now, *recens* passes the winter as a half-grown larva, and *antiqua* in the egg stage. These two batches of eggs took after their mothers, so those laid by the *recens* ♀ hatched before the end of September. Unfortunately, those laid by the *antiqua* ♀ never hatched at all.

The hybrid larvae, which I could not distinguish from ordinary *recens* larvae when placed side by side, did very well until the end of October. I distributed a number among various friends, hoping that at least one of us would succeed in bringing a batch safely through the winter. I had done this successfully with larvae of *recens* in 1934-5, and I brought a good many through the winter of 1938-9, but although I gave the hybrids the same treatment, I lost every one of mine, and of the whole brood only two survived the winter. Of these, one grew to a great size and in due course produced a female moth, which I never saw, and the other, which remained rather small and

should have produced a male, ended by going on hunger strike in its final instar and did not pupate.

I cannot raise much enthusiasm for the females of either of these species, for they are little more than a bag of eggs, the chief difference between them being that *recens* is darker and as a rule considerably larger. But it was a great disappointment to me not to obtain a male hybrid, as the markings of the wings might have been very interesting.

In 1939 I bred some imagines of *recens* from the larvae that survived the winter, and obtained a pairing on 16th June. When moths of the second brood emerged, I tried again to cross them with *antiqua*. This time I failed to pair a *recens* ♀ with an *antiqua* ♂, although as in the previous year males were attracted to her. I did get a *recens* ♂ to pair with an *antiqua* ♀, and eggs were laid, but when the spring came they, like the former lot, failed to hatch. Since then I have not had the opportunity to repeat the experiment, but I have not given up the hope of having another try.

Some Recollections of Albert Brydges Farn

By Colonel S. H. KERSHAW, D.S.O.

The name of A. B. Farn is probably unknown to the younger generation of lepidopterists to-day; it may therefore interest readers of the *Record* if I set down some recollections of a great Victorian collector who amassed one of the finest collections of butterflies and moths ever brought together. Apart from his success as a collector, however, Farn has a real title to fame since he may justly be called 'the Father of the Var-hunters'. By proving that *all* species varied, even the Cabbage White, he opened up a vast field of enjoyment and research for posterity. His initials, in which he rejoiced, were most unsuited to such a man.

Albert Brydges Farn was born at No. 4 Chatham Place East in the parish of St. John's, Hackney, Middlesex, on 19th March 1841. His parents were Edward Farn, a solicitor, and Matilda Priscilla *née* Wakefield. I have no knowledge of his early life or schooling. He grew up to be a tall man with magnificent shoulders. An accident in early life left him with a bent right leg; but he walked very fast in spite of this defect. So far as I remember he always had a beard.

Farn had two sisters, one of whom married a Mr. Bramley and lived in the New Forest in the Lyndhurst-Brockenhurst area and whose daughter looked after Farn during his later years at Greenhithe and Ganarew. The second became Mrs. Birchall, whose daughter, Nellie, kept house for A.B.F. at Mount Nod in Greenhithe from 1900 until she married a few years later, when Miss Bramley took her place.

Farn's charm, generosity, love of practical joking, quick temper, sense of humour, combined with resentment of any slight or injury, real or imaginary (and a complete incapacity to forgive or forget such a slight) made Farn such a complex mass of conflicting emotions that it is exceedingly difficult to portray his character fairly and impartially. He had no Laodiceans amongst his friends and enemies: you either loved or hated him (either being warmly returned), but in all cases

you respected him, and sometimes feared him. He could lose his temper suddenly and devastatingly, as he did when a certain dealer tried to palm off on him some manufactured 'vars' as genuine wild captures—an experience which doubtless the unwise dealer never wished to have again.

Farn studied for the medical profession, but I can find no trace of his having passed his final examinations and he certainly never practised as a doctor. About this time he came in for a considerable legacy, and decided to spend it having a good time, which included learning to play billiards exceptionally well. Somewhere or other he learnt to be a first class shot with a 12-bore, and he was sometimes asked to shoot with Lord Walsingham—a tribute to his accuracy of aim. In shooting over dogs on the Gravesend marshes, his record of 176 snipe with 176 cartridges is unlikely ever to be equalled or excelled; a sketch of A.B.F. out shooting, made by my brother G.B.K., is attached.

When living at Stone, between Greenhithe and Dartford, he challenged an acquaintance to drive tandems from his house at Swansfield to the Bull Inn at Rochester and then play billiards for twenty-four hours non-stop. Farn won easily as his opponent collapsed well before the time limit. In later years A.B.F. liked telling this story to the younger generation.

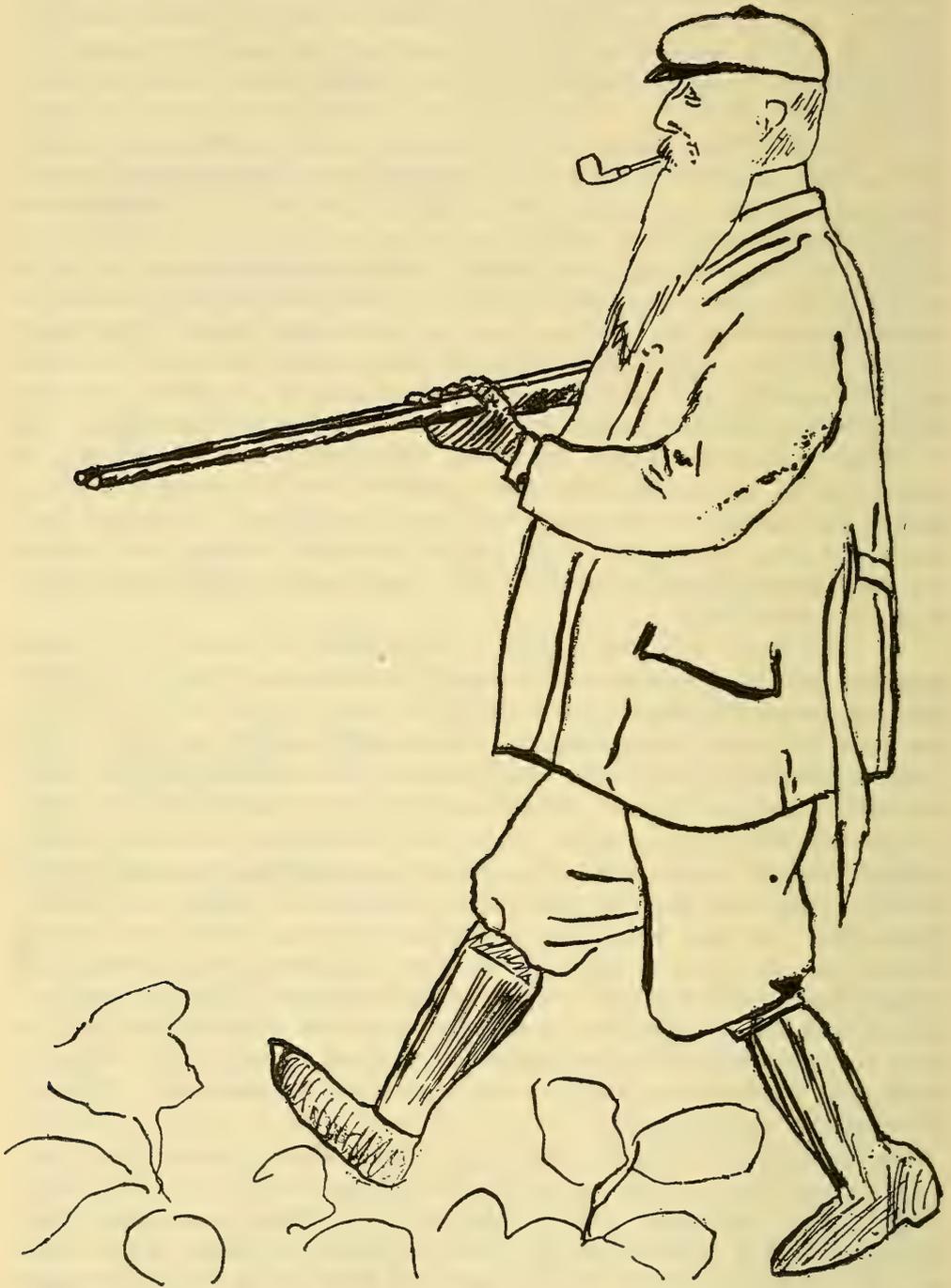
In 1883 Farn was still living at Swansfield in Stone. For some years he had the right of shooting over Swanscombe Woods, but when the Associated Portland Cement Manufacturers bought the woods for chalk in 1911, the Company, not unnaturally, wished to reserve the shooting for their own people and informed Farn to that effect. Farn considered this a personal affront, and never forgave the Company.

By 1900 he had removed to Mount Nod, Greenhithe, where my eldest brother (N.T.K.) and I got to know him well, and also his niece, Nellie Birchill. He was then in the Local Government Board as Vaccine Controller. A year before Farn reached the age limit the L.G.B. wished him to retire at once, as his work was being transferred; this meant that he could not qualify for a full pension. This did not suit A.B.F. and for about a year he travelled up to his office as usual by the 8.5 a.m., read his *Times*, and came home again by the 5.23 p.m., continuing this manoeuvre until he had earned his full pension! (I fancy he was paid for it, too!)

He allowed me to collect with him, when I could get summer leave, and I spent many hours in his huge moth-trap overlooking a disused chalk quarry. Farn spent much of his evenings sitting outside the trap, killing time and bats with a .22 rifle: he always expected to get three out of five bats fired at. I have his copy of Newman's *Moths*, bound in two volumes interleaved with plain paper for his notes. These notes indicate that he had taken some 410 species in the trap.

It was at Mount Nod that I first met F. W. Frohawk, who had come down to look at some of A.B.F.'s 'vars' and incidentally to see some of Farn's drawings of them; for Farn was a very clever and accurate artist. His drawings of insects and of the young of wading birds, a subject in which he specialised, were lovely delicate pictures.

In 1906, Farn bought Sabine's collection of butterflies and amalgamated it with his own, but long before 1900 his own collection was one of the finest in England.



Farn had one son, who died quite young while at a private school. Farn always attributed his death to neglect of a minor ailment. After the death of his son and his wife Pamela, Farn never mentioned either of them, even to his closest friends, and never went to church. He suffered considerably from bitterness of spirit, yet to his friends he was always cheerful and full of fun.

Farn was accused of exterminating the colony of *Araschnia levana* (*prorsa*) which had been established at Symond's Yat in the Forest

of Dean; the late S. G. Castle Russell certainly believed this to be a fact, and Dr. Ford refers to the incident in his book on butterflies, but a pencil entry in Farn's copy of Stainton's *Butterflies and Moths*, which is in my possession, throws rather a different light on the subject. The entry is made on the page devoted to the Comma Butterfly, and is brief: "*A. levana* introduced surreptitiously about 1912. Fortunately only survived two years". This entry is unmistakably in Farn's spidery writing and it does not sound as if he had any hand in the insect's destruction. That A.B.F. frowned on the introduction of any species not previously known to have occurred in Great Britain is well known, but, as I said before, he had many bitter enemies. Was not Castle Russell himself accused (of course, falsely) of exterminating the amazing "vars." of *Coenonympha tullia* at Delamere Forest? S.G.C.R. told me this himself! I personally very much doubt whether it would be possible for one person to exterminate, in a large area of woodland, an insect which Nature intended to continue. Dipterous and hymenopterous predators, and cold wet seasons, are much more likely to have been the agents of destruction.

Farn was usually popular with both landlords and keepers, as he always asked permission before going to a locality for the first time; he shut gates, and found out and avoided the areas in which keepers were rearing birds. However, on one occasion a new landlord took over a favourite locality and patrolled it daily with a posse of keepers, chasing with equal zest bug-hunters and tramps. Now this landlord was not only a zealous preserver of game, but he was also a prodigious snob.

Farn spotted this, and one day, having shadowed the man and his keepers and got them where he wanted, he hopped nimbly over the padlocked gate and ran up to the owner. Before the latter could say anything, Farn burst out with: "I say, Sir, have you seen the ladies Iris and Iole, cousins of the Emperor, you know? They must be lost in the wood!" Anyone on such obvious terms of familiarity with Royalty was a man to be treated with deference, and before the posse was dispersed in search of the missing ladies it was given strict orders that Farn, with or without his lady friends, was to be admitted to the property at all times.

Farn loved to show his collections to anyone, young or old, who was really interested and did not ask to see it merely because it was "the right thing to do"; he particularly disliked the question: "Where did you get them?" A certain lady badgered Farn every time she saw him to show her his collection. At last in desperation he did so, and at the end of two and a half hours' hard work for the old man, she remarked: "Oh, Mr. Farn! What a lot of pins!" Farn's reply was: "Had I known earlier what would have interested you most, I could have shown you boxes and boxes of pins without troubling you to look through so many drawers to see them". To this, the lady replied effusively: "Oh! No trouble at all, I assure you!"

Amongst other things, Farn revised the insect portion of *The Insect Hunter's Companion*, by the Reverend Joseph Greene, and added to it.

His niece, Miss Nellie Birchell, who looked after A.B.F. until she married, was assisted by a delightful housekeeper, Miss Sara Hatch,

who knew exactly how he liked snipe or partridge cooked, and made fabulous Christmas cakes. Sara was a great character, and one of her sayings pleased Farn immensely. Suggest something contrary to her principles, which were many and extremely decorous, and out would come: "Oh! Nothing would introduce me to do that!"

In spite of his game leg, Farn was a remarkably fast runner, even when nearly seventy. One evening three toughs set on him in the darkness of the railway bridge at Greenhithe Station. He easily burst through them, and, finding that one was considerably faster than the others, drew him on until the fellow was well clear of his companions. Farn then stopped and held his umbrella out like a rapier; the steel-shafted point entered the thug's chest and he fell with a groan. Farn wrenched his umbrella free and trotted home without further molestation.

Farn was very kind and generous to younger collectors like myself, both with advice and gifts of rare insects, but he did expect, when he showed you one of his special localities, that you would have the courtesy to ask him if you wanted to go there again. Neglect of this point led to several estrangements with other collectors, yet I never knew him to keep a locality from a friend.

On one occasion, returning home after inspecting a pair of "reputed British" Spurge Hawks offered by a collector and rejecting their data as insufficient, on reaching Mount Nod he found a freshly emerged *C. euphorbiae* clinging to his front door-knob!

He often came in for a game of billiards with my eldest brother and delighted in showing novices like myself how to play shots. He could usually give me 75 in 100 and a beating, but was just as pleased as I was when I managed to scrape home with a gorgeous fluke, and when all three balls scurried into unexpected pockets he used his pet phrase for the occasion: "All stand and everybody dies!" He expected to make a 100 break each evening, but stopped if he had any form of a fluke, even though he got the shot played for.

It was great fun to go collecting with him. For a quick-tempered man he had boundless patience, and to see him catch a peacock butterfly on the ground with a glass-topped box was a revelation of perfect patience, skill, and knowledge.

Miss Bramley, his elder niece, was a first-class centre forward in mixed hockey, and we had many strenuous games in and around Gravesend; but Farn himself was little interested in games or sport other than shooting and billiards.

He once was at a game in Chatham between the famous trick billiard player John Roberts Senior and a Royal Engineer, in the days when there was no penalty for knocking a ball off the table. The sapper won the toss and gave a miss in baulk; John knocked his own and the red ball off the table; his opponent gave another miss in baulk. Roberts repeated his previous stroke, remarking: "It will be a long game, but I think I shall win!" He then proceeded to beat his opponent, using only the half butt.

As I have said, Farn was very quick-tempered, and when a cook served up a partridge over-cooked, he rang the bell and threw the bird at her, shouting "I'll teach you to spoil good game!" Needless to say the cook was not Miss Sara Hatch!

When I went to South Africa in 1901, Farn presented me with a grand pair of Zeiss glasses and an oxidized tobacco box inscribed: S.H.K. from A.B.F., which I still treasure.

In addition to his insect collections, Farn had a great knowledge of wading birds and their young and a unique collection of the latter; he could skin and stuff birds to the life, and also paint insects, and was in close touch with F. W. Frohawk who often came to Mount Nod.

Farn migrated to Brainton Lodge, Ganarew, in Herefordshire, largely to study the Comma butterfly, which was at that time becoming very scarce in England. It was here that he discovered the aberration of *L. sinapis* called *ganarew*. My third brother (G.B.K.) stayed with him here and they became even closer friends. It was during this time that G.B.K. caught the *caeca* var. of *M. arion* figured on Plate 32 of Frohawk's *Varieties* as ab. *obsoleta*. Farn was much taken with this aberration, and G.B.K. lent it to him to show with his *arion*; I have beside me a letter from A.B.F. to G.B.K. saying "I am making an addition to my will, which I think will please you". It was to the effect that the *arion* was to be returned to G.B.K. and not included in any sale of A.B.F.'s collection. Farn died the next day under an operation for prostate gland trouble, and had failed to add the codicil. So passed a great naturalist, a fine sportsman, a man of humour, wit and generosity, and a loyal friend. He died on 31st October 1921 at the age of 82.

The *arion* was sold to Bright of Bournemouth for about £8; some 26 years later, on Bright's death, the late S. G. Castle Russell bid for me at the sale and regained it for £12. It is now back in G.B.K.'s Standish cabinet, now in my possession.

I should like to express my deep sense of gratitude to all who have helped me to collect the material for these notes on A. B. Farn, and to hope that the article may produce more information about his early life. I owe much to the kindness of Mr. Douglas Watson, Mrs. Hibbert, Mrs. G. B. Kershaw, and Mr. P. B. M. Allan for the constant help, advice and assistance given to me in ferreting out missing details of the life of my old friend.

Book Notes

"It is of extreme importance," wrote Stainton in the book to which reference was made in these Notes last month, "that a journal or diary be kept of all the captures made, and each specimen should bear a number referring to this journal, by means of which at any time the collector can ascertain precisely when and where such an insect was caught. Beginners sometimes have extraordinary luck, and catch rarities; and yet it may often happen that, having supposed this rarity was some common insect, they have misnamed it, and not discovered their mistake for years. Now, if the specimen bears a number referring to a journal written at the time of capture, when they discover the prize they have caught they can at once give the date and locality. What a mass of errors and blunders would have been avoided if every one had done this!" Yes, but suppose that the diary has been lost or accidentally destroyed? And, if the collection contains rarities, how can one's next of kin expect to sell specimens which have no *cachets*?

This matter of numbered labels calls to mind an unhappy incident.

Many years ago we found in a small provincial museum a fine forty-drawer cabinet containing a most interesting collection of Lepidoptera amassed by a man whom we knew to have collected between 1830 and 1860. Among rarities such as *C. subrosea*, *L. caenosa*, *T. atriplicis*, *E. polygrammata* and *T. flammea (empyrea)* were six Large Coppers. On the pin of each specimen was a small circular label, on the underside of which was a number, and after rummaging about for a time the 'curator' (save the mark!) produced a journal such as Stainton had recommended. On revisiting the museum some years later we found that the six Large Coppers had disappeared. The diary meanwhile had been lost. "Yes," said the curator, "the collection badly needed bringing up to date, and a doctor from —— gave us some very rare new moths in exchange for those butterflies." He pulled out a drawer and pointed to six nicely set fresh specimens of *Polychrisia moneta* Fab. Certainly it was not a bad exchange—for the doctor, whose name for some reason or other was not forthcoming.

But if to-day we can wholly condemn the evil practice of numbered labels Stainton's remarks on the Continental style of setting are wholly good. "Our Continental friends," said he, "use very much longer pins for their insects than we do, and one great advantage of this is, that they can attach to each insect a legible notice of its locality and date. If we, with our short pins, and with our insects in contact with the bottom of our cabinet drawers, attach any similar label, it is out of sight, and we have to lift the insect up to see when and where it was caught. A collection in which each insect could speak for itself, and say whence it came and when captured, would be a vast improvement on any of our existing collections." He did not mention the matter of mites; but before the days of paradichlorobenzene or even formalin insects set so low on the pin that body and wings rested on the floor of the drawer suffered severely from these pests. By setting the specimen high on the pin this danger is not entirely obviated but it is considerably lessened.

The large coppers we found in that provincial museum had come from Whittlesea—that area of the Fenland so consistently, so thoroughly, and so profitably worked by amateurs and professionals alike. By 1850 *dispar* was probably extinct there, and the last Cambridgeshire specimen seems to have been taken by Wagstaff at Bottisham Fen in July 1851. But *dispar* lingered on in the West Country; it is known to have been flying in the Somerset fens in 1857 and probably for several years after that. In 1867 Stainton still hoped that this fine insect might exist in some out of the way corner of our island—"Possibly", he wrote, "there are still some small fen-districts where the species still occurs". The story of *Lycaena dispar* in this country outside the Fenland has yet to be written: in the far-off days when England was a land of marsh and mere and forest *dispar* may well have been one of our most common and widespread butterflies.

Current Notes

Our old friend and contributor to the *Record*, ORAZIO QUERCI, writes from his home near Naples to say that owing to the serious and

prolonged illness of his wife (also a famous collector in her day) he is no longer able to go on collecting expeditions. The Signora (who, incidentally, speaks, in addition to her native Italian, English, Spanish, Portuguese, Catalan, Greek and Arabic), is now 82 years of age and has collected, until her illness, ever since she was a girl of 18. Recently an American entomologist has sent Signor Querci more than 25,000 specimens to set; but now this labour is ended and the old entomologist is looking for further work in this direction—or indeed in any other branch of Entomology. His charges are very modest: 1,500 liras per hundred for Lepidoptera, and 500 liras per hundred for Coleoptera, Diptera, etc. This includes relaxing, repairing and pinning. The American collector above-mentioned has written to him “Your work is perfect”. If any of our readers have numbers of papered insects which they would like to have set, will they please bear ORAZIO QUERCI in mind? His address is: Vendicio, Formia, Latina, Italy.

Notes and Observations

A NOTE FROM CORNWALL.—The hibernating *Macroglossum stellatarum* L. mentioned in my note of 7th December (*Ent. Rec.*, 67: 329) died during the February frosts. At 9.15 a.m. on 28th March, however, I found another flying at my Himalayan primulas, with a keen N.E. wind blowing. It appeared again on 29th March. Many moths here are early this year, in contrast to the vegetation. I lost a batch of eggs of *Ptilophora plumigera* Schf. (which Mr. Byers had kindly sent me) because they hatched before any foodplant was available, though kept very cold.

The first *Colocasia coryli* L. was in the m.v. light-trap on 28th March, *Cyenia mendica* Cl. on 10th April, *Hadena conspersa* Schf. and *Abrostola tripartita* Hufn., on 23rd April, and *Agrotis puta* Hb. on 28th April. Butterflies have not been early in general, though this afternoon (29th April) I saw a *Hamearis lucina* L.—the first I have ever seen here—on the cliff near my garden.

Newcomers to the trap have been small series of *Achlya flavicornis* L., *Panolis flammea* Schf. (*piniperda* Panz.), *Dasycampa rubiginea* Schf. and single specimens of *Lithophane semibrunnea* Haw., *Graptolitha ornitopus* Hufn. and *Jodia croceago* Schf. The weather is still cold, and there is little moving except the usual *Orthosia* and the ever-present *Biston strataria* Hufn.—H. G. ROSSEL, Bodinnick, Lanteglos-by-Fowey, Cornwall. 29.iv.56.

[Some of the above dates are remarkably early. *C. coryli* and *C. mendica* are not usually on the wing before May. Of *H. conspersa* Barrett remarks: “On the wing in June, in forward seasons sometimes at the end of May”. *A. puta* and *A. tripartita* also are not usually to be expected, even in an early season, until at least mid-May.—ED.]

THE LEPIDOPTERA OF DERBYSHIRE.—The Derbyshire Entomological Society is engaged on the revision of the county list. Three hundred copies of the late H. C. Hayward’s *Lepidoptera of Derbyshire* were printed in 1926, but this work is now very scarce as the copies remaining after distribution to members, museums and libraries are presumed to have been destroyed when the cellars of the Derby Museum and Art

Gallery were cleared for use as air raid shelters in the early "panic period" of the war.

Some readers may have spent holidays collecting or observing in Derbyshire's beautiful limestone dales, on our extensive moorlands or in the pleasant meadows and woodlands of the Trent Valley, and I should be grateful for their lists with full data. The county south of Derby has been well-worked continuously from the mid-nineteenth century but we have few recent records for the high millstone grit Peak District—bounded roughly by lines drawn through Longnor (Staffs.), Buxton, Chapel-en-le-Frith, Castleton and Totley (Yorks.)—and any records from this area would be particularly welcome. All assistance will be acknowledged by the Honorary Secretary.—D. C. HULME, 1 Melton Avenue, Littleover, Derby.

THE FADING OF EMERALDS.—Rather over twenty years ago I bought a very fine 16-drawer Brady cabinet into which I exactly fitted the whole of the Geometridae. The first drawer contained the Emeralds, and many were the visitors who asked me how I kept them such a good colour. I just didn't know.

Two years ago, having transferred the rest of my moths to 10-drawer units with interchangeable drawers, I also moved some of my geometers to allow for some longer series. Subsequently, to my disgust, I found that the *G. papilionaria* had faded badly and most of them showed the well-known pale beige colour. The Brady drawers are extra large, and have only a small cell for naphthalene, filled about 1934 and possibly not since. The others have a huge cell running along the whole front of the drawer which was completely filled when I transferred the moths.

It seems to me probable that the answer to the fading of Emeralds lies in the naphthalene. Most of the *papilionaria* are pre-war, but have done nearly all their fading since they were moved into an atmosphere highly charged with naphthalene vapour. Even a couple of particularly dark specimens taken at Kinlochewe in 1949 are not as dark as they were.

Can anyone learned in the chemistry of the pigment in the Emeralds say whether naphthalene is likely to cause fading? I had intended to carry out a practical test, but no *papilionaria* came to my light last summer.—J. O. T. HOWARD, Wycherley, Deepdene Wood, Dorking, Surrey.

HELL COPPICE.—Mr. Symes has added one more name to the yearly list of haunts which are being destroyed or greatly reduced. As I write these notes, a small Buckinghamshire wood where all five Hairstreaks occur (*Strymonidia pruni* L. was always the most common, and in 1951 abundant) is being levelled. Most of the sallows holding the hibernating larvae of *Apatura iris* L. were quickly dispensed with. The dense blackthorn thickets are taking longer but their resistance is of little use against modern machines of destruction. How many eggs of *S. pruni* and *Thecla betulae* L. I wonder, have perished in the permanent bonfires?

Perhaps it is as well that I never knew Hell Coppice in the heyday which Mr. Symes remembers. Last Saturday I looked over the remnants of a hedge out on to the waste which is marked "Hell Coppice" on my ordnance map. Neatly lined conifers will soon give good cover for the

man in chains—if he has not fled the district. However, all is not quite lost in the surrounding woodland. The Hairstreaks still occur and *S. pruni* larvae occasionally drop on to the sheet together with the more common *T. betulæ*. Suitable spots become harder to find each year as more woodland undergrowth is destroyed. Even the lovely old hedges and clumps of blackthorn at the edge of the wood are not spared.

All the butterflies mentioned by Mr. Symes have been seen during recent years, except *Argynnis selene* L.; but probably their numbers are small in comparison with the early '30's. I have not made any specialised study of the moths. Despite all the hazards of modern existence, *A. iris* can still be seen over the few oaks that have been spared in odd corners. If the rest of the surrounding woodlands are due for eventual planting of conifers, the extinction of this beautiful butterfly can only be a matter of time.

I have had many happy excursions in the woods around Hell Coppice since my first visit in 1948, watching *S. pruni* high up in the hazels, *T. betulæ* ovipositing in the warm sun of a September afternoon, or finding hibernating *A. iris* larvae on a cold December day. The prospects of being able to see the same things twenty years hence seem improbable. There are plenty of young willows which could develop into the grand old trees which female *A. iris* patronise year after year. The blackthorn clumps could again become impenetrable. But can nothing be done to spare some of the woodland from the sunless, soul destroying plantations of firs and larches which blot out all undergrowth? Although I love the call of the Golden Crested Wrens which will come to the district, it is poor consolation for the loss of such interesting butterflies.—H. C. DUNK, 24 Abbots View, Abbots Rise, Kings Langley, Herts. 19.iv.56.

HEODES VIRGUREAE LINN. IN DEVON.—In view of my special interest in "The Coppers" I have read with great interest the accounts given by Mr. P. B. M. Allan and the various notes that have arisen in and because of his report. With regard to the food-plant, this is *Rumex* (various Docks) and earlier authors who included Golden-Rod have been corrected on this point.

But I cannot understand Mr. Allan saying that *virgaureae* is double-brooded on the Continent. Modern authors (e.g. Verity with his very wide knowledge of this genus) say that it is single-brooded but that it has a long period between the first and last emergences. Verity gives July and August as the period of flight in both his recent books—one on the butterflies of Italy and the other on those of France. Older authors (e.g. W. F. Kirby) say May to August. Mr. Allan says "*virgaureae* is on the wing during the second half of May and again in July-August". He goes on to say that a continental May emergence might be equivalent in Britain to a mid-June date.

Although I have never seen *virgaureae* flying, I have nearly 500 specimens of this species from almost every part of its range. I have carefully looked through these and I can find nothing that leads me to suppose it is double-brooded. In the first place, there is no May date at all in these series. There are very few June dates and the earliest of these is only the 21st June, a male from Chamonix and the other June dates are 22nd June (1 ♂, Martigny), 23rd June (2 ♂♂, Hungary),

24th June (1 ♂, C. Italy), 29th June (Switzerland, this being the only June female) and 4 males from the Jura Mts. merely labelled "June 1911". In all areas July and August are the months recorded, including Finland, Germany, Digne, Spain, Italy, etc.

There are very few September dates. There are two males and two females from the Hautes Alpes dated 4th September, another for the 4th September from Central Italy and the only other and latest of all is 5th September, again Central Italy. I cannot think there are two broods of this species, nor that those appearing near Berlin on 27th July would have been "the first emergences of the usual second brood" as Mr. Allan writes. On what date would the Berlin first brood have been flying to allow for the feeding-up, etc., required to give the "usual second brood" by 27th July? It would surely have to be a date in May when eggs were laid and I can find no trace of May dates and the earliest date Mr. Allan gives is 18th June.

It seems to me that in this interesting affair it is the date the insects were flying which is the biggest factor against they're having been *virgaureae*.—P. SIVITER SMITH, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16. 14.v.56.

Current Literature

ZEITSCHRIFT DER WIENER ENTOMOLOGISCHEN GESELLSCHAFT, 67, Part 2, has three main papers; Charles Boursin contributes two further parts of his work on the Agrotidae-Trifinae (Lep.). Part 81 deals with *Agrochola albirena*, a new species from Southern China with a plate illustrating the species together with ♂ genitalia dissections of *A. albirena* and of three other closely related species for comparison. Part 82 deals with *Eupsilia* and describes a new species, *E. quinquelinea* from Ceylon with two plates illustrating *E. unipuncta* Scriba and *E. quinquelinea* together with ♂ genitalia dissections of eight *Eupsilia* species for comparison.

Walter Forster commences a monograph of *Agriodiatus* Scudd. (Lep. Lycaenidae) with two new subspecies of *A. caerulea*, three of *A. damone* Ev. and a new species, *A. altivagans*.

ENTOMOLOGISCHE BERICHTEN, 16, No. 3, has a note on nests of the wasp *Dolichovespula saxonica* F. by J. P. van Lith; V. van der Goot notes *Chamaesyrrhus* species in Holland, and P. J. Brakman contributes part III of short notes on Dutch Coleoptera. The final part of J. B. M. van Dinther's paper on Three Noxious Hornworms from Surinam deals with *Pseudosphinx tetrio* L. which damages the ornamental trees of *Plumeria alba* L. and *P. rubra* L.; there is a good half-tone figure of the adult insect. G. Kruseman writes a note on the various editions of Goedart's "Metamorphosis Naturalis".

ENTOMOLOGISCHE ZEITSCHRIFT, 66, No. 6, is taken up by a continuation of Kurt Kernbach on *Protoparce pellenia* H.-S. and similar South American Sphingidae, with a half-tone block of *P. leucophila* Gehlen, ten text figures of genitalia details, and a map of Central and South America showing the distribution of the species dealt with.

Reviews

BETLES. By Jan Bechyně, translated and edited by C. M. F. von Hayek. 158 pp., 6 coloured plates comprising 48 figs., 207 uncoloured figs., 59 text figs. Thames and Hudson (Open Air Guides). London, 1956. Price 18/-.

This excellent little book is an adaptation of Dr. Bechyně's work *Welcher Käfer ist das?* to the needs of the English reader commencing the study of British or European beetles. The entire production is most pleasing, the printing and general lay-out clear and neat, the paper and binding good; but its outstanding feature is certainly the illustrations, which are of a quality seldom attained in a semi-popular handbook—or indeed in any other. The coloured figures, reproduced from originals by B. Bechyně, occasionally err a little on the side of vividness, while a few of them are rather too sombre. On the whole, however, the natural hues have been very well caught and the general effect is remarkably true to life. Both these and the plain figures of beetles are executed with uncommon attention to sculpture, pubescence, details of appendages, etc., and to the use of shading in giving just the right impression of convexity, as well as to correct proportions; so that the result is often almost photographic. The actual size-range of each species figured is indicated at the side. A very instructive page of drawings shows the complete series of variations in the two-spot ladybird, *Adalia bipunctata*. Another good point is that the figures and diagnoses are cross-referenced to each other—a great convenience. (A word of warning: the frankly impressionistic pictures on the coloured wrapper are *not* to be taken as representative of those within!)

Apart from a short preface, the contents are headed as follows: The External Structure—The Internal Structure—The Development of a Beetle—Relationship to the Environment and Distribution—Naming and Classification—Where are Beetles Found?—Collecting Equipment and the Preparation of a Collection—How to Use the Keys—Keys (this section occupies at least half the book)—Appendix: Keys to the Superfamilies of the Polyphaga—Glossary—Abbreviations—Bibliography—Index of Scientific Names—Index of Common Names.

The text maintains, on the whole, the high standard set by the illustrations. To quote from the preface, 'No previous knowledge of the subject is assumed . . . The choice of species in this book is intended to give a picture of the more common British and European beetles and to show how they are classified'. We may add that the intention is admirably realized. A high proportion (perhaps 75-80%) of the species are British; those which are not are marked with an asterisk. The classification used is that of Reitter, but the system proposed recently by Crowson—not yet in general use—is summarized in the appendix. The first seven chapters give concise accounts of the matters in hand, up-to-date but free from superfluous jargon, and accompanied by clear line-drawings and diagrams; a surprisingly large amount of information is packed into the small compass of the book. The keys seem reasonably workable and the necessarily extreme brevity of the diagnoses and descriptions is compensated by the detail and general accuracy of the figures. A good many species not figured are included, with (usually) just enough data for recognition.

There is little separate mention of British incidence and distribution, and beginners should note that habitats, etc., refer above all to the Continent (especially Central Europe) and are often distinctly different in Britain. Thus, a number of species are noted as found in damp places, or in woods, which in this country occur also, or more usually, in other conditions. It might not be understood that the short list of habitats and associated beetles on p. 44 does not aim at completeness. Also, two cases of geographical variation should be noted by those using the book as a guide to our fauna: the British form of *Agonum sexpunctatum* is not 'bright metallic green to coppery' (p. 66) but always—apart from various degrees of melanism—has the fore parts and elytral margins bright green and the rest of the elytra brilliant coppery-red (moreover it probably never occurs here 'on river banks' but only on peat); and our very restricted race of *Anthaxia nitidula* is not sexually dimorphic (cf. p. 88 and Pl. 2), the female being entirely golden-green like the male. Incidentally, many readers may be surprised to learn that in Germany four species of beetles enjoy legal protection (p. 50).

Of grave errors and blunders there appear to be only a few. In the frontispiece (Pl. 1) the numbering is badly confused; to fit the legend, figs. 3-7 should be renumbered consecutively, instead of 6, 5, 7, 4, 3. On p. 53, under 'Adephaga', in the phrase 'Front legs longer than middle or hind legs' the important word *not* has evidently been omitted. On p. 58, under *Carabus auratus*, 'lateral margins red' should read 'legs red'. The Necrophori are said to have 'elbowed' antennae (p. 79); we can only presume the intention was to write 'abruptly clubbed'. Our common native *Strangalia maculata* is marked and clearly described as a non-British species, 'imported in wood' (p. 118)—an odd mistake. *Dlochrysa fastuosa*, too, is wrongly marked as non-British (p. 127), probably because this awkward generic name does not appear in our literature; it is not normally regarded as more than a subgenus of *Chrysolina*.

Several other points would call for comment in an exhaustive review, but only the chief of them can be noticed here. There is a tendency, observable also in other works, to confuse reds and yellows. *Trichius fasciatus* is represented with red and black elytra, but with us, at least, the lighter parts are rather of a pale honey-yellow (and the thoracic pubescence much yellower than in the figure); while *Panagaeus crux-major* is said to have 'yellow' markings (p. 64), though the figure—a particularly good one—shows them red as in fact they are. In *Sphaeridium scarabaeoides* the markings are described as 'reddish-yellow' (p. 73); actually, the humeral patches are dark red, the apical ones pale testaceous—a distinction usually passed over, yet most obvious to the eye. On Pl. 6, the green of fig. 3 is too dark, 4 represents an abnormal form and not the typical green-scaled one, and the ground colour of 5 is much too fuscous in tone—it should be ashy-yellow. In fig. 117, the prothorax should be as wide as the elytra; in fig. 167, the elytra should be wider, the legs rather thinner; in fig. 173, the legs less thin than shown. On p. 60, under *Leistus*, 'hd. with thorn-like prolongation' is hardly clear, but seems to refer to the peculiar trifurcate ligula (clearly seen in the figure). Sawdust is not a satisfactory material to use in a killing-bottle where pubescent species are concerned, especially small

delicate ones (cf. p. 46); for these a killing-tube lined with blotting paper is far preferable.

On p. 45 it is suggested that the Chrysomelidae and Curculionidae are 'mainly monophagous, that is, they feed on one kind of plant; these are chiefly Cruciferae . . . , Scrophulariaceae , and Solanaceae . . .' Assuming that 'kind' means species, this generalization seems rash. Large sections of both families are apparently polyphagous, and many of the supposedly monophagous species eventually prove to occur on different plant species of the same or related genera; strict or specific monophagy is surely quite exceptional. And as to the most favoured plant families, are not the Compositae, Labiatae, Leguminosae and Rosaceae, for example, at least as often chosen? (Amentaceae and Salicaceae, also favourites, are partly covered by what follows.) On p. 84 it is stated that our fifty-odd species of Elateridae are 'all very alike and difficult to separate'—an assertion that appears to us wholly unjustified, and liable to fill the beginner with needless apprehension. There is a rather considerable omission from the bibliography, namely the recent *Coleopterist's Handbook* by Walsh, Dibb *et al.*, reviewed in 1954, *Ent. Rec.*, 67: 279-80, and a useful complement to the present work.

The following misprints have been detected: *Cercoma* for *Cerocoma*, p. 11; *strie* for *striae*, p. 68; *aterimus* for *aterrimus*, p. 73; *Stenichius* for *Stenichnus*, and *fimentarius* for *finetarius*, p. 74; *splendicula* for *splendidula*, p. 82; *Dicera* for *Dicerca*, pp. 86, 88; *Leptideela* for *Leptideella*, p. 117; *gabrielli* for *gabrieli*, p. 122; Suffrain for Suffrian, p. 148.

Lest the four preceding paragraphs be construed as carping, we would emphasize that both author and translator-editor are to be congratulated on a very welcome and notable addition to the few modern introductory works on the Coleoptera.

A. A. A.

ALL ABOUT PHOTOGRAPHING INSECTS WITH YOUR CAMERA (*Photo guide 73*) by George E. Hyde. The Focal Press, London; 2/-.

This excellent little book is just what is required for directing the activities of the entomologist wanting to photograph insects, or the non-entomological photographer with the same object in view. The author combines the qualities of entomologist and of photographer, so he is in a good position to help both.

The book is brightly written without waste of words, and after a short preface describing the nature of insects from a photographic point of view, it is divided under various headings. The first deals with a discussion on the capabilities of various types of camera, and gives notes on suitable accessories, with a very useful table for focussing with the use of supplementary lenses.

The next section, "Other Equipment", covers tripods, camera stands, flash bulbs (ordinary and electronic) and exposure metres. After this, the author introduces the reader to his insect subjects and gives good practical advice on the use of the apparatus previously described; warning is given of common pitfalls and difficulties with suggestions for surmounting them. Subjects, simple, not so simple, and what may be

described as "more advanced" are illustrated by sixteen excellent half-tone plates, in many cases with instructive captions.

Where to find subjects belonging to various insect orders is dealt with in the following chapter; this is skilfully written in language suitable for a layman, and a section on indoor insect photography follows with various suggestions for restricting the activity of the subject. A note on insects abroad follows.

Life history in general is dealt with, with hints on photographing the various stages and the necessity for keeping records is emphasized, so that the photographer may be reminded how, when and where to seek the same stage of an insect again should he wish to repeat a subject to which he considered full justice had not previously been done.

There is a note on colour photography, a small section repeating and stressing various outstanding points from all parts of the book, and finally a glossary of photographic terms.

If after his first or second attempt at insect photography with the aid of this book, the reader has not evinced an interest in entomology (or the entomologist in photography) there must be something wrong with his make-up.

S. N. A. J.

Fifty Years Ago

(From *The Entomologist's Record* for 1906)

DISTINGUISHING APATELE TRIDENS FROM A. PSI.—The series of the first named species from Mrs. Bazett's collection, shown by Dr. Chapman, were pronounced by him to be all *A. psi*, and the series of both species from the Barrett collection, shown as well by Dr. Chapman, also showed some confusion of the two species. [Dr. Chapman] "read a paper on the Differentiation of *Acronicta tridens* and *A. psi* in the imaginal stage," in which he stated that the only absolute proof of different identity lay in the dissimilarity of the male genitalia. There were many superficial differences, but all proved unstable, and it was impossible to define any character, or combination of characters, which would enable entomologists to separate the two insects, unless they had specially studied the species. To the trained eye, however, these differences prove almost infallible guides.

COLLECTING EUPITHECIA TOGATA.—We could find no small cone-bearing spruces, nor trees near the open, that swept the ground with cone-covered branches. So we were compelled to attack the giants growing thickly together, tall as church spires, with cones in plenty, but only at the very top. This is capital collecting for the ambitious; with luck and pluck, one arrives at last where only squirrels, crossbills, *Eupithecia togata*, and *Coccyx strobilella* have been before. Now clasp the trunk, which has become very delicate, with both legs and one wrist, and while reaching all round for the cones with the free hand, keep your weight as nearly to the centre as possible. Do not trouble to labour at the cones where frass is not seen protruding, and if the whole green top snaps off, why then—you will never collect *E. togata* again.—J. E. GARDNER.

ON THE CULBIN SANDS.—A cycle ride to the Culbin Sands gave me

nothing but one black *Apamea didyma* with *Charaeas graminis* hanging intoxicated on the roadside ragwort was not promising. I had hoped to disturb *Triphaena subsequa* and *Actebia praecox* from the clumps of overhanging marram grass on the sandhills, but saw neither, though several visits were made. I wonder if there are any more extensive sandhills than these round our coasts. I have seen none. Particularly weird they are too; by optical delusion they appear much higher than they really are, while a flock of seagulls settled provoked the expression of surprise, "What are those horses and humans doing in this out-of-the-world spot?" The nervous man and the man of imagination who knows the tales of these hills should not alone venture to cross them at night.—IDEM.

Obituary

GEORGE PERCY SUTTON died on 21st April at his home in Erdington, Birmingham, aged 71, having been ill since September. A skilled two-surgeon operation lasting 4 hours and 8 minutes prolonged his life, and after three weeks he was driving his car; but the fell disease recurred, and he showed astounding and exemplary courage, refusing to retire to bed, and breeding larvae, setting moths, and cheerfully discussing entomological problems with friends until the last.

He was an ex-President of the Entomological Section of the Birmingham Natural History Society and a generous benefactor, and adviser to the members, and a regular correspondent with entomologists all over the country.

Sutton was fifty-one years in the Electrical Supply industry, and while Resident Engineer at Hams Hall "A" Power Station, Birmingham, he found that fine varieties of *Arctia caia* appeared from larvae collected from round the cooling towers, and considered that the great fluctuations of temperature caused this aberration. He specialised on the Agrotidae, and had most comprehensive series, expertly set. He worked Cranham, Glos., for many years, taking *M. arion*, *L. bellargus*, and *L. coridon*, including goodly varieties, and when he retired he named his home "Cranham".

He was also an enthusiastic theatre-goer and was usually to be seen at concerts where the works of Bartok, Bloch, Britten, Sibelius and other of the modern composers were performed.

Our Society has lost a respected and popular member, a shining example of fortitude in a painful and debilitating illness, and the following quotation seems appropriate:—

"Dear Insects, the study of you has sustained me, and continues to sustain me in my heaviest trials. I must take leave of you for to-day. The ranks are thinning around me, and the long hopes have fled. Shall I be able to speak to you again?"—Fabre. W. B.

A List of the Macrolepidoptera of Abbey Wood

By A. J. SHOWLER.

(Continued from page 129.)

- A. xanthographa* Schiff. Common.
Diarsia brunnea Schiff. At m.v., 1954.

- D. festiva* Schiff. Lessness Wood, 1954 (C.H.).
Ochropleura plecta Linn. Very common.
Triphaena comes Hb. Common.
T. pronuba Linn. Abundant.
T. janthina Schiff. Not common.
T. interjecta Hb. Not common.
Lampra fimbriata Schreb. Fairly common.
Axylia putris Linn. Common.
Polia nebulosa Hufn. Fairly common. Often seen on fences.
Mamestra brassicae Linn. Common.
Melanchra persicariae Linn. Common.
Diataraxia oleracea Linn. Common.
Ceramica pisi Linn. Common.
Hadena w-latinum Hufn. Fairly common.
H. thalassina Hufn. Abbey Wood, 1953 (C.H.).
H. trifolii Hufn. Fairly common.
H. serena Schiff. Fairly common at m.v.
H. cucubali Schiff. Common on the Marshes, bred from campion (*Silene*) heads. Also at the m.v. lamp.
H. lepida Esp. Taken at m.v. in Plumstead, 1953 (J.G.).
Tholera cespitis Schiff. Taken at m.v. lamp at Plumstead, 1953 (J.G.).
Cerapteryx graminis Linn. One taken at Welling, 1952 (R.G.R.).
Thalophila matura Hufn. Fairly common.
Eremobia ochroleuca Schiff. One taken from a fence near my house, 1952. An unexpected visitor, probably associated with the chalk outcrop.
Episema caeruleocephala Linn. At Abbey Wood, 1952 (J.G.).
Luperina testacea Schiff. Common.
Antitype flavicincta Schiff. One taken at Abbey Wood, 1951 (J.G.).
Euplexia lucipara Linn. Fairly common.
Phlogophora meticulosa Linn. Common in most months of the year.
Mormo maura Linn. Fairly common; at Abbey Wood and Plumstead Common (M.D.S.).
Phalena typica Linn. Not often seen, but probably fairly common
 Taken at Abbey Wood and Plumstead Common (M.D.S.).
Dypterygia scabriuscula Linn. At Abbey Wood, 1953 (J.G.).
Apamea infesta Ochs. At Abbey Wood, 1953 (J.G.).
A. sordens Hufn. Common.
A. lithoxylaea Schiff. Fairly common.
A. monoglypha Hufn. Very common.
A. secalis Linn. Common.
Procus strigilis Cl. Common, mostly melanics.
P. fasciuncula Haw. Occurs on the Marshes.
P. literosa Haw. Two taken at m.v. lamp at Plumstead, 1953 (J.G.).
P. furuncula Schiff. At m.v. lamp at Abbey Wood, 1953.
Hydraecia oculea Linn. Fairly common at m.v. No attempt has yet been made to determine any other species of *Hydraecia* amongst these specimens.
H. micacea Esp. Taken on the Marshes, 1952 (R.G.R.).
Gortyna flavago Schiff. Fairly common.
Rhizedra lutosa Hb. Fairly common at m.v.
Leucania pallens Linn. Very common.

- L. impura* Hb. Almost as common as *pallens*.
 (*L. straminea* Treit. May well still occur on the Marshes.)
- L. comma* Linn. Fairly common at m.v. and on fences.
- L. lithargyria* Esp. Very common.
- L. conigera* Schiff. Common.
- Meristis trigrammica* Hufn. Common.
- Caradrina morpheus* Hufn. Common.
- C. alsines* Brahm. At Abbey Wood, 1954 (C.H.).
- C. blanda* Schiff. Common.
- C. ambigua* Schiff. Another common species.
- C. clavipalpis* Scop. Abundant.
- Laphygma exigua* Hb. One taken at Plumstead in 1953 (C.H.).
- Rusina umbratica* Goeze. Common in the woods.
- Amphipyra pyramidea* Linn. Fairly common in the woods.
- A. tragopoginis* Cl. Common.
- Cerastis rubricosa* Schiff. At Abbey Wood in 1951 (J.G.).
- Orthosia gothica* Linn. Common.
- O. cruda* Schiff. Very common at m.v.
- O. stabilis* Schiff. Very common.
- O. incerta* Hufn. Abundant.
- O. munda* Schiff. At Abbey Wood in 1954 (C.H.).
- O. gracilis* Schiff. Fairly common.
- Cosmia affinis* Linn. At m.v. in 1953.
- C. trapezina* Linn. Common at lights (other than m.v.).
- Atethmia xerampelina* Esp. One at m.v. in 1953.
 (*Agrochola lota* Cl. Not yet recorded.)
- Agrochola macilentata* Hb. Very common.
- A. circellaris* Hufn. At sugar, Lessness Woods, 1952 (J.G.).
- A. lychnidis* Schiff. Abundant; very varied in ground colour.
- A. helvola* Linn. Not common.
- A. litura* Linn. Common.
- Cirrhia icteritia* Hufn. Fairly common.
- Conistra vaccinii* Linn. Fairly common in both autumn and spring.
 (*Eupsilia transversa* Hufn. Not yet noted but probably occurring.)
- Lithomoia solidaginis* Hb. One specimen, undoubtedly a migrant, was taken at the m.v. trap in August 1954 (*Ent. Record*, 66: 273, 1954).
- Xylocampa areola* Esp. At Abbey Wood, 1952 (J.G.).
- Cucullia absinthii* Linn. At m.v. lamp, Plumstead in 1953 and 1954 (C.H.).
- C. umbratica* Linn. At m.v. and on fences, fairly common.
- C. chamomillae* Schiff. At Abbey Wood, 1954 (C.H.).
 (*Anarta myrtilli* Linn. Probably still found at Belvedere.)
- Heliothis peltigera* Schiff. One at Plumstead at m.v., 1953 (C.H.).
- Acontia luctuosa* Schiff. Noted at Abbey Wood at light; and on the Marshes by day.
- Rivula sericealis* Scop. Fairly common.
- Scoliopteryx libatrix* Linn. At Abbey Wood, 1952 (J.G.).
- Polychrisia moneta* Fab. Fairly common.
- Plusia chrysitis* Linn. Fairly common.
- P. pulchrina* Haw. A few at the m.v. trap.
- P. gamma* Linn. Very common in most years.

- Abrostola tripartita* Hufn. Fairly common.
- Euclidimera mi* Cl. Occurs on the Marshes (M.D.S.).
- Catocala nupta* Linn. Generally very common on fences and tree-trunks.
- Zanclognatha tarsipennalis* Treit. A few at m.v.
- Z. grisealis* Schiff. Common in the woods; on the marshes and at Welling.
- Herminia barbalis* Cl. Noted in the woods, 1952 (J.G.).
- Hypena proboscidalis* Linn. Fairly common.
- H. rostralis* Linn. At Abbey Wood, 1952 (J.G.).
- Brephos parthenias* Linn. Fairly common at Upper Belvedere.
- Pseudoterpna pruinata* Hufn. Common at light.
- Hipparchus papilionaria* Linn. Common at lights in the woods.
- Hemistola immaculata* Thunb. Fairly common.
- Comibaena pustulata* Hufn. Common.
- Iodis lactearia* Linn. Fairly common in the woods.
- Hemithea aestivaria* Hb. Common.
- Sterrha rusticata* Schiff. Very common, to be found on shaded walls and fences. Not noted on the marshes, but seen everywhere else. (*Ent. Rec.*, 67, 45, 1955.)
- S. seriata* Schr. Common, in habitats similar to *rusticata*.
- S. fuscovenosa* Goeze. Only two noted; at Abbey Wood and Belvedere.
- S. inornata* Haw. Quite common at m.v.
- S. aversata* Linn. Very common in both banded and non-banded forms.
- S. trigeminata* Haw. Another common species on fences.
- Scopula marginepunctata* Goeze. Fairly common at m.v. and on fences.
- Calothysanis amata* Linn. Common in the woods and at m.v.
(*Cosymbia orbicularia* Hb. Probably still occurs.)
- Ortholitha chenopodiata* Linn. Common.
- Larentia clavaria* Haw. At Abbey Wood, 1952. (J.G.)
- Anaitis plagiata* Linn. One taken at Upper Belvedere in June 1952, from a fence.
- Chesias legatella* Schiff. Fairly common.
(*C. rufata* Fab. Recorded in "Woolwich Surveys" but not yet noted again.)
- Lobophora halterata* Hufn. First noted at Abbey Wood in 1954.
- Philereme transversata* Hufn. Not common.
- Lygris mellinata* Fab. Very common.
- L. pyraliata* Schiff. Fairly common.
(*Electrophaës corylata* Thunb. Almost certain to occur in the woods.)
- Dysstroma truncata* Hufn. Common, but most specimens are melanic.
- Lampropteryx suffumata* Schiff. One specimen taken at the m.v. lamp in the garden in April 1953, the first recorded in Kent for about fifty years. Goose-grass (*Galium aparine*) is fairly common nearby, but searching around this in 1954 yielded no more insects, though unfortunately the search could not, at the time, be very thorough.
- Thera obeliscata* Hb. Common. The specimens have not been examined for *variata*.
(*Xanthorhoe ferrugata* Cl. Probably still occurs.)
(*X. spadicearia* Schiff. Probably still occurs.)

(To be continued.)

EXCHANGES AND WANTS

Wanted.—Pinned or alcohol preserved adult winter gnats (Diptera, Trichoceridae), particularly members of individual swarms, for study of variation of species. Postage refunded.—*B. R. Laurence, Birkbeck College, London, W.C.1.*

Warwickshire Lepidoptera.—Will Entomologists please assist in compiling a new "County of Warwickshire Local List of Lepidoptera" (Macro and Micro)? Records giving date and year, and locality of capture should be sent to *Trevor Trought, F.R.E.S., c/o The Curator, County Museum, Warwick.* All assistance will be acknowledged.

Wanted.—European (excluding Great Britain) Rhopalocera. Would collect English insects of any order in exchange. Fresh or papered butterflies preferred. Any offers?—*Dr. N. L. Birkett, 3 Thorny Hills, Kendal, Westmorland.*

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Collecting in 1955

By A. C. R. REDGRAVE.

These notes are of the 1955 season's collecting with Mr. Harold Symes and the late Dr. Harold King, partly in west Hampshire, but chiefly in east Dorset. Our collecting excursions together consisted almost exclusively of night work with a portable m.v. lamp.

The first evening's work was on 5th May with Dr. K. in a birch wood near Canford. The birches included some fine old trees and we were hoping to take *Odontosia carmelita* Esp. The night was cool and windy and the lamp was set up in the open near the trees. Only five moths of five species appeared, but one was *carmelita*. I returned to the wood on the 10th, this time with H.S., and on this occasion we set up the lamp under the trees some little distance further from the road. The night was rather warmer and we were rewarded with 11 species including half-a-dozen specimens of *carmelita*. We were particularly pleased with the result as this moth is scarce in Dorset and had not, I think, been recorded previously from this locality.

June 14th and 17th found us on the open heath on the other side of the road, and on the first of these two nights, with Dr. K., 30 species were recorded, including *Eupithecia arceuthata* Freyer and several *Hadena thalassina* Hufn. On the second night, with H.S., we recorded 28 species, amongst them *Drymonia dodonaea* Schf. and numbers of *Jaspidia pygarga* Hufn.

On 21st June we all three visited a wood near Bloxworth where Mr. Symes had once taken the larva of *Apatele alni* L. We recorded 45 species including *Hyloicus pinastri* L., *Stauropus fagi* L. and four specimens of *alni*.

Two nights later Dr. K. and I visited one of the more accessible parts of Holt Forest, a locality which proved to be one of the most interesting worked in 1955. A total of 59 species was recorded, including *Polia hepatica* Cl., *Apamea charactera* Hb., *A. crenata* Huf., *Helio-phobus anceps* Schf., *Plusia pulchrina* Haw., and *Zanclognatha grisealis* Schf.

On the afternoon of 2nd July H.S. and I went to Hurst Castle in search of *Setina irrorella* L., but although the day was sunny the wind was strong and we saw none. In the evening we set up the lamp by a stream near Wootton Enclosure in the New Forest, but luck was against us and we saw only 12 species, of which the most abundant was *Cybosia mesomella* L.

A week later I went alone to Hurst Castle. The weather was still sunny and windy, but I found many *irrorella* of both sexes resting on grass stems just before 5 p.m. Earlier not a specimen was to be seen. While boxing this species I put up several specimens of *Scopula emutaria* Hb., all in very fresh condition.

The evening of 12th July found Dr. K. and me on Sopley Marsh. By the time we had recorded 26 species the marsh was enveloped in a mist, and we were considering packing up when our minds were made up for us by an irate farmer and his companion, who complained in forceful and unprintable language that the noise of our generator was preventing them and their friends from sleeping. Our record included

large numbers of *Cerapteryx graminis* L., fair numbers of *Apamea ophiogramma* Esp. and two fine female *Cossus cossus* L.

On 15th July Dr. K. and I set up the lamp on Canford Heath, particularly to try for *Coscinia cribraria* L. and I was fortunate in securing a short series of this species. Of the 56 species noted the most abundant were *Pachynemina hippocastanaria* Hb. and *Anarta myrtilli* L. We all revisited this locality four days later and recorded 43 species, including two more *cribraria*, and while *hippocastanaria* was still abundant, *myrtilli* had disappeared.

Holt Forest was the scene of our night's work on 26th July and Dr. K. and I set up the lamp in the same place as before. 62 species were recorded, the highest total of the year, the most interesting, to me, being *Cleorodes lichenaria* Hufn.

In 1951 Mr. B. Goater and I had spent a number of very successful nights on a marsh at Lymington working with petrol vapour lamps, and in an effort to repeat this success Dr. K. and I went to the marsh on 28th July again with petrol lamps, as owing to the proximity of houses we were precluded from using the generator. The night was most disappointing, the only species recorded being *Arenostola phragmitidis* Hb., *Leucania straminea* Tr., *Celaena leucostigma* Hb. and *Hydraecia paludis* Tutt. Not a single specimen of either *Nonagria dissoluta* Tr. or *Chilodes maritima* Tausch. was seen, although in the earlier year we had found them in quite fair numbers.

On 30th July H.S. and I tried Canford Heath again and noted 27 species, including two specimens of *Calocalpe undulata* L. and a single *cribraria*; *hippocastanaria* abounded and *myrtilli* had reappeared in numbers.

On 6th August H.S. and I spent an afternoon at Winspit, a delightful valley on the Dorset coast. I cannot remember ever having seen so many butterflies before. I saw numbers of *Colias croceus* Fourc. and took a few *Thymelicus acteon* Rott. In the evening Dr. K. and I worked the lamp on Canford Heath, recording 45 species including singletons of *cribraria* and *Plusia festucae* L.

On 20th August, while the generator was undergoing repair, I took a petrol lamp to the sandhills at Studland in Dorset where I joined Mr. Stuart from Lymington. I was very pleased to take a short series of *Agrotis vestigialis* Hufn. and see Mr. Stuart take a perfect *Actebia praecox* L. Unfortunately this was the only occasion on which I was able to visit this locality, but I am sure it would be well worth trying with the m.v. lamp.

Two days later Dr. K. and I were again at Holt Forest and on this occasion recorded 56 species, including *Nonagria geminipuncta* Haw. and *N. dissoluta* Tr. (var. *arundineta* Schm.). These two species were a considerable surprise, as the wooded locality in which we were working seemed a most unlikely place for them.

August 24th found us at the watercress beds near Cranborne, Dorset. Here amongst the butterbur (*Tussilago petasitis*) Dr. King was sure we should find *Hydraecia petasitis* Dbld. We recorded 39 species including two *Zenobia retusa* L., several *Cosmia affinis* L., a single *Atethmia xerampelina* Esp., a veritable plague of *Tholera popularis* Fab. both males and females, and a single *H. petasitis*, which appeared to make its way to the sheet by walking instead of flying. It occurred

to us later that we might have had more success with this species had we set up our lamp amongst the tall plants of the butterbur instead of on a slight eminence which we had hoped would command the whole area of the plant.

On 29th August Dr. K. and I went to Badbury Rings, but a mist came up and we were obliged to leave early, recording 29 species which included very large numbers of male *C. graminis* and both sexes of *T. popularis*. Two nights later we were all three at our accustomed pitch on Canford Heath, noting 27 species amongst which were *Miltochrista miniata* Forst. and *Tholera cespitis* Schif.

By 9th September the warm nights were over. We tried the lamp at Parley Heath and succeeded in attracting only 12 species, including a single specimen of *Amathes agathina* Dup., a usually common moth in this locality. The following night we searched the heather on the other side of the heath and found a further single specimen of *agathina*.

The night of 19th September was also cold and Dr. K. and I worked the lamp at Canford Heath, rather higher up the slope than usual. We only recorded 10 species including the season's first *Deuteronomos alniaria* L.

On Saturday, 24th September, H.S. drove me to Portland, picking up Brigadier Warry on the way and joining Dr. K. near Church Hope Cove. The night was warm with slight drizzle, but a strong wind from the sea prevented us from putting our lamp right on the cliff edge. A total of 18 species appeared, amongst which we were pleased to see *Leucania l-album* L. *Aporophyla australis* Bdv. was abundant and *Leucochlaena hispida* Geyer was common later. About 11 p.m. a specimen of *Vanessa atalanta* L. flew in and settled down on the top of the tripod immediately under the lamp and remained there until disturbed when we dismantled the gear to go home about midnight. Mr. Symes secured a single *Eumichtis lichenea* Hb., a female which subsequently laid eggs. It is hoped that his experience of breeding this species will form the subject of an article in this magazine at a later date.

On 8th October we all three went to Durlston Head, near Swanage. Here we recorded 12 species at light and seven at sugar. Those at light included *L. l-album*, *Peridroma porphyrea* Sch., *A. australis*, *Aporophyla nigra* Haw. and very large numbers of *Omphaloscelis lunosa* Haw. At sugar there were *l-album*, *porphyrea*, *australis* and a few *lunosa*.

Mr. Symes and I tried sugar at Hurn on 14th October with singular lack of success. The wind was cool and only three moths arrived to taste our feast. They were *Scoliopteryx libatrix* L., *Agrotis ipilon* Hufn. and *Griposia aprilina* L. It is perhaps worth mentioning that on the same posts the year before we were getting 60 to 100 moths a night (*Ent. Rec.*, 67: 15).

The next night it was even more windy and we visited Badbury Rings. The lamp was set up in the shelter of a copse, and while Mr. Symes watched this, Dr. King and I sugared a number of trees in the beech avenue. These produced nothing, but the lamp attracted four species, amongst which *Agrochola lychnidis* Schf. was represented by quite 50 individuals including a number of the form *pistacina*.

Dr. King believed that *Dasypolia templi* Thun. should be found in the area near Corfe Castle where the foodplant *Heracleum sphondylium*

grew in profusion. We went to a carefully selected spot on 22nd October, but weather conditions were against us and no *templi* appeared. Our only visitors were *A. lychnidis*, *A. nigra* and a few *Oporinia dilutata* Schf.

On 27th October H.S. and I sugared at Hurn again and although the night was not unduly cold we saw only eight moths of four species, one of which was *Allophytes oxyacanthae* L. and one *Agrochola lota* Cl.

The night of 5th November was damp and mild and followed a week of similar weather. Dr. King and I went to Holt Forest and switched on the lamp at 6 p.m. Our first visitor was *Colotois pennaria* L., which arrived as soon as we began and continued in abundance all the evening. The other 19 species noted included an abundance of *A. lota* and singletons of *Brachyonycha sphinx* Hufn. and *Anchoscelis helvola* L. Although the number of species (20) was quite small, the number of moths on the sheet exceeded all but the very best nights of the summer. It was indeed fitting that this should have been so, as it was to prove Dr. King's last field excursion, for he died suddenly and quite unexpectedly on 26th February 1956.

Melanism in the Lepidoptera

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I. INTRODUCTORY.

In 1926 (*Proc. Roy. Soc., B.* 99, p. 24) I made the following statement: "The question of melanism in the Lepidoptera is one of paramount importance inasmuch as this is one of the few recognizable evolutionary changes which have occurred in Nature in recent times, and, for the most part, before the eyes of the present generation". This is a very important declaration and, on account of its significance, investigations into the problem of industrial melanism, commenced by me in 1903, have been continued until the present day. This work, then, has proceeded for a period of over fifty years.

Recently, others have taken up the study of the phenomenon. This, in itself, is a very healthy sign, but less satisfactory is the tendency to misrepresent, or ignore, the results of previous researches. One of the aims of the present paper is to draw attention to instances of such happenings in which I am concerned personally.

Ford, on page 197 of his *Moths*, dealing with the work described in the paper mentioned above, refers to it, quite gratuitously, in the following terms: "Harrison was thereby investigating a phenomenon that seems never to have occurred; the spread of recessive melanism". Independently of the illogical nature of the assertion, it is open to strong criticism of another sort. My researches, as Ford well knows, were planned to seek a solution to the problems of industrial melanism; that, by sheer accident, important results of a totally different nature were secured did not affect the original aims. Moreover, it was made abundantly clear that no claim was ever put forward that these experiments of mine supplied any explanation of industrial melanism. Thus, in my paper "A Further Induction of Melanism in the Lepidopterous Insect, *Selenia bilunaria* Esp., and its Inheritance" (*Proc. Roy. Soc., B.* 102,

1928, p. 346), I very carefully wrote "It should be made clear that the present work is not regarded as solving the problems of industrial melanism". Further, in the *Durham University Journal*, (25, 1927, p. 102), in discussing the same researches, it was remarked "Whether our experiments throw light on the origin of melanism in Nature is less certain . . . there is nothing to show that either lead or manganese is responsible for the rapid changes in the colour of moths in England".

It is worth mentioning here that, if such criticisms of my results are allowable, then the experiments with *Biston betularia*, stressed so strongly by Ford, are equally vulnerable. In the opinion of several competent Continental workers, the blackening of *B. betularia* must not be regarded as a case of industrial melanism but one of nigrism, i.e. an extension of the black pattern elements, already present, at the expense of the general ground colour.

My friend Kettlewell, referring to the same Royal Society article in *Discovery* (16, p. 509, 1955), makes the following astounding statement: "The battle over the inheritance of acquired characters was thus started again, this time on the grounds of industrial melanism. Nevertheless, in (*sic*) the idea that the change was a case of inherited 'acquired characters' was rejected for two reasons". This is simply nonsense, and the alleged reasons for the imaginary rejections are even worse. No claim was ever made by me that the inheritance of acquired characters was involved. To be precise, I looked upon the experiments then, *as I do now*, as illustrating induced mutation. Besides, to prevent the less-learned from thinking in terms of such an inheritance, I produced a paper, specially designed for the purpose, in the *Vasculum* (13, p. 103, 1927). It will require some remarkable mental gymnastics to convert that paper into a claim that the experiments lent any support to the doctrine of the inheritance of acquired characters, or were even remotely connected with it. Moreover, in another work (*Proc. Roy. Soc.*, B. 102, p. 345, 1928), it will be seen that I stated unequivocally: "No claims are made here, or elsewhere, that we are concerned with a Lamarckian effect".

It appears necessary to add that Kettlewell, in dealing with this induction work and its import in his *Discovery* article, not only supplies a wrong literary reference, but also misquotes that which is erroneously given.

On the other hand, Huxley and Wells (*Science of Life*, Third Volume, p. 189, 1934), in discussing the same 1926 paper, show a complete and correct appreciation of its contents in citing it as giving "proof that environmental factors (chemical substances) can actually induce mutations in animals". This, they carefully add, must be distinguished very clearly from the Lamarckian method of inheritance—precisely the position I had taken up myself.

Again, on page 198 of his *Moths*, in a section entitled "The Explanation", Ford states that the spread of industrial melanism is due to three main causes. Two of these are those that have been urged by numerous authors, including myself, but his third reads: "A gene, which in normal circumstances is only at a slight physiological advantage, may be at a considerable premium in the unsatisfactory conditions of the soot-begrimed trees, where, quite probably, the deathrate of the larvae is unduly high owing to their contaminated food". That he

originated this view has been claimed by Ford, not only in *Moths*, but in various other publications, e.g. "Problems of Heredity" (*Biol. Rev.*, **12**, p. 489, 1937). It cannot be too strongly emphasized that his action is quite unjustifiable. Instead of this explanation emanating from Ford, it was first put forward by me in the *Journal of Genetics* (**9**, pp. 242-3, 1920). In my article entitled "Genetical Studies in the Moths of the Geometrid Genus *Oporabia* (*Oporinia*), with a Special Consideration of Melanism in the Lepidoptera" the matter is discussed at some length. That Ford should miss that section of my melanism work to the extent of imagining that he was the first to develop that important point seems inexplicable, more especially as he has quoted the paper on various occasions.

Further (*l.c.*, p. 189), Ford asserts that, in discovering the "unsuspected" extent to which leaves in rural districts are polluted by soot, Kettlewell has found the most potent cause (!) of non-industrial melanism. Once again, we are concerned with a "discovery" anticipated long ago by me. In the *Oporabia* paper (*l.c.*, p. 238) I wrote: "I have not elaborated this point to show that such smoke affects vegetation, but to show that such interference, whilst progressively diminishing as one leaves urban conditions, still possesses enormous powers at great distances from the source of the contamination".

Also, in considering melanic forms in rural areas, Ford (*l.c.*, p. 192) includes no instances of the spread of melanics in Germany, but states that he has seen reports of this occurrence, but of a rather vague kind. His knowledge of the Continental literature on melanism must be slight indeed, for Warnecke in an article "Der Gebirgs- und Küsten-Melanismus und -Nigrismus. Zugleich ein Betrag zur Frage des Industrie-Melanismus" (*Intern. Ent. Zeit.*, 21 Jahrgang, Nr. 29, 31, 32, 33, 34, 35, 36, 1927) gives numerous examples, including some wonderful forms described by my old friend Lange from the Erzgebirge mountains in Saxony.

Kettlewell, likewise, fails to refer to earlier anticipatory work. Thus (*Ent. Rec.*, **48**, pp. 18-21, 1956) he declares that contamination has been proved to take place a long way off by means of leaf washings. Thirty years ago (*Proc. Roy. Soc.*, B. **99**, p. 243, 1926) I remarked "The manganese content of hawthorn leaves shows a progressive diminution as we pass westward from Newcastle upon Tyne". These determinations of manganese salts and other polluting agencies were carried out, not by washing, but by direct chemical analysis of a long series of leaves and their surface films. Similarly, in the same article, Kettlewell makes the following statement: "One of the earliest effects is the disappearance of lichens, and their presence on tree trunks and boughs has been shown to be proportional to their distance from industrial areas". The credit for this discovery is assigned to Dr. E. W. Jones (*Rev. Bry. et Lich.*, T. **21**, pp. 1-2, 1952). In 1920, in my *Journal of Genetics* paper, in setting forth other important changes noted in affected areas simultaneously with the appearance of melanism, I gave my views: "The most striking is the disappearance of cryptogams. No one who has studied the cryptogamic botany of North Durham and North Yorkshire would fail to contrast the rich moss and lichen floras recorded for Long Acre Dene Wood in the Team Valley by Winch ninety years ago with their paucity now. The same holds good to a less extent in Cleveland.

In the Durham locality, whilst matters slightly ameliorate as we leave the soot zone, the apparent extermination of the lichens has been more complete. In the Cleveland, as one leaves Middlesbrough, lichens reappear, *pari passu*, so that in the remoter dales the whole flora comprises the same species, and in the same abundance, as fifty years ago. Nevertheless, it must not be forgotten that a score of miles out, the lichens are materially influenced. The differences in the two cases, coupled with their progressive reappearance as towns are left behind, show that the deleterious agent at work is the smoke, and that the apparent exaggeration of its effects in Durham, when compared with the conditions in Cleveland, is due to the more prolonged industrialisation of the more northern district". On page 245 of the same work, I emphasize this point further by remarking that Lancashire smoke affects Lake District lichens seventy miles away.

Kettlewell, also in his *Record* note (*l.c.*), states that Protococci, which cover the trees in these (affected) areas, and are in no way connected with lichens, do not serve to give typical *betularia* any protection whatever. This statement fails to give the true position, for very often the trunks are covered with a mixture of Protococci and immature lichens. This was so obvious that in 1920 (*l.c.*, p. 236) I uttered the warning: "We must guard against assuming that the lichens are entirely gone; this is far from true, as careful search reveals that many exist on walls and trees in the immature granulose condition". Besides, the presence of numerous colonies of *Cryphia perla*, a lichen-feeder, on apparently bare walls well within the smoke zone, amply demonstrates the existence of wall lichens there. Just a fortnight ago, by direct microscopic examination, I confirmed the fact for both trees and walls in the Gateshead area. In the same locality, the trees may frequently be quite free from both Protococci and lichens. This does not imply that they are smoke-blackened, for many are distinctly pale. The trees principally involved are sycamore, birch, beech, ash, elm, and certain species of poplar. On such trees it is perfectly easy to discern specimens of typical and black forms of *Biston betularia* at very considerable distances.

II. REMARKS ON RECENT EXPERIMENTS.

We now come to a consideration of recent researches into the rise and progress of melanism. Except in my own case, these, carried out in the main by Dr. Kettlewell, have been concentrated on one species, *Biston betularia*. This, in my opinion, is a fundamental mistake; the investigation should have been planned to include several species of diverse habits and habitats.

Ford (*l.c.*, p. 204), in his preliminary exposition of Kettlewell's liberation experiments, asserts that that worker set free, in the Cadbury Bird Reserve, 171 normal Peppered Moths and 416 of the melanic form *carbonaria*—a total of 587. Lower down on the same page, he informs us that, out of a total of 584 males released, 141 were recovered, including 25.5 per cent of the freed black moths and 13 per cent of the pale ones. Kettlewell, in his *Discovery* article (*l.c.*), supplies the same set of figures as appears in Ford's second account whilst in *Heredity* (9, pp. 323-342, December 1955) he informs us that 630 males were set free (447 *carbonaria*, 137 typical and 46 *insularia*). Of these 149, made

up of 27.5 per cent *carbonaria*, 13 per cent type and 17.4 per cent *insularia*, were recaptured. These accounts, in several particulars, are discordant; surely the discrepancies demand an explanation?

Ford (*l.c.*) sums up the results of the experiments by remarking: "The mystery surrounding the selective elimination of normal and melanic Lepidoptera has thus been solved". In fact, the real problem, the cause of the development of melanism in the insect concerned, has never been touched.

That there must be an inciting agent responsible for the appearance of black mutants in the first place is perfectly obvious. To assert that such mutants occurred before 1850, but that they failed to spread because the mechanism for their dispersal did not exist simply burkes the issue. If the early appearance of black mutants in England was sporadic, and they occurred before that date, surely the capture of at least one individual would have been announced. Even more definitely would this hold true on the Continent. However, no one ever recorded such melanic forms belonging to the species with which we are concerned. We are therefore left with two questions to answer: (1) What is the agency responsible for the induction of the melanism? (2) What is the reason for its spread? I believe, on the basis of experiments of my own discussed above, that the melanism has been induced by a melanogen or melanogens present in industrial smoke, and that such inductions are recurrent.

Let us now return to Kettlewell's results. As just indicated, they fail to give any explanation about the cause, or causes, of the development of melanism. Further, before they can be regarded as decisive in the matter of selective elimination, many details of the greatest importance, now lacking, should be furnished, whilst in several directions, additional experimentation is demanded. In the first place, the original work was carried out in an oakwood containing a sprinkling of birch and other trees. To my certain knowledge, melanic forms of *Phigalia pedaria*, *Biston betularia*, *Tethea duplaris* and *Oporinia autumnata* have arisen in birch woods well within heavily polluted areas. The trees in these woods are quite free from lichens, and possess clear silvery trunks. The experiments ought to be repeated in such woods, as well as in mixed woods far away from the sphere of influence of industrial smoke, and in others as close as possible to the sources of pollution.

In the case of the wood in which Kettlewell carried out his experiments, many pertinent and essential particulars are lacking. For instance, we should know the relative numbers of oaks, birches and other trees present, the numbers of each form of *betularia* liberated on each species of tree, and in what positions in every case they were placed. This information is especially necessary in the case of moths liberated on birches. Besides, much more information is required about how and where the insects settled down. It is true that some details have been given. Nonetheless, the general position needs much clarification.

In my own work, I have tried to free typical *betularia* from the Isle of Lewis on lichen-clad bark in North Durham; but, most perversely, all that happened, except in one instance, was that the insects vibrated their wings rapidly and then flew away, or came to rest just where they were put down. No movements indicative of adjustment were observed.

In the aberrant case, the moth moved from the lichen to a bare place where it remained until dusk set in. Then it took up a station a short distance away with its wings uplifted slightly and began to call. Next morning I discovered it in a slight hollow, free from lichen, with its head upward and its wings horizontal. A day later, it was noted at rest on lichen, with its body horizontal, and its wings spread out at right angles. In all its positions I had not the slightest difficulty in detecting the moth when at rest.

It is clear, too, that in the wood in which Kettlewell worked the presence of a wild population, built up of percentages of the various forms different from those amongst the moths liberated, must have a drastic interference effect. The extent of this it is impossible to estimate because no information is available about its numbers, the species of trees upon which its members rest and the sites selected by them. Moreover, it must be remembered that this wild population comprises both sexes. The presence of these extra females, with reactions different from those of the males, cannot be without a disturbing effect in investigations depending upon selective elimination.

To a less degree, perhaps, a similar interference may originate in other species than *betularia* in the wood, but, nevertheless, possessing cryptic coloration and patterns.

To illustrate his experiments as expounded in the *Discovery* paper, Kettlewell produces photographs intended to demonstrate that the typical form of *betularia* benefits from its cryptic pattern when placed on lichen-covered bark and that *carbonaria* forms stand out conspicuously. The reverse is supposed to hold true when the two forms are allowed to rest on smoke-blackened bark. One small criticism must be made about these photographs. The contrasts seem to have been heightened artificially by strong lighting from the top left.

Much less satisfactory are the figures supplied by Ford (*l.c.*) on his Plate xxiii; they are stated to represent the two major forms at rest on *clean* bark and sooty bark respectively. There is no reference to lichen-clad bark and the protection it is alleged to yield to moths endowed with cryptic patterns.

The deductions to be made from my experiments in respect to the visibility; or otherwise, of these *betularia* forms, when at rest on lichen-covered bark and smoke-begrimed bark, are very different. I placed Isle of Lewis typical *betularia* on bark, covered with lichen, procured from Heathery Cleugh, Upper Weardale (the furthest I could get from smoke pollution) alongside Middlesbrough specimens of *carbonaria*. The outcome was, to say the least, astounding. In every trial made, the typical form was, by far, the more conspicuous. My judgment was confirmed by many independent, trained and untrained observers. Further, the deeper one penetrated into the half-lights of an oakwood, the greater the contrast became. The same effect was obtained as evening darkness deepened in the wood.

To test the conspicuousness or otherwise of *carbonaria* forms on sycamores, birches, beeches, etc., growing within the smoke zone, I chose a small mixed wood surrounded by houses in a very heavily industrialized area in North Durham. There, contrary to what is pictured as the situation in such woods, the various trees, although quite free from Protococci and lichens, were light in colour. Upon

these trees, I placed specimens of *carbonaria*, allowed them to settle down, and then examined them from a distance. To my astonishment, I discovered that they were clearly visible from a distance of over twenty yards!

Another feature regarded by Ford and Kettlewell as of definite value in bringing about the replacement of typical insects in industrial areas is the alleged superior vigour of black varieties. Whilst it is obvious that this factor plays a part in such a change, caution must be exercised by not attaching too much importance to it, even in the case of *Biston betularia*. In Doncaster's "Summary of Evidence Supplied in the Collective Inquiry as to Progressive Melanism in Lepidoptera" (*Ent. Rec.*, **17**, p. 222, 1906) details are given concerning a long series of breeding experiments involving *B. betularia* var. *carbonaria*. Without exception, applying the usual criteria, the figures indicate that the melanic form is constitutionally weaker than the type. Over and above this, as the outcome of my experiences in rearing *Ectropis crepuscularia*, I was compelled to draw special attention to the fact (*J. Genet.*, **10**, p. 67, 1920) that I had discovered that the type form was more robust than the melanic variety *delamerensis*.

Throughout the work described by Kettlewell and Ford, emphasis, undue in my opinion, is laid on birds as agents responsible for selective elimination. This is an appropriate place to deal with my own investigations concerned with the activities of birds.

On page 235 of my *Journal of Genetics* paper (1920), I reported the results of certain observations I had made on the moth *Antitype chi*, this insect being included because it appeared on the schedule of insects possessing melanic forms prepared in 1900 for investigation by the Evolution Committee of the Royal Society. I showed that, when the numbers of the typical and dark *olivacea* forms, observed on certain walls in the Team Valley in N. Durham, were counted in the early morning, and checked in the evening, there were never at any time significant losses in which more of the type form vanished than of the darker *olivacea*; as a matter of fact, it was considered an extraordinary happening if a single specimen of either form disappeared. These observations were undertaken over a long period of years.

Kettlewell (*Heredity*, *l.c.*) seeks to dismiss these observations as having no weight in deciding the relations between Natural Selection and the progress of industrial melanism. Clearly, if one judges from the contents of his paper, he is wholly unacquainted with my later work on *Antitype chi* and its melanic and other varieties. In that article (*Vasculum*, **14**, pp. 60-62, 1928), I proved that the Royal Society Committee had erred in including *A. chi* in their schedule of species producing melanic forms, but that melanic forms of the insect did exist. In addition, I outlined the position of the species and its varieties in 1927. Once more the fact that Natural Selection by birds plays but a small part in determining the proportions of light and dark forms in an *Antitype chi* population was amply demonstrated by the information supplied, and also by the striking truth that, even in 1955, the figures remained substantially the same as in 1919.

Kettlewell's attempt to save the situation by appealing to my remark that we considered it wonderful if even one specimen disappeared between our morning and evening inspections is quite unconvincing.

Most certainly, the work did prove that birds rarely, if ever, capture specimens of *A. chi* from walls in industrial Tyneside.

Similar counts have also been carried out for several years in connection with the moth *Chimabacche fagella*, which, despite the fact that it belongs to the Oecophoridae, exhibits the phenomenon of industrial melanism, inasmuch as it possesses an extremely interesting black form—a circumstance apparently unknown to Ford. The evidence this work yielded was much the same as that resulting from the researches with *A. chi*; the insect appears to be free from bird attacks, and there is thus no preferential taking of the typical form in woods situated in the smoke zone.

C. fagella normally rests on the boles of oak, beech, birch and other trees, and, notwithstanding its small size and subapterous females, both types and melanics are plainly visible in such situations. In many woods in North Durham, its larvae feed on leaves heavily charged with deposits from industrial smoke. Moreover, as I have pointed out elsewhere, the position is rendered worse by the fact that the leaves of its foodplant, usually oak, and most frequently those situated near the tips of the twigs, are covered with "honeydew" resulting from the presence of huge Aphidid colonies. To this honeydew enormous quantities of smoke-borne impurities adhere, thereby increasing greatly the amounts of such substances ingested by the larvae. In spite of all these drawbacks, *fagella* larvae have no difficulty in utilizing the contaminated foliage as food; nor are they affected adversely as a result. Indeed, they feed up at the same rates as larvae of the same species originating from remote rural areas in Durham, and yield their imagines at the same time. If anything, the colonies are more populous than those brought under observation in areas far removed from industrialization.

At this point, I should like to focus attention on a further striking case of progressive melanism in which the intervention of birds is completely excluded. Elsewhere (*Proc. Roy. Soc.*, B. **111**, pp. 188-200, 1932), I have given an account of the development of a new phase in melanism—the appearance in several Lepidopterous species, generally belonging to the Geometridae, of melanic larvae. On Tyneside, in very many localities, the larvae of the Currant Moth, *Abraxas grossulariata*, are coal-black. This fact has been known for over seventy years. In a typical garden in the Team Valley, Harris (*Vasculum*, **40**, p. 15, 1955) states that the proportion of black larvae was 81 per cent and of types 19 per cent. In my own garden at Birtley, Co. Durham, where I have had a colony of the insect, only a few feet from my study window, under observation since 1929, the figures are much the same and have varied but little since I began to note them. Two significant facts must be stressed here: (1) *Abraxas grossulariata* larvae are distasteful to birds, (2) in spite of my prolonged series of observations not a single attack by birds has been seen.

The case is, of course, not the same as that of melanic imagines. Still, the lesson it teaches cannot be ignored; the development and progress of melanism in the Lepidoptera may take place quite independently of bird attack. Thus, the observations made on *Antitype chi* and *Chimabacche fagella* have been supported and supplemented.

That I do not exclude birds as possible selective agents in the case

of progressive melanism will be obvious at once from the accounts given in my 1920 *Journal of Genetics* article in which I show that birds and bats are responsible, as far as melanism is concerned, for the shift in mode of the *Oporinia autumnata* population in the pinewood on Eston Moor, N. Yorks. In addition, I should direct attention to two photographs appearing in Huxley and Wells' *Science of Life* which they borrowed to illustrate the action of Natural Selection. The two photographs reproduced by Kettlewell in *Discovery* (*l.c.*) are strictly parallel to these and planned for the same purpose.

Far away from Eston Moor, at Kinloch in the Isle of Rhum, I have watched chaffinches for very many days taking moths of various species by the score from the four hundred yards long verandah of Kinloch Castle. As far as I could see, no selection was practised. The whole of the moths, from the diminutive *Sterrha biselata* to the giant *Laothoe populi*, were taken indiscriminately. As the verandah was a wonderful place for collecting rare or desirable moths, I had to make my rounds very early indeed if I desired to make a worth-while bag. Later in the day, after the chaffinches had been at work, not a single moth was left. However, if my opinion that no selection occurred was wrong, then at least the mechanism for such selection existed!

Another point to which Ford refers is the possible rôle played by bats in connection with industrial melanism. In his view, they take no part in bringing about the preferential elimination of types because they feed on the wing. I think that position is completely indefensible. Both in woods and elsewhere bats do take considerable numbers of various species of moths. Surely, in the twilight of a darkening wood the lighter individuals would be the more conspicuous, and therefore the more likely to be captured? This, indubitably, would be Natural Selection in action. Thus, if birds are to be invoked as responsible agents in a winnowing action, bats cannot be neglected.

Here, a reference to a short paper (*Vasculum*, **17**, pp. 4-5, 1926) by my old friend T. A. Lofthouse, seems necessary. Under the title "Moth-collecting for a Living" he described the toll taken of moths by bats in the Middlesbrough area. He not only demonstrates it to be extensive, but he proves, in addition, that bats take moths at rest on a wall. Much the same evidence was obtained by me around Kinloch Castle, Isle of Rhum, where, on one occasion, I recorded bats as taking many specimens of *Apamea monoglypha* (including black and more normal forms), *Apatele menyanthidis*, *Cerapteryx graminis* and *Triphaena comes*. Amongst the last named species, there were 8 blacks, 2 grey-blacks, 1 mahogany red, 1 reddish, 2 of a yellow tending to rust and 1 type. These figures were obtained by collecting the wings left on a wall and the nearby ground at a point over which bats were accustomed to hawk nightly.

Kettlewell, in concluding his "Selection Experiments in Industrial Melanism in the Lepidoptera" (*Heredity*, **9**, pp. 323-342, 1955) remarks: "Consequently, birds act as selective agents, as postulated by evolutionary theory". With the first portion of this sentence I am inclined to agree, but in formulating my conclusions I would state that I am far from thinking, for reasons outlined above, that Kettlewell's experiments are decisive. Besides, I believe that birds, most definitely, are not the only agents in action and that that worker has paid too little

attention to such additional sources of eliminatory movements. Finally, I fail to see how evolutionary theory can "postulate" the necessity of an appeal to birds—and to birds alone!

23rd May 1956.

King's College,
University of Durham,
Newcastle upon Tyne.

Some Notes on *Philereme vetulata* Schiff.

By The Rev. DESMOND P. MURRAY.

The Brown Scallop together with *P. transversata* Hufn. and *Triphosa dubitata* L., three closely allied species, are confined to Buckthorn for their food-plant. All are local species, as Buckthorn is a fairly local plant, not being found in all the counties, but where it occurs, the moths can generally be found also.

The Egg: This is oval shaped, greyish brown in colour, and depressed in the centre; it is laid on the buds of the plant, generally singly, in July, and remains throughout the winter in this state. In March or April of the following year, the young larvae emerge.

The Larva: On emergence, the first instar larva measures about 1 mm.; it is pale yellow, without markings, the head is black, and the body is armed with setae. It is not an active larva like the young *Tortrix viridana* L. which sometimes uses the same food-plant. At first it feeds on the buds, penetrating into the stem, until the leaves develop at the end of April. It then hides between two leaves spun together, generally on the highest shoots of the bush, and remains within a 'latebra' until fully grown, about the first or second week of June. It is therefore easy to find on the top branches of the bush.

The full grown larva, which is rather stout, measures about 17 mm.; the colour is yellowish with irregular dorsal and sub-dorsal dark lines. The dorsal stripe is bordered with white or grey, the sub-dorsal with pale yellow; the head is blackish. The drawing of the setal map gives a good idea of the markings.

The Pupa: When fully fed, the larva descends to the ground and pupates just under the soil, or amongst the fallen leaves and debris, without any web. The pupa is a shining reddish-brown in colour measuring 10 mm.

The Imago: The moth emerges usually about the first or second week of July; the ones bred commenced to emerge on 7th July at 9 a.m.; others were found in the wild a week later. It is a dull coloured moth, measuring 25 mm., of a faded greyish brown, suffused with transverse lines. The margin of the forewing is slightly waved and the hindwings are scalloped, whence it derives its popular name. The sexes do not differ in colouring, but the female is slightly larger than the male. The antennae are simple in both sexes. The anal tuft of the male, which must be a protection to the extraordinarily large genital organs, should be especially noticed; this tuft consists of specialized scales, some of which are shown in the drawing, enlarged. Only *vetulata* and *rhamnata* show this very large form of genitalia; Pierce says: "The immense valvae seem to place these two species in a group by themselves, but the 'labides' (two long arms bearing hairy pads) show them

to be closely connected with *Euphyia picata* Hb. and *Ortholitha bipunctaria* Schf.". The moth can generally be taken at dusk around the food-plant on warm evenings early in July.

EXPLANATION OF PLATE II.

1. Egg.
 2. Larva, first instar $\times 30$.
 3. Larva at full growth $\times 4$ and setal map.
 4. The 'latebra'.
 5. Pupa, slightly enlarged.
 6. Imago, natural size, and specialized scales.
 7. Male genitalia.
 8. Food-plant, *Rhamnus catharticus* L., Buckthorn.
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Memories of a Naturalist VII

By MALCOLM BURR, D.Sc.

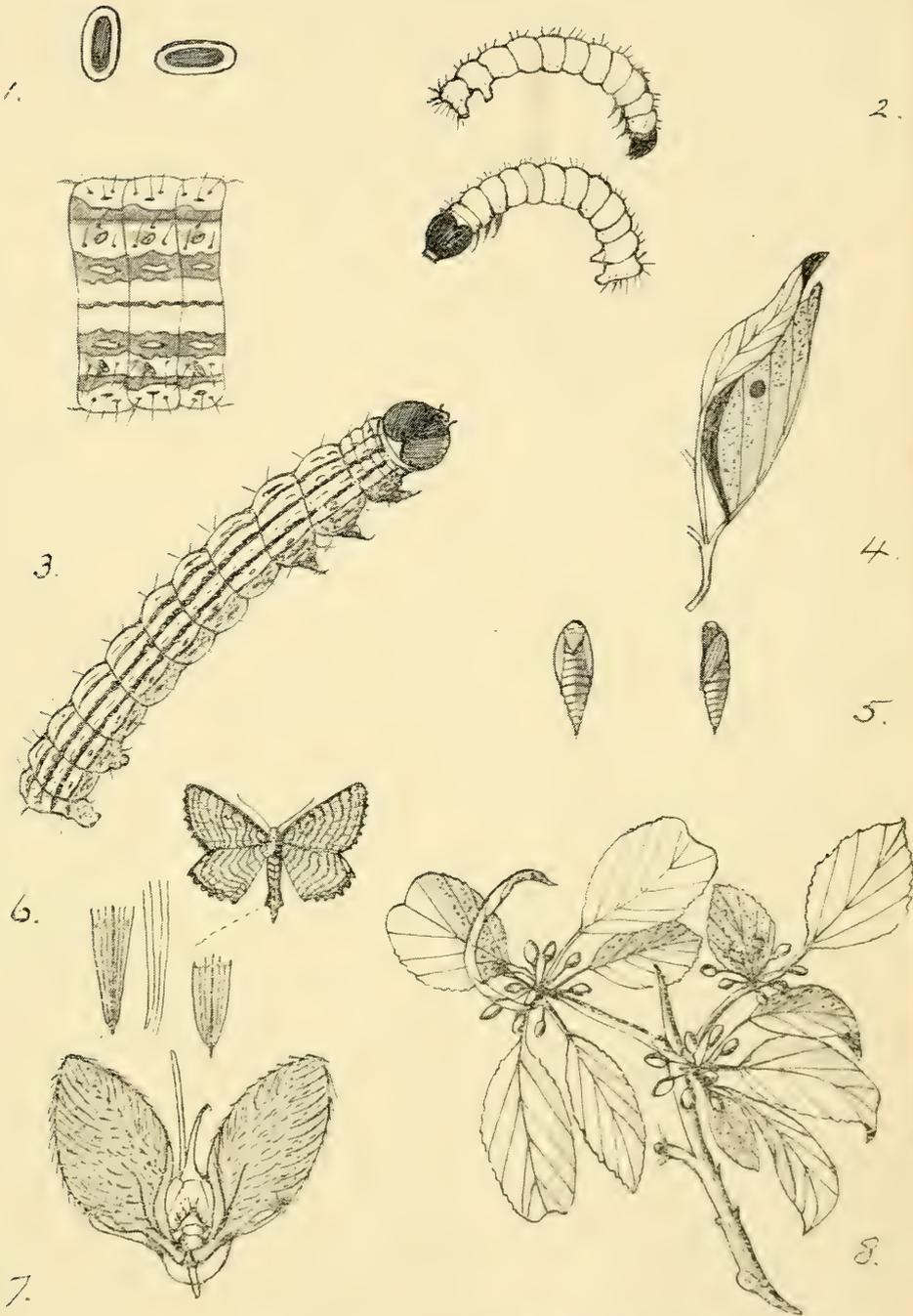
In March 1910 The Russian Entomological Society celebrated its jubilee and sent invitations to the leading entomological and similar societies of the world. This gave me a magnificent opportunity and I had the honour to take part as delegate of the Entomological Society of London, of the Zoological and of the Linnean Societies. It seemed too good to be true that at last I should have the chance of seeing that strange Muscovite world of which I had read so much, so different from our own, to hear spoken around me the language I had learnt to love, to meet Russian entomologists and—above all—Andrei Petrovich Tian-Shanski, who was a charming correspondent. By that time I knew the language well enough to be able to read it comfortably, but had not had the opportunity of using it as a living tongue, although I could write it at least intelligibly.

My wife and I found some interesting fellow-travellers in the Nord express. Prince Arthur of Connaught was on his way to Tokyo to present some decoration to the Mikado and he was escorted by Field Marshal Lord Methuen. Sir Savile Crossley was our conversationalist in the dining-car, while at the next table sat two young men marked with the air of breeding, but not in uniform. One struck us particularly by his charm of manner and exceptional good looks. I felt the influence of this as much as my wife, who kept peeping at him. I noticed that it was the other who paid the bills and that he gave the waiter ten roubles, about a guinea, as a tip at each meal. When we arrived at St. Petersburg we saw our handsome neighbour, looking splendid in a military cloak and glittering uniform, stride out of the station, past a salute of a guard of honour.

"Who is that?" I asked a bystander in my best Russian.

"Why, that is Michael Alexandrovich," he answered, in surprise at my ignorance.

So it was the Tsar's brother. The Romanovs were a fine looking family and history records that Alexander I was an "extraordinarily handsome man". The use of the name and patronymic is a convenient Russian custom. It is independent of class distinction, as I saw then, and people would refer to the Tsar and his consort in this way without any disrespect. I quickly learnt to address Semenov-Tian-Shanski as



Philoreme vetulata Schiff.

MURPHY del. 1955

Andrei Petrovich, and to being addressed myself as Malkom Arturovich.

We had rooms at the Evropéiskaja Gostínnitsa, that is the Hotel de l'Europe, where they gave us a luxurious suite of rooms with massive furniture of the old Muscovite style. Our first fresh impression was of the manner in which they served caviar. No mean little titbit on a tiny piece of toast for them, but a good big dollop, splashed on to the plate with a ladle.

Before being twenty-four hours in the country I put my Russian to the test. I succeeded in ringing up Andrei Petrovich and asking him to come round to the hotel. Before long I saw standing in the doorway, a well-bred man, some ten years older than myself, with very strong spectacles, a refined, clever face and iron grey hair in tight waves.

He invited us to dinner. He lived in a roomy flat on the Vassilievski Ostrov with his father, mother and some brothers, one of whom had a flat above, so that it was a big party that sat down to table. The father, Petr Petrovich, was a senator with a distinguished career, a genial old gentleman with a bushy white beard. By imperial rescript he had been authorised to add the designation Tian-Shanski to the family name of Semenov in recognition of his work in surveying and exploring the Tian-Shan mountains. He was, I believe, the only survivor of the signatories of the historical *ukaz* of Alexander II emancipating the serfs. The sons, all but one younger than Andrei Petrovich, all held good posts in the official hierarchy. The old gentleman's hobby was collecting old pictures of the Flemish school and the flat was plastered with them. It was a collection of great value, which he bequeathed to the Hermitage upon his death a few years later.

The dinner was as interesting as delightful. It was Butterweek, so we began with *blini*. Without *blini* in Butterweek no Russian can be happy. *Blini* are small pancakes above five or six inches in diameter. They are served as a first course, piping hot, in relays. On each is placed a piece of butter; above this is a big spoonful of caviar; on top of this a generous helping of *smetana*, cream soured with lemon. This wonderful blend is so good that greed overrides appetite, as the servant comes round again and again with a fresh dishful of them, piping hot. I swallowed half a dozen without blenching and my wife managed three or four. But our hosts seemed disappointed that we did not eat more, for addicts consume a dozen.

After that the soup, followed by salmon trout that Andrei Petrovich's brother had caught the previous day at his place in Finland. After that probably reindeer and hazel hen, which Russians consider superior to partridge. It is roasted and served with *smetana*. At the end, instead of coffee they gave us tea. This was a pale liquid in tiny fragile porcelain cups, of astonishing fragrance and delicacy. Our host explained that it was made not from the leaf but of the flower buds, imported on camels by the overland route to the great fair at Barnaul, and so it had never been near the sea until it came to the shores of the Baltic.

When we left, Petr Petrovich gave my wife a small piece of pink jasper from the Urals, suitable for an umbrella handle, which is still among her cherished relics.

The formal jubilee was a great occasion. One of the Grand Dukes,

a serious-minded one who was fond of butterflies, had promised to preside, but he was prevented from coming, so Petr Petrovich took the chair. All present were in evening dress or uniform, wearing many orders, but my Oxford robes of flowing scarlet cloth with pigeon-grey silk lining and facing was something they had never seen before. A strong point in my favour, to which they called my attention, was the fact that from their neighbour Germany only telegrams of congratulations had come, whereas I had made the long journey all the way from London, which they appreciated immensely.

Presently I was called by the President to the tribune to read my address. I could *feel* their astonishment when I opened in Russian. No doubt my accent was of the John Bull type, but Andrei Petrovich had made the translation for me, so that it was beyond reproach. The meeting was not a big one, for the Russian Society was not numerous, but its lack of numbers was compensated by the enthusiasm of its members, who were all serious, mostly professional, entomologists or zoologists. There were some famous men among them, such as Colonel Kozlov, known from his explorations in Mongolia, in particular for his description of the wonderfully preserved ancient Mongolian city of Khara Khoto. One tall man attracted my attention by his rounded head, with hair cut short, gold-rimmed spectacles and a long forked beard. His name was as odd as his appearance. He was Gregorii Efimovich Grumm-Grzhimailo. I never fathomed the origin of his name. He too was one of the famous explorers of Central Asia. The names of most present were all respected in the world of Entomology, such as Kuznetsov, the lepidopterist, Miram, orthopterist, Jacobson, orthopterist, Oshanin, hemipterist, Mishchenko, specialist of the aphids (green fly), O. O. John, Rimsky-Korsakov, son of the composer, and A. A. Dostoievski, nephew of the author.

The following day a dinner took place, which my wife was enabled to attend. We were welcomed in a room with a large central table packed tight with every conceivable kind of *zakuski* or hors d'oeuvres, at which all northern peoples are good but the Russians excel. There were quantities of caviar of all sorts, black, grey-green, yellow and bright red, smoked eel and *sig* (*Coregonus*), a special delicacy of the Neva, salmon, salmon trout, sturgeon, sturgeon's dried backbone, salt fat belly of fish (bieloribitsa, *Stenodus leucichthys*), lamprey and unfamiliar fishes from Asia; there were different kinds of fungi, some in vinegar some in brine; there was cold game, hazel hen, snipe, woodcock, partridge, crayfish, and numerous other snacks that I cannot remember. Out of this gargantuan pile of delicacies, arranged tier upon tier, there rose a framework crowned with a row of bottles containing fluids of various colours. These were the sundry forms of vodka and liqueur, with infusions on the analogy of our sloe gin, such as *rabinovka*, that is rowan berries in vodka, pepper vodka, wormwood vodka, and my favourite, *zubrovka*. This is a vodka with a yellowish tinge and a stem of grass in it as a sort of trade mark. It is an infusion of a grass (*Hierochloa borealis*) which grows all over northern Europe. It has a pleasant fragrance, which it imparts to the vodka. It is called *zubrovka* because it is the favourite pasture of the *zubr*, the famous European bison, now on the verge of extinction.

On a side table were piles of knives, forks, spoons, plates and glasses.

There was no service and everybody helped himself according to his caprice, strolling about plate and fork in hand, chatting and having a snack of a dainty here and there that took his fancy.

My wife was struck by this original party. "It is very strange," she commented; "I rather like it. How appetising it all is! I have eaten an awful lot!"

Scarcely had she uttered these words when two great doors were flung open and a splendid flunkey announced that dinner was ready.

My wife dared not look me in the face as we sat down to the soup. We then went through a massive dinner of many courses often unfamiliar, but all excellent. Game was in season, so there was a wide selection of the usual birds, partridge, hazel hen, grey hen, hen capercaillie, white partridge (the willow grouse, *Lagopus albus*), woodcock, various sandpipers. The meat was reindeer, delicate in texture, resembling beef rather than venison. French wines were served during dinner and at the end champagne. This was in the French tradition, sweet, to fit in with the dessert, in tall narrow glasses, in which it does not become flat at once as it does in our open English glasses.

Speeches, of course, were inevitable, most of them aimed at me. O. O. John, Secretary of the Society, spoke like a native Englishman and I responded of course in my own tongue. When the formal part was over casual speeches were made. The editor of the Society's publication, the Russian Review of Entomology, handed me a five and a three rouble note. I asked in astonishment what that was for, and he told me it was my honorarium for an article I had recently contributed at their request.

"What a wonderful Society!" I exclaimed. "I wish they paid us in England! I would like to join you."

Which I did then and there. I paid fifty roubles in cash, which was composition for life, with all privileges and full membership.

The day after the meeting the newspapers all gave full accounts of it, in which my address in Russian and the scarlet Oxford robes were accorded full prominence, which made an interesting addition to my press-cutting book.

We had little time for sight-seeing, but drank in the atmosphere, which in St. Petersburg was more important, for antiquities can scarcely be said to exist in so modern a city. It was delightful to drive about in one of the sleighs with fast trotting horses and their tinkling bells, and the cabbies with their bearded frost-bitten faces and gorgeous padded coats. One custom is rather embarrassing for foreigners. As the cabbies are generally peasants who come in from the countryside in winter to make a little money during the long dead season, few of them know their way about. The sleighs, or cabs in summer, are open, so the passenger sits back and gives the driver a poke with a stick or else a kick upon the right or left side, as the case may be, upon the hinder part of his person, to indicate the direction to be taken. This is all very well for those who know their way about. One need have no compunction in giving a good kick, as the great padded coats give ample protection, and besides the peasants in Holy Russia were accustomed to being kicked, at least metaphorically, and I daresay literally too.

When approaching a cab-rank it was customary to hold a kind of Dutch auction for the fare. Generally they knew the direction or distance of the important places, but not the details. The difference between the top and bottom prices was often considerable, but the value was proportionate. A cheap fare meant a poor horse and shabby cab and cabby, and a slow journey. A good price meant a good trotter and a smart cab and cabby. A special extra fare would secure a *likhoi*, a kind of a dasher (for it is the same adjective that is conventional in the obituary notices of officers, the very smartest of the smart) that would go off at a spanking trot or even a gallop. The keen, frosty air, the swift gliding motion of the sleigh, the shower of dry, powdery snow kicked up by the horse, sparkling in the sun like diamonds, was stimulating and made a drive in Russia in winter an enjoyable thing. There was another advantage. The sleighs were often very narrow, so that it was not easy to squeeze into the seat, especially since in winter everybody wears bulky fur coats. Besides, it was very easy to fall out, especially when the sleigh skids round a corner at a good speed, as there was only a low railing round the seat, a few inches high. When one's partner was a lady it was not only permissible to put one's arm round her waist but positively rude not to do so.

This interesting episode came to an end all too quickly. When the time came to go, it seemed but a couple of days since we had arrived. When a deputation of entomologists, headed by Andrei Petrovich, came to the station to say good-bye Kuznetsov handed my wife a beautiful bouquet. This must have cost a mint of money, for in March in St. Petersburg, with the exception of a few from the Crimea, flowers were imported from France.

The year 1910 was an eventful one for me entomologically, as the Russian episode was followed by another almost as interesting. Early in the year I had a letter from my good friend Dr. Jordan of Tring, entomologist of Lord Rothschild's museum, informing me that he and some friends had decided to organise an international entomological congress and asking whether I would like to join them. I had been to a zoological congress in Cambridge in 1898, and from what I had seen there the idea appealed to me at once. I agreed to act as secretary for the British section and set to work immediately to canvass not so much private as official support. The Colonial Office agreed at once and sent a year's subscription. I pointed out that as a government department is theoretically immortal it would pay to take out a life composition. They took the hint and also sent a delegate.

The Congress was held in Brussels in August. The local secretary was Severin of the Brussels Museum, and the organising committee consisted of him, Jordan, myself, and Dr. Walter Horn of Berlin. The Congress was admittedly a great success. Delegates came from all over the world. The United States sent half a dozen. Horvath came from Budapest, and three came from Russia. The Canadian delegate had the misfortune of being quite deaf, which led to an amusing incident. The Burgomaster of Brussels at that time was the redoubtable Monsieur Max, who became famous in 1914 by his defiance of the German invaders. He gave a reception, called on the invitation cards a *raout*—a queer word which Larousse derives from the English—and on the cards it was stated clearly that evening dress was necessary, even dinner-jackets

being excluded. When the "rout" was in full swing I caught a glimpse of Severin rushing through the rooms with an expression of the acutest anxiety on his face. He came dashing up to me. I asked what was the matter.

The matter was that the Canadian delegate, representing his Government, had presented himself at the door in morning dress and had been refused admittance. Poor Severin was at his wits' end to know what to do. Without hesitation I went straight to the Burgomaster, braving his protruding eyes, and told him that the gentleman in question was a government delegate and that it was a very serious thing to exclude him. Max said he was very sorry but he could do nothing. It was quite clearly stated on the invitation that full evening dress was necessary and no exceptions were possible. M. Max was a man who could not be shaken, either by prayer or by incarceration in a fortress. So I had recourse to stratagem. Madame Paul Errera was present and I enlisted her splendid presence and manner to charm the hard-hearted Burgomaster. As I went off to find her I passed young de Sélys Longchamps, who bet me five francs that I would not succeed. But even the inflexible Max could not resist the persuasiveness of the handsomest woman in Belgium; so Madame Paul averted the "international crisis" and won my bet for me.

The Congress was filled with interesting men from every country. Horvath of Budapest I have already mentioned; Anton Handlirsch from Vienna was also there with other old friends and many new ones. Several came from the United States but not, I was disappointed to see, my good correspondent J. A. G. Rehn, Secretary of the Academy of Natural Sciences at Philadelphia. However one of the American delegation was the distinguished Dr. W. J. Holland, head of the Carnegie Institute. Holland was the author of *The Butterfly Book*; and even more famous as the man who went round Europe distributing what was perhaps the biggest and most original present ever made by an individual to a foreign state.

Interest had been aroused some years previously, and not only in scientific circles, by the appearance in the entrance hall of the Natural History Museum at South Kensington of the skeleton of an immense reptile with a tail something like thirty feet long, rejoicing in the name of *Diplodocus carnegii*. Dr. Holland told me the story of it. A wonderful deposit of great fossil bones had been discovered in Wyoming, which was obviously of quite exceptional value and interest to palæontologists. But the excavation, removal, cleaning and mounting of such things, so that they can be studied, is extremely expensive. Holland was in touch with Carnegie and pointed out to him the importance of such work and induced him to provide the finance.

When the first complete skeleton of an extraordinary new kind of Dinosaur was discovered, naturally it was named in honour of Carnegie. One day, when King Edward VII was on a visit to Skibo Castle he saw a photograph of the skeleton hanging on the wall and asked the millionaire what it was. Carnegie explained, and then the King asked him to present a cast of it to the national collection at South Kensington, which Carnegie did. Not long after that, King Alfonso of Spain was on a visit to London. He too was interested in natural history and asked if his museum in Madrid could have one too. Naturally

Carnegie agreed. Then the King of Italy could not be beaten by the King of Spain, so he had to have one. This was more than the Kaiser could stand, so Holland went to Berlin to set up a cast there. The Tsar heard of it and if Germany had one, then he too must have one, so off packed Holland to St. Petersburg and fitted up one there. Each of these kings and emperors gave him a decoration and when he turned up at the *raout* he had a *dado* which any general might have envied. As he took his seat next to me he said: "I've just come from making a present to an emperor".

Holland was not only a good zoologist but also a very good fellow, a neat after-dinner speaker and, in the eyes of an Englishman, a typical Yankee. To the glee of his comrades, however, smart as he was I had the advantage of pulling his leg. He had been yarning away, with his typical Yankee drawl, when I decided to cap him. I used a familiar old chestnut but thought that perhaps it had not yet made its way across the Atlantic. We were talking of sea voyages and I described our return from Brazil and how my wife, leaning over the taffrail, had dropped a ring into the sea.

"The following day," I continued, "we had fish for dinner, and when my wife cut hers open, what do you think she found inside it?"

"Waal, the ring, I suppose," said Holland.

"No; innards."

His comrades were delighted, saying that they had never known that wily old bird to have his leg pulled before. I must say he took it very nicely and some months later gave me a wonderful review of my book on the earwigs of British India.

Notes and Observations

AGROTERA NEMORALIS SCOP. IN EAST KENT.—While Mr. J. L. Messenger and I were collecting in the Ham Street woods at about 4.30 p.m. on 3rd June, he captured a fine male of this species, which he kindly gave to me. It was disturbed from a willow bush, but the accepted food-plant, hornbeam, was plentiful nearby. Beirne (1952) says: "A very local species, confined to woods in Sussex, Kent and Middlesex and now possibly extinct". However, Dr. E. Scott exhibited at the South London Entomological and Natural History Society a specimen beaten from hornbeam at Ham Street on 15th June 1954. In spite of its striking wing-pattern, the species may be often ignored by collectors who are not interested in 'Micros'; but, given the large amount of collecting which takes place in that area, it is presumably rare or at least of very retiring habits. After our own capture, we searched for more without success; and we had seen nothing of it at dusk or at our mercury vapour light nearby on the two previous nights. —R. F. BRETHERTON, Ottershaw, Surrey. 10.vi.56.

AGROTERA NEMORALIS SCOP. IN KENT.—Of this attractive species Beirne (*British Pyralid and Plume Moths*, 1954, p. 127) states that it is "now possibly extinct". It is therefore of some interest to record that on the afternoon of 2nd June 1956 I had the good fortune to take two fresh males in Blean Woods, Kent. They were both beaten from hazel and within a few yards of each other. Further beating in the

immediate vicinity failed to produce more. This is not a new locality for *A. nemoralis*: the late P. F. Harris of Whitstable showed me several in his collection that he had taken in Blaen Woods.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 7.vi.56.

DASYCAMPA RUBIGINEA SCHIFF. AND *ODONTOSIA CARMELITA* ESP. AT CHRISTCHURCH.—It may be of interest to record the capture of *Dasy-campa rubiginea* Schf. at m.v. light in my garden on 29th April last. Other interesting captures were two male *Odontosia carmelita* Esp. in mint condition on 4th and 7th May. The nearest known location for this species is, I believe, in the New Forest on road A.337, which is over 9 miles, direct flight, from here and lies N.E., the wind at the time being S.W. The new location, though suspected, remains 'not proven'.—B. C. BARTON, Castle Mead, Highcliffe, Christchurch, Hants. 24.v.56.

DRYMONIA RUFICORNIS HUFN. AND *ODONTOSIA CARMELITA* ESP. IN CUMBERLAND.—Both *D. ruficornis* and *O. carmelita* are listed as scarce in Cumberland in the recognized county records, so that it may be worth while to note that two visits to a locality near Culgaith, Cumberland, in May produced 26 *ruficornis* and two *carmelita*. An early record for my trap at Penrith is the appearance of a specimen of the *carbonaria* form of *Biston betularia* L. on 12th May.—W. F. DAVIDSON, 9 Castle-gate, Penrith.

JASPIDIA DECEPTORIA SCOP. IN KENT IN 1956.—Mr. P. B. Wachter took a fine male of this species at m.v. light in Ham Street Woods on the night of 28th May 1956. It seems likely that *deceptoris* is at present breeding in S.E. England and has done so at least since 1948, in which year it was first noticed in Britain. A summary of the recorded captures may be of interest. Up to 1955, altogether eight specimens had been noted, as follows:—1948: Ham Street, Kent (Richardson). 1949-51: None noted. 1952: Reigate, Surrey (Rudland); Leigh, Surrey (Fairclough); Tilgate Forest, Sussex (MacNulty); Kent (Manley). 1953: Westwell, Kent (Scott). 1954: Ham Street (Hare); Brook, Kent (Duffield). 1955: None noted.

The appearance of *deceptoris* here may in some way be connected with its increase on the Continent. Lhomme (*Cat. des. Lép. de France et de Belgique*, p. 298, No. 804) states that in Belgium it is "Localisé et rare". However, Monsieur De Laever of Liège told me that the moth had increased in Belgium and was particularly common there in 1954. Indeed as late as 27th July that year I took a worn example casually disturbed from grass during the day in some extensive woods at Vonèche, Ardennes. Lhomme (*op. cit.*) gives "Chenille sur Graminées, surtout *Phleum*". So far, though, there has been no elucidation of its life history in England, and one wonders how much longer it will be before someone succeeds in discovering the early stages.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 7.vi.56.

EARLY IMMIGRATION OF *COLIAS CROCEUS* FOURCROY.—Is 1956 going to be a "Clouded Yellow Year"? There has been a considerable immigration of *Colias croceus* Fourc. into Devon and Cornwall this month, and

there have also been a few records in April. It seems notable that no other species has participated in the movement with the possible exception of *Dianthoecia compta* Fabr., which has lately been taken in South Devon.

I cannot recall *C. croceus* appearing in numbers in May before, and in view of the cold wet winter that the Mediterranean has experienced, I am surprised that the butterfly should appear this year. Since damp, cold conditions are harmful to the species, I would have expected the survivors of the past winter in the Mediterranean to have found ample vegetation on which to support the next generation of larvae. This makes me wonder what is the factor that has started this movement; I have been taught that either drought conditions or over-population are the prime causes of migratory movements; surely these cannot apply in this instance!—P. JEFFERY, 24 Woodland Terrace, Greenbank Road, Plymouth, Devon. 21.v.56.

EARLY APPEARANCE OF HEMARIS FUCIFORMIS L.—I think it is worth while to record that on 21st April 1956, I took a male of the Broad Bordered Bee Hawk Moth, *Hemaris fuciformis* L. at the flowers of *polyantha* in my garden; an early date for the best of years, but more remarkable this year because of its cold spring, and we were having sharp frosts at night at the time.—P. J. BURTON, Paysanne, Godshill Wood, Fordingbridge, Hants. 8.vi.56.

A NOTE FROM KENT.—This has been a remarkably good spring and early summer for larvae in my experience. In Blean Woods I noted several males of *M. athalia* on 2nd June, and at Ham Street Woods on 26th May several male *A. selene*. Both these seem to be exceptionally early dates for these species. In Blean Woods frass was literally raining, and a number of brightly coloured green and black-spotted Geometrid larvae at rest on various low plants appear to have been those of *H. leucophaearia*, judging by Buckler's *Larvae*, so had doubtless fallen from the oaks above.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 7.vi.56. (*in lit.*).

MOTHS AT M.V. LIGHT IN EAST HERTS.—Since writing on 3rd June 1955, as recorded in *Ent. Rec.*, 67: 193, we have had some new arrivals to m.v. light to add to our local list.

On the 22nd August 1955 my friend Mr. Derek Ashwell found a male *Lymantria dispar* L. in his trap. I believe one or two others were reported in *The Entomologist's Record* during the year. *Colocasia coryli* L. was in my trap on 1st May 1956 and on 21st July *Lygephila pastinum* Tr. appeared. The nearest localities I know for 'the Black-neck' are Royston and Newmarket Heath. On 10th May 1955 one *Orthosia advena* Schf. was in the trap and on 27th May *Boarmia roboraria* Schf. The Great Oak Beauty is a new record for our district. *Cucullia absinthii* L. taken in Mr. G. Sell's trap on 28th July 1955 is also a newcomer to our list. On 13th July 1955 *Semiothisa liturata* Cl. appeared. From Mr. Sell I also received records of *Eupithecia nanata* Hb. and *E. abbreviata* Steph., both new to our list. Mr. C. Mellows and the late Mr. C. S. Colman reported *Euphyia rubidata* Schf. and *Colostygia olivata* Schf. Mr. D. Ashwell had *Apamea furva* Schf., one specimen on 26th June 1955 and two on 4th July 1955. Three more

Lycophotia varia Vill. visited the traps although our nearest heather is at Epping, 15 miles away. *Anaplectoides prasina* Schf., *Panolis flammea* Schf. and *Nonagria typhae* Thun. were reported and ten *Ennomos autumnaria* Hb. were taken. One *Agrochola macilenta* Hb. and one *Dicycla oo* L. were trapped.

This year (1956) the number of moths visiting my own trap, which is in a very much enclosed garden, has far exceeded that of last year—3,810 against 2,273 on 4th June 1955, and the average number per night has been 57 against 30. One hundred and seventeen species have so far arrived (5th June), thirty-three species more than recorded at the same time last year. Up to 4th June last year I did not get 100 or more moths in the trap on any night; but this year I have had 100 or more on 18 nights.

Panolis flammea Schf., *Cucullia chamomillae* Schf., *Cosymbia annulata* Schulze and *Harpyia hermelina* Göze have come but are not at all common in our district. During 1955 I was struck by the very small size of some of the moths during June and July. Many were quite dwarf and rather difficult to recognize. I have not so far noticed any particularly small specimens this year.

Recently in the night of 30th/31st May forty-four *Plusia gamma* L. came to the trap. On the two previous nights there were one and seven, and on the following four nights there were two each night. My friends reported to me that there were larger numbers of *gamma* in their traps than I had in mine. Mr. Gripper, a friend in Henham, Essex, told me that he had taken a *Celerio galii* Schf. at m.v. light at about the same date.

Orthosia gothica L. continues to arrive later in the year than usual, while *Amathes c-nigrum* L. came as early as 25th May this year.—CLIFFORD CRAUFURD, Galloway Road, Bishop Stortford, Herts. 5.vi.56.

A NOTE FROM WARWICKSHIRE.—Things are very backward here—*gothica*, *incerta* absolutely fresh; catkins only just beginning to fall from the sallows, and still some night ground frosts. But *tremula* and *megacephala* have appeared in the trap, and one special capture on a tree trunk, *glauca*, in Sutton Park. We seem to have no records of it since I took it there in 1911 and 1913.—Col. W. BOWATER, 41 Calthorpe Road, Edgbaston, Birmingham. 16.vi.56.

CALLIMORPHA JACOBÆÆ L. IN MARCH.—I cannot compete with Mr. Pitman's record, but a slightly worn Cinnabar was in the m.v. trap here on 20th April last, but none since. As I remarked in my last note many moths have been early here this year: *Hadena conspersa* Schiff., *Abrostola tripartita* Hufn., and *A. triplasia* L. all arrived on 28th April, *Sphinx ligustri* L. appeared on 7th May and *Smerinthus ocellata* L. and *Hadena serena* Schf. on 11th May.—Col. H. G. ROSSEL, The Old School House, Bodinnick, Lanteglos-by-Fowey, Cornwall. 17.v.56.

AN UNUSUAL PAIRING.—While walking on Haresfield Beacon, Gloucestershire, in the hot sunshine of Whit-Monday, 21st May, I saw a sight unique in my experience; the mating of a butterfly with a moth. The butterfly, the male, was a Dingy Skipper (*Nisoniades tages* L.) and the moth, the female, was the Burnet Companion (*Ectypa glyphica* L.). The mating had taken place on a dandelion flower head and the butter-

fly had almost covered the moth with its wings. Both remained perfectly quiet while I examined them, and to show that it was no casual affair, remained paired when I transferred them to a pill box. Unfortunately, I had no camera with me and, hoping to preserve an example of such a misalliance, I put them in a killing bottle, where they separated.

I take it that scent played no part and that it was simply a case of mistaken identity, there being a very considerable resemblance between the upper wings of the two species, in colour, size and in markings. On the other hand, it may simply have been the Bank Holiday spirit!—R. P. DEMUTH, Hardwicke, Gloucester.

AVIEMORE IN LATE MAY.—A first visit to a classic locality is always a temptation to put pen to paper and I have yielded sufficiently to produce the few notes which follow.

Warm, sunny weather on the lower moors had brought forth hordes of *Ematurga atomaria* L., but *Isturgia carbonaria* Cl. was over. Later, when a height of over 2,000 feet was reached, the latter species was numerous and quite fresh.

The way up the tortuous "Burma Road" was rendered less weary by the excitement of incursions into the heather on the fringe of the birch woods, and hot pursuit of *Ortholitha scotica* Cockayne which whirled away rapidly on the wings of the wind. This moth was about in moderate strength.

Hadena glauca Hb. (*bombycina* Hufn.) sat snugly on the wayside boulders, the grey moths always on grey granite or quartz, and very completely ignoring the pink granite rocks on which they would have been more conspicuous.

Anarta cordigera Thun. was not abundant, but fresh paired moths were taken on fence posts and lichened outcrops. Larvae of *Lasiocampa quercus* L. and *Dasychira fascelina* L. were sunning themselves on the heather and fence posts, quite content to "take the air" with thought neither of food nor of metamorphosis.

At length we reached the top of Carn Dearg Mor, habitat of *Anarta melanopa* Thun. and *Amathes alpicola* Zett. The former was not eager to fly on the strong wind, but supped avidly on bearberry blossoms, where it could be netted without undue difficulty. Then came the tedious turning over of clumps of crowberry for pupae of *alpicola*, with the distraction of the majestic panorama of mountain and loch beyond and below. Was it to be the snow-streaked Cairngorms crouching high over Rothiemurchus that held the eye, or the tangled roots of the matted herbage? The larvae were pupating and my friend and I each took a caterpillar and a pupa after an hour's search—a fitting finale.

Rothiemurchus Forest and Granish Moor may have their seasonal rarities, but for us the cupboard was almost bare, while the golf-course fence, immortal in entomological lore, produced for us only *Apatele leporina* L., pallid and pristine.

This is no place for the long list of species that came to m.v. but some few are worthy of mention. *Chesias rufata* Fab. sat on the brooms in the hotel garden, quite sparingly, and came to light. Four females of *Macrothylacia rubi* L., and no males, visited the lamp, and *Biston betularia* L., in some numbers, exhibited only the normal form.

Apatele menyanthidis View., *Hada nana* Hufn., a belated *Orthosia*

incerta Hufn., *Colocasia coryli* L., *Notodonta dromedarius* L., *Pheosia gnoma* Fab., *Cosymbia pendularia* Cl., *Selenia tetralunaria* Hufn. and a beautiful, boldly marked variety of *Drepana falcataria* L. were the pick of the insects encountered at light.

There only remains the identification of a few obscure specimens to complete the tally.—W. F. DAVIDSON, 9 Castlegate, Penrith, Cumberland.

WHITSUN IN THE NEW FOREST.—I spent four days at Whitsun this year at Brockenhurst and although the days were fine they were not particularly warm and some nights were quite chilly. I was beating for larvae of *Catocala sponsa* and *C. promissa*, but got only one very small *promissa*. Some oaks had only just burst their buds and many were not in full leaf. Only one *Polyphloca ridens* Fab. was seen and it was so small that I did not recognize it for a moment or two. A great many of the Geometrid larvae seen could not have very long hatched out.

There were fewer butterflies than usual. The commonest was *Argynnis euphrosyne*, but it was in smaller numbers than usual. I saw no females before I left on 21st May, which shows that the season was late. Many spring flowers were not yet in bloom. Ragged Robin, beloved of the Bee Hawks, had not yet sent up its flower-spikes.

There has, however, been a great change in the Forest since I first saw it 53 years ago. I think this change first came about in the late nineteen thirties. Before the first war (1914) the number of butterflies and moths to be seen in a day far exceeded what one can see now. The reason is that the Forest is now being looked after properly as a Forest by the Forestry Commission. In the early nineteen hundreds the woodmen's chief work was to be able to report the whereabouts of the deer, foxes, badgers, and other game. In the enclosures there was very little tree felling or planting, and the glades (rides) were generally smooth to walk in except for the occasional timber hauling in the main rides. The flowers and brambles grew well in the rides and covered the ditches and the banks, so that the collecting of white admirals, silver-washed fritillaries, etc., was comparatively easy. The undergrowth was thick among the trees with few flowers, and the insects consequently frequented the rides. A great many sallows grew by the rides, and nests of larvae of *Vanessa polychloros* were easily seen. If one concentrated one might find a dozen nests in a day.

To-day there are many gravel roads in Park Hill, Ramnor, Pignall, Stubby, Denny and other enclosures which make the walking and cycling easier, but the grass in the rides is regularly cut, the brambles are cut down, the ditches cleared and the banks trimmed. Such small flowers as dandelions, milkwort, bugle, lousewort and *Cardamine* were about all that I saw in the rides on this recent visit. Many conifers, called 'parent trees', are left for natural regeneration, and the undergrowth beneath them is thick, but there is plenty of sunshine. To the entomologist and botanist the collecting is not so good, but I presume we have no right to grumble about the matter.

When I first went to the Forest, on the last Wednesday in June 1903, on a L.S.W. Rly. Widows and Orphans excursion (185 miles for half-a-crown), I was shown by my old friend Harry Gulliver, woodman

at Ramnor, *Melittis melissophyllum* (Bastard Balm) growing near his lodge. The beeches have since grown high over the place and killed the plants. Three years ago I discovered it again in the district about two miles away from Ramnor, and last year there were 36 plants in bloom. At Whitsun this year I could not find one; but perhaps the season is so late. I have two plants just coming into bloom in my garden. Where it grows the ditch is cleaned annually and the debris thrown up on to the bank, often covering the plants. Does anyone know of its presence anywhere in the Forest? There used to be quite a number of rare plants peculiar to the Forest. Let us hope the better maintenance has not killed them off.—CLIFFORD CRAUFURD, Galloway Road, Bishop's Stortford. 5.vi.56.

HEBRIDEAN NOTES: MARCH AND APRIL.—The weather for the first week of March at Canna was bad; the second was sunny, but with cold S.E. and S. winds. Specimens of *Calostigia multistrigaria* Haw. appeared at a lighted window on 13th March. Suitable weather for the m.v. trap did not occur until the end of the month, when the following were taken:—

- March 26th: 6 *Orthosia stabilis* Schf., 1 *Xylocampa areola* Esp.
 27th: 1 *Dasyptolia templi* Thnb., 3 *O. stabilis*, 1 *O. incerta* Hufn., 1 *X. areola*, 1 *M. multistrigaria*. This day I saw a large moth flying at the west end of the island but I could not be certain whether it was *Macrothylacia rubi* L. or *Saturnia pavonia* L.
 28th: 2 *D. templi*, 2 *O. stabilis*, 1 *O. incerta*, 2 *X. areola*, of which one was a very nice specimen of var. *rosea*.
 29th: 1 *Orthosia gothica* L. var. *gothicina*, 2 *O. stabilis*, 1 *Nyssia zonaria* Schiff.
 31st: 4 *O. stabilis*, 3 *O. incerta*, 2 *X. areola*. This day I saw the first butterfly of 1956, *Aglais urticae* L.

The specimens of *D. templi* taken this month in the m.v. trap were only the third and fourth I have taken in the Hebrides. Total number of species observed in March was nine.

April was a very fine mild month, about the best April I can remember in the Isles; unfortunately, it induced many young trees to produce early foliage which was blasted by the gales of May. The total catch in the trap, 323, was a record for April.

O. gothica, *O. stabilis*, *O. incerta* and *X. areola* turned up throughout the month. *Earophila badiata* Schf. appeared on 1st April at a lighted window. *Apamea ypsilon* Schf. appeared in the trap on the 14th and *Cerastis rubricosa* Schiff. on the 15th. On 18th and 19th there were further single specimens of *D. templi*. *Xanthorhoe fluctuata* L. first appeared at a lighted window on 22nd, and *Pieris napi* L. was seen the next day.

On 24th April the continued mild weather caused the first appearance, unusually early, of *Hadena conspersa* Schf. and *Euplexia lucipara* L. in the trap. On 28th, the first specimen of *Cerura vinula* L., and another *N. zonaria* appeared; this night there were 61 moths in the trap, an unusual number for an April night here. On 29th, the first specimen of *Apatele rumicis* L. for this year was found in the trap.

The same day, being very calm, I sailed by dinghy with outboard

with my friend, the Swedish artist, Mr. Roland Svensson, to the south-west part of Canna where we effected landings at Sgorr nam Ban Naomh and on the small island of Steidh. At the former, which is a large grassy boulder-strewn ledge above the sea and at the foot of a cliff, the site of the ruins of a Columbian nunnery, a wild and beautiful spot, I found three larvae of *Setina irrorella* L., two of which pupated in captivity.

The total number of species observed in April was 16, of which 14 were taken in the trap. The larvae of *Lasiocampa quercus* L. var. *callunae*, and *Arctia caja* L. were also noticed, beside those of *S. irrorella*.—J. L. CAMPBELL, Isle of Canna, Hebrides, Scotland.

LYCAENA VIRGAUREAE IN DEVON.—With respect to Mr. Siviter Smith's note on page 159 I have nothing to add to the dates given at the top of page 137. Lang (*Rhopalocera Europae*, I, 87) gives the 'Times of Appearance' as "May and August". Kane (*European Butterflies*, 27) has "May. July-August", and gives the localities in which he had taken the species as the Vosges, Auvergne, Strasburg, Jura, Pyrenees, and environs of Aix. He remarks: "Haunts flowers on the banks of streamlets especially . . ." Elsewhere (p. xxiii) he says: "In high altitudes insects which are double-brooded in the plains, by reason of a later emergence, usually have but one appearance in the year". However, as to whether *Lycaena virgaureae* is single-brooded or double-brooded or, like *Heodes phlaeas*, triple-brooded should not be a matter for argument: the life-history of this common butterfly must be well known to all Continental lepidopterists who have observed it in the field and reared it from the egg. Will some of our contributors across the Channel please inform us?—P. B. M. ALLAN.

In view of the fact that he is attempting a comprehensive survey of all melanic forms of the British Lepidoptera Dr. H. B. D. Kettlewell would appreciate records of the frequencies (numbers, not percentages) of melanic forms of the following species:—

<i>Gonodontis bidentata</i> Cl.	<i>Abrostola tripartita</i> Hufn.
<i>Stauropus fagi</i> L.	<i>Semiothisa liturata</i> Cl.
<i>Tethea ocularis</i> Guen.	<i>Hemerophila abruptaria</i> Thun.
<i>Dasychira pudibunda</i> L.	<i>Cleora rhomboidaria</i> Schf.
<i>Allophyes oxyacanthae</i> L.	<i>Cleora ribeata</i> Cl.
<i>Colocasia coryki</i> L.	<i>Cleora repandata</i> L.
<i>Nonagria dissoluta</i> Tr. (melanic and non-melanic form <i>arundineta</i>).	<i>Phigalia pedaria</i> Fab.

Dr Kettlewell's address is: Genetics Laboratory, Department of Zoology, University Museum, Oxford.

Current Periodicals

ZEITSCHRIFT DER WIENER ENTOMOLOGISCHEN GESELLSCHAFT, 67, No. 3 (March 1956) carries two main papers, a continuation of Walter Forster's monograph of the genus *Agrodiactus* Scudd. (Lep. Lycaeniidae). This part deals with *A. transcaspica* Stgr. and describes five new subspecies; *ninae* from Armenia, *aserbeidschana*, also from Armenia,

an unnamed form from the province of War in Kurdistan, to be named on receipt of more material, *elbursica* from Persia, *difficillima* from North Persia, and *kotzschii* from northern Iran. The true *transcaspica* is also dealt with. Of *A. carmon* H. Sch. ssp. *cyaena* Stgr. is dealt with, showing two new subspecies; *ciscaucasica* from Ciscaucasia and *kindermani* from Persia. Hans Foltin contributes a paper on *Cidaria frustata* Tr. with bibliography. There are also migration notes.

THE VASCULUM (SUBSTITUTE) is a very welcome quarterly which is now before us. It is a paper local to Northumbria and is edited by Professor J. W. Heslop Harrison. It consists of three main sections: "By the Way" carrying notes on various matters of interest to naturalists, "The Societies" dealing with local doings, and "Notes and Records" consisting of short notes and classified records under the various headings, botanical, birds, and the various insect orders (separately). One might describe this journal as "Interest without wasted words" (Very sound in our opinion).

ENTOMOLOGISCHE ZEITSCHRIFT for April and May has its customary interesting content; Johannes Pfau writes on the life history of *Agrotis ripae* Hb., Otto Holik discusses the systematic value of certain physical details in *Zygaena*. Kurt Kembach continues his monograph of *Protoparce pellenia* H.S. and its allied South American Sphingids, and Klaus Buss writes on an entomological and Botanical holiday in Ireland. The Rev. J. C. E. Riotte gives an account of *Celerio galii intermedia* Kby. in Canada while Karl Heidelberger writes on light collecting in the Hochtaunus district with mention also of day collecting. R. Mell continues his paper entitled "A Biological Station without Apparatus—The Garden", and our old friend Eduard Diehl writes about "Joy and Sorrow with *Coelonia fulvinotata*" being notes from his diary of his stay in that lepidopterist's paradise, Madagascar.

ENTOMOLOGISCHE BERICHTEN for April and May has a long article on the capture of Hemiptera-Heteroptera in a modified Robinson light trap; H. H. Bergman writes on three Jassid species from Java with text figures of anatomical details (this paper is in English) and B. J. Lempke writes on migration, asking that migration observers should make special notes of dates of arrival so that the effect of the cold winter and spring in southern Europe on species coming from North Africa may be assessed. Rinke Tolman writes on a flight of *Vanessa atalanta* flying southwards along the coast of the Yselmeer (what is left of the Zuyder Zee) pointing out that at a bend in the coastline, of the 28 specimens in the flight, only one flew out over the water, the remainder turning to follow the shore; he draws a parallel to the "fear of water" noted in the migration of certain birds. L. E. G. Kalshoven, writing in English, continues his "Notes on the Habits and Ecology of Indonesian Forest Insects of Minor Importance" with part III, Curculionidae. This is well illustrated with photographs and very good drawings. Finally, H. R. Smissaert mentions the larvae of two species of Ephemeroptera, one of Plecoptera and one of Trichoptera new to Holland (with English summary). The General Index covering 1st January 1954 to 31st December 1955 is also to hand.

THE LEPIDOPTERIST'S NEWS, 9, No. 6, has an interesting account of

the "Itineraries of the Wheeler Survey Naturalists" particularly Theodore L. Mead, by F. Martin Brown; many of Mead's captures provided the types for species described by William H. Edwards. There is a map of the district with the routes marked and extracts from the relative diaries. P. S. Remington writes observations of the Hesperidae of the St. Louis area, followed by the description of a new species, *Hesperia tildeni* from California by H. A. Freeman with half-tones of the upper and under sides of the Holotype ♂ and allotype ♀, together with a line drawing of the male genitalia. Dalibor Povolny and Josef Nosek contribute a phylogenetic note on "The Bistontidae (Lep. Geometridae) with Special Regard to *Poecilopsis*" figuring ♂ and ♀ genitalia characters of four species of *Poecilopsis*, and a phylogenetic diagram. A part set aside for field collectors has a short note on a day's bag of butterflies in the Alps, by T. W. Langen of Copenhagen, and a long article by Frank N. Young on collecting in Southern Florida in which he deals with several districts separately and finishes with general hints on camping, poisonous snakes, mosquitoes, mites and "chiggers", and hints on collecting. Wm. T. M. Forbes reviews E. B. Ford's "Moths" with interesting comment. There is another part of Recent Literature on Lepidoptera, this time, Section F. dealing with Biology and Early Stages. Finally, there is a current list of members shown under their countries, and, as usual, their particular interests are given, and also whether they are disposed to buy, exchange, sell, or collect.

THE CANADIAN ENTOMOLOGIST for May has two articles on Lepidoptera; E. G. Munroe writes on the Pyralid genus *Orenaia*, describing a new species, *O. pallidivittalis* with ♂ genitalia of this and two other species, a half-tone of the holotype ♂ and other anatomical details, while A. E. Hodson and Marion A. Brooks White on the frass of certain defoliators of forest trees with a key, and enlarged photographs of the frass of twelve of the insects considered. A simple air-conditioning unit for insect cages is described by W. Haliburton and W. G. Friend; it was designed for breeding cultures of the onion maggot, but with modifications, it could be made to suit many purposes. S. A. Graham writes on the law of natural compensations in regard to forest insects and finishes with the words: "While we move towards safer practices, we should never forget that the law of Natural Compensations will inevitably operate, sometimes to our economic woe, when one age-class of tree tends to dominate a forest". How many conifers have been planted here during the past ten years? . . . Other papers include Parasite Oviposition Behaviour by D. C. Lloyd, and two papers on Aphids by A. R. Hill and M. E. MacGillivray respectively.

Review

THE OBSERVER'S BOOK OF POND LIFE. By John Clegg. ($5\frac{3}{4} \times 3\frac{1}{2}$). 64 plates, 32 in colour, pp. 128. Price 5/-. Published by Frederick Warne & Co., Ltd., London. 1956.

This recent addition to The Observer's Pocket Series contains a great deal of useful information within a small compass and is the ideal pocket companion for the 'pond-hunter'.

All groups of animals and plants having aquatic members with which the field naturalist is likely to come into contact are dealt with, largely by means of excellent illustrations with which the book is copiously supplied. Twenty-nine pages are devoted to Insects, together with 21 plates, of which 11 are in colour, 4 in photogravure and 6 of line drawings.

Short sections are included on Freshwater Ecology—(what, where, how and why)—habitat zones and food webs and brief dichotomous keys for some groups. A list of books for further reading (from which the omission of the New Naturalist volume on Lakes and Rivers is surprising) and an index complete the book. A very good five-shillings' worth for the field naturalist.

I. R. H. A.

Fifty Years Ago

(From *The Entomologist's Record* for 1906)

RARITIES AT STEVENS'.—The Sale at Stevens' on Monday, November 20th, of the collection formed by Paymaster-in-Chief G. F. Mathew, was chiefly remarkable for the fine series of aberrations of *Arctia villica* and the *Leucania favicolor* which it included. As a whole, the specimens were in finer condition than is altogether the rule in collections disposed of at Stevens', and the result was that good prices were the rule . . . Fine aberrations were more attractive than rare species . . . The *A. villica* were 85 specimens, and sold for £31 12s., but 34 of them accounted for £28 9s. of this, and of these 16 realised £24 . . . The *Leucania favicolor* were 63 specimens, which sold for £34 . . . *Xylomiges conspicillaris*, 54s. for 9 specimens; 1 *Xylina conformis*, 18s.; *Asteroscopus nubeculosa*, only 2s. each; 1 *Catocala fraxini*, £2 7s. 6d.; 10 *Nyssia lapponaria*, £2 18s. . . *Hyles euphorbiae*, "from Raddon's collection", were only good for 4s. each.

A SUCCESSFUL TRANSPLANTING EXPERIMENT.—From June 30th to July 2nd, 1903, I was in the Brecksand district, and happened upon a considerable colony of *Agrophila trabealis (sulphuralis)*. Of the specimens captured, several females laid, as is their wont, a number of eggs, which I brought home to Mucking [Essex] with the purpose of rearing them in captivity. These eggs, laid upon July 3rd, hatched on the 11th. Meanwhile, I had noticed the resemblance of my churchyard to the locality from whence my prisoners came, and instead of rearing the little larvae in confinement, I turned them out amongst abundant foodplant to feed for themselves. In 1904, and again in 1905, I looked in vain for specimens of the insect. But last night a single specimen flew to light, and proved to me that my experiment had not failed. This is the third year that this most local moth has been able to maintain itself in my neighbourhood, and I have every hope that it may get such a hold, that it will remain here for all time.—C. R. N. BURROWS. *June 22nd, 1906.*

ERRATUM. Page 155: The first sentence of the third paragraph should read: Farn migrated from Greenhithe to Brainton Lodge, Brainton, near Hereford, and later to Ganarew in Glamorganshire, largely to study . . .

A List of the Macrolepidoptera of Abbey Wood

By A. J. SHOWLER.

(Continued from page 168.)

- X. designata* Hufn. At m.v. lamp, 1953.
X. montanata Schiff. Common in Lessness Woods.
X. fluctuata Linn. Abundant.
Epirrhoe alternata Müll. Common.
Euphyia bilineata Linn. Very common.
Mesoleuca albicillata Linn. Common in Lessness Woods.
Melanthia procellata Schiff. Common at lights in the woods where *Clematis* grows; associated with the chalk.
Pelurga comitata Linn. Abundant.
Perizoma flavofasciata Thunb. Fairly common.
Asthena albulata Hufn. Found in Lessness Woods.
Operophtera brumata Linn. Very common at lights in the woods.
Oporinia dilutata Schiff. Very common in habitats similar to *brumata*.
Eupithecia centaureata Schiff. Common as moth and larva.
E. tinariata Schiff. One only, at m.v. lamp, 1953.
E. assimilata Doubl. Fairly common at lights. (Determined by D. S. Fletcher.)
E. absinthiata Cl. Common.
E. goossensiata Mab. Two at light in 1952; possibly feeding on cultivated *Erica* as the heather of Upper Belvedere is some half mile away. (Det. D.S.F.)
E. vulgata Haw. Abundant.
E. castigata Hb. Common; Abbey Wood and Welling. (Det. D.S.F.)
E. subnotata Hb. Fairly common.
E. succenturiata Linn. Fairly common.
E. icterata (subfulvata) Vill. Common.
E. nanata Hb. One at m.v. in 1954. Like *goossensiata*, the larva probably feeds on cultivated *Erica*.
Gymnoscelis pumilata Hb. Very common in most months.
Chloroclystis coronata Hb. Very common, especially in Lessness Woods.
C. rectangulata Linn. Abundant, but mostly melanic.
Horisme tersata Schiff. Fairly common.
Abraxas sylvata Scop. There is a well-known and old-established colony in Lessness Woods. So far this has eluded me, but I am assured by Mr. Hards that it still exists.
A. grossulariata Linn. Abundant.
Lomaspilis marginata Linn. Fairly common.
Ligdia adustata Schiff. At Abbey Wood, 1952 (C.H.).
Bapta temerata Schiff. Fairly common.
Cabera pusaria Linn. Very common among the birches.
C. exanthemata Scop. Not as common as *pusaria*.
Plagodis dolabraria Linn. A few at m.v. lamp.
Campaea margaritata Linn. Common at lights in the woods.
Ennomos quercinaria Hufn. One taken in 1950.
Deuteronomos alniaria Linn. Common.
D. fuscantaria Haw. Probably the commonest of the "thorns".
D. erosaria Schiff. At Abbey Wood, 1952 (J.G.).

Selenia bilunaria Esp. Common.

S. lunaria Schiff. Less common than *bilunaria*.

Apeira syringaria Linn. At m.v. lamp, Abbey Wood, 1952 (J.G.).

Gonodontis bidentata Cl. At Abbey Wood, 1952 (J.G.).

Colotois pennaria Linn. At Abbey Wood, 1951 (J.G.).

Crocallis elinguarina Linn. Fairly common.

Angerona prunaria Linn. One ♀ taken at the m.v. lamp in 1953.

Although blackthorn is found on Bostall Heath, it is not in the dense wooded tangle generally associated with this species. Its status as a resident must be a little uncertain.

Ourapteryx sambucaria Linn. Abundant.

Opisthograptis luteolata Linn. Abundant.

Pseudopanthera macularia Linn. Common in the woods.

Lithina chlorosata Scop. Common in the woods.

Semiothisa notata Linn. Found amongst the birches.

S. liturata Cl. First seen at m.v. in 1954, when two were noted.

Itame wauaria Linn. Common.

Chiasmia clathrata Linn. Abbey Wood Marshes (J.B.).

Theria rupicaprararia Schiff. Abundant at lamps along the edge of the woods.

Erannis leucophaearia Schiff. Not common.

E. aurantiaria Hb. Very common at lights in the woods.

E. marginaria Fab. Common at lights in the woods.

E. defolaria Cl. Abundant, especially as the larva.

Alsophila aescularia Schiff. Very common.

Phigalia pedaria Fab. Very common at lights in the woods.

Lycia hirtaria Cl. Very common.

Biston strataria Hufn. Common at m.v., at lights and in the woods.

B. betularia Linn. Common, mostly *carbonaria*.

Hemerophila abruptaria Thunb. Common on fences.

Alcis rhomboidaria Schiff. Common; most specimens very dark.

A. repandata Linn. Fairly common, but like *rhomboidaria* approaching melanic.

Boarmia punctinalis Scop. At Abbey Wood, 1952 (J.G.).

Ectropis punctulata Schiff. Common in the woods.

Ematurga atomaria Linn. Found on Abbey Wood Marshes, on the bank bordering Woolwich Arsenal.

Bupalus piniaria Linn. One seen in a garden in Plumstead, 1953 (J.G.).

Cossus cossus Linn. Taken at Plumstead Common (M.D.S.).

Zeuzera pyrina Linn. Fairly common.

Aegeria tipuliformis Cl. At Abbey Wood in 1954 (R.G.R.).

Hepialus humuli Linn. Very common.

H. sylvina Linn. Fairly common; Abbey Wood; Plumstead Common (M.D.S.).

H. lupulina Linn. Common.

Total number of species recorded to date:—293.

Mention should also be made of the capture of C. Hards at his m.v. lamp of a North American Catocalid, *Charada deridens*, on 24th May 1952; no doubt a stowaway on a ship arriving at the docks.

(Concluded.)

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EXCHANGES AND WANTS

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Warwickshire Lepidoptera.—Will Entomologists please assist in compiling a new "County of Warwickshire Local List of Lepidoptera" (Macro and Micro)? Records giving date and year, and locality of capture should be sent to Trevor Trought, F.R.E.S., c/o The Curator, County Museum, Warwick. All assistance will be acknowledged.

Wanted.—European (excluding Great Britain) Rhopalocera. Would collect English insects of any order in exchange. Fresh or papered butterflies preferred. Any offers?—Dr. N. L. Birkett, 3 Thorny Hills, Kendal, Westmorland.

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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TO OUR CONTRIBUTORS

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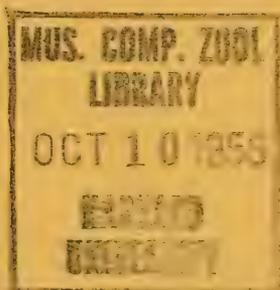
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Some Notes on *Calophasia lunula* Hufn.

By H. SYMES.

A good deal has been written about this species since it first established itself in England in 1952, the year when the first larvae were found, but very little has appeared in the *Record*. So far as I am aware, although the imago has been taken at light in Essex, the larva has been found only* in Kent and Sussex, and nearly always on the coast. It has been well described as having the size and shape of *Pieris brassicae* L. and the markings of a *Cucullia*, presumably *C. verbasci* L. or *C. lychnitis* Ramb.

The normal foodplant is yellow toadflax (*Linaria vulgaris*), but if this cannot be obtained I have found that the larva will readily eat the lilac-flowered creeping toadflax (*L. repens*), an uncommon local wild flower in Britain—I have seen it in only two localities, one in Carmarthenshire and the other on the Berkshire Downs—but common enough in gardens, where it may become a pest. I am told that the larva will also eat *Antirrhinum*.

The cocoon is thin and tough, with a texture like thin parchment. In my opinion it resembles that of *Craniophora ligustri* Schiff. One was found among the seed-pods of *L. vulgaris* at Dungeness by Mr. P. Cue, and this may well be the normal position for pupating: the cocoon would be very well concealed. But although I provided my larvae with plenty of dry seed-pods, not one took advantage of them, but they all preferred to spin up on the sides or among the debris at the bottom of the breeding-cage, often choosing an angle.

The full grown larva is easy to see on the flower-heads of the toadflax, and at this stage it much prefers the flowers to the leaves. I found several stretched out at full length on stems of broom, bramble and grass, and one even on a pebble, all close to the foodplant. I have been told that in its early stages the larva is difficult to find and difficult to rear. When found in their last instar they present no difficulty.

A member of the 'South London' reported (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1954-5, p. 10) that he had 'had difficulty in rearing this larva. After making a cocoon the larva left it and died. This was thought to be due to lack of moisture'. Two of my larvae left cocoons before they were completed, owing, I think, to interference by other larvae; but they did not die: they changed into pupae in the open, and from one of the pupae a perfectly good moth emerged.

Having read with much interest Mr. B. Goater's note on the emergence of *C. lunula* (*Ent. Rec.*, 67: 274), I kept a watchful eye on my cocoons when the moths were due to appear, in order to see if my experience tallied with his. Such, however, was far from being the case with regard to the time of day when the moths appeared. Of 22 imagines, only one to my certain knowledge emerged at 9.15 p.m. B.s.t., and there was another that I did not see until 10 p.m., after I had been out all day. Other times of emergence were, before 8 a.m. (1), just before 9 a.m. (1), before 9.30 a.m. (2), at 10.32 a.m. (1), expanding wings, 10.30-11 a.m. (1), between 10.30 a.m. and 1 p.m. (1),

*Larvae were taken at Southend-on-Sea, Essex, by Mr. Huggins on 19th September 1952. See *Ent. Rec.*, 65: 322.—ED.

between 12 noon and 3.30 p.m. (5), about 5 p.m. (1), before 5.30 p.m. (2), before 6.15 p.m. (3), at 6.30 p.m. (1). Altogether I had 22 good moths and 3 cripples from 31 pupae; four moths were found dead inside their cocoons and in two cases the imago did not develop inside the pupa. The period covered by the emergence of the moth was a long one, extending from 31st May to 16th July. The peak period was from 19th June to 29th June, and during these ten days 18 moths emerged. A second brood appears early in August, so it is not surprising that wild larvae have been found at almost any time in July, August and September.

As regards the expansion of the wings, I did not notice the phenomenon compared by Mr. Goater to the blowing up of a balloon, but the wings certainly did not take long to expand. I find in my notes: "19th June, imago emerged 10.32 a.m. Wings fully expanded 10.47, folded down 11.4". This is only seven minutes longer than Mr. Goater's average. Again: "21st June, imago emerged just before 6.30 p.m., wings folded down, 7.15", and again: "16th July, imago emerged just before 7 a.m., wings folded down, 7.50 a.m."

Up to the present time *C. lunula* has extended its range into West Sussex, but has not, I believe, penetrated the Portsmouth-Southampton area. It will be interesting to note whether in the next few years it will succeed in spreading further west into Hampshire, Dorset and Devon. *Linaria vulgaris* is common enough in these counties, though not always close to the sea coast.

Some Observations on Breeding *Catocala fraxini* L.

By BRIAN O. C. GARDINER.

Having learned from several people of their lack of success in breeding *Catocala fraxini* L., I hope that these observations on my own successful breeding over the past few years will be of help and interest.

In 1953, I was kindly sent 18 eggs laid by a Ham Street (Kent) female. These were kept in a muslin covered larva-cage and placed in an open shed for the winter. On 25th April 1954 they were put in a glass-topped metal box and brought into the warm, where they shortly hatched. Black poplar (*Populus nigra*) was supplied, and while ten larvae started to feed, eight wandered round the tin and eventually died without feeding. In the second instar the larvae were transferred to a muslin-covered larva-cage and kept in the sitting-room of my house. Nine pupae were obtained, one larva having been drowned in the bottle in which the poplar had been placed.

On 31st July the first moth appeared and on 7th August the ninth. The first three to emerge, together with another obtained from different stock, were placed together on 3rd August in a larva-cage 15" × 12" × 18" high, with glass back and front and muslin sides and top. A piece of crumpled paper was placed inside the cage for shelter and a piece of cotton-wool moistened with molasses for the moths to feed on. The moths were inspected night and morning, but no pairing was observed. However, on 21st August the first eggs were seen to have been laid on the muslin, and further eggs were laid up to 8th September, when the last female died. The eggs were not counted but were left in the cage.

During the winter of 1954/55 the cage containing the eggs was left in a wooden shed, and in April 1955 the first larvae were seen one night to have hatched and were dashing madly round the cage. An arduous journey in pouring rain to the nearest poplar tree produced two or three just bursting buds, and the larvae were collected and placed with these in a glass-topped metal box; but most of them refused to start feeding, and died.

Fortunately it was possible to find some poplar more forward and this was cut and placed in the cage. Further larvae were also gathered up and placed in glass-topped tins; but again about half of them died without feeding. The larvae still hatching in the cage found the poplar all right but were not so good as transferring themselves after it had wilted, which was a matter of only some two days, and further losses occurred. However, from the second instar onwards no further trouble of this nature occurred, and a good number of healthy pupae were obtained.

Most of the larvae went down to the floor of the cage to pupate, the floor having been covered with a two-inch layer of coarse peat, on top of which was a litter of withered poplar leaves. The larvae did not burrow down, but made their rather fragile cocoon on the surface, preferably underneath a withered leaf. About fifty larvae were kept in a cage 18" x 18" x 24" high, muslin covered with glass in front, and in some cases two larvae shared the same cocoon, indicating that this represents overcrowding, although the larvae did not seem to disturb one another, and losses during moulting were negligible. In a few cases it was noticed that larvae had fallen or had been pushed out of their cocoons, and when they were placed alone on top of peat they all successfully pupated.

All the pupae were removed from their cocoons and some were successfully sent through the post wrapped in 'Cellosene' tissue. Some three or four pupae were accidentally dropped and these were all damaged, either producing a crippled moth, or dying. Of twenty pupae that I kept for myself all produced perfect specimens during August.

This time, five pairs were placed in the same cage that had been used the previous year, and after ten days the first eggs were laid. Again, no moths were seen to pair. Possibly because one of the females lost a wing a number of eggs were laid on the floor of the cage, but the majority were laid on the muslin. No count of the eggs was made, but a rough estimate gave about 400; this is only 80 per moth, considerably less than the number which has been obtained from wild caught females, and of these some 150 failed to hatch.

Once again the eggs were left *in situ* in the cage in a wooden shed over the winter 1955/56. The first larvae hatched on 1st April, some two weeks before the poplar was to come into leaf! Precautions had, however, been taken, and a fine potted poplar plant which had been kept in a greenhouse was available. The top of this plant was placed inside the cage, the glass front having been removed for this purpose and replaced by a muslin sleeve, glued to the sides of the cage and tied round the stem of the poplar. The newly hatched larvae soon found their way on to the food, and no losses through not feeding or through failing to transfer to fresh food occurred. In spite of the fact that

there was a very considerable number of larvae (about 250) feeding on it, the poplar grew rapidly enough to hold its own for over three weeks. By this time, the outdoor poplar was in leaf and the larvae were transferred. At the time of writing (12th June 1956) they are starting to pupate. Interestingly enough, this year they are tending to spin up amongst the leaves of the poplar rather than on the peat and withered leaf litter.

Several interesting points arise from my breeding observations, and these may be summarised as follows.

Newly hatched larvae are better supplied with growing food. Mortality is highest in glass-topped tins; it also occurs in small larvae owing to the poplar foliage wilting quickly when placed in water.

Larvae do not seem to mind being over-crowded; some 250 small larvae were kept for a short time on a limited amount of poplar in a cage 15" × 15" × 18". About 50 were kept in a cage 18" × 18" × 24". In general, the larvae tend to rest on the poplar branches, but it has been noticed that many go up to the roof of the cage (which is of wood) for skin changing.

Even when pupating larvae are disturbed it does not seem to be fatal; if removed to peat they pupate safely.

No harm seems to be occasioned by removing the pupa from its cocoon; in fact, I should say that this is the best thing to do, for when several pupate close together it seems very likely that the emerging moth would get stuck, and consequently crippled on its way out of the cocoon. It should be borne in mind, however, that the pupa is rather fragile, and dropping it or holding it too tightly will undoubtedly cause damage.

In order to obtain eggs from this species patience is required. The moths should be placed in an airy cage and kept fed. I used molasses on cotton-wool, but do not see why treacle or sugaring mixture should not do just as well. In this connection a careful watch should be kept for ants; in 1954 a steady stream of these was found to be raiding the molasses. Fortunately they had not attacked the moths, but thereafter the cage was stood on flowerpots in a tray full of water. In 1955 ten days, and in 1954 eighteen days, passed before any eggs were laid and the oldest moth lived for thirty-seven days.

When feeding larvae I have found that it is best to use second or third year growth of poplar; this keeps better in water; new growth wilts overnight. If the poplar has to be carried home and cannot be put straight into water, cut two or three inches off the end of the stems before putting them into water; it will keep much longer if this is done.

After the second instar it is not necessary to transfer the larvae by hand to fresh food. Place the new supply in the cage alongside the old. Next day remove the old, and if there are any larvae still on it they will probably be skin-changing. Place the stalks so occupied on the floor of the cage and the larvae will all walk upwards when they have changed, and will not return.

Whether it has been luck, or the choice of the correct food—*clean* black poplar, and occasionally some Lombardy poplar as well was used—or the right type of cage, no disease has so far broken out amongst my *fraxini* larvae. In 1954, next to the ten *fraxini* larvae were some larvae of *C. nupta* which went down 90% with a bacterial disease, to

which this species is prone. The cages I have used for *fraxini* are glass-fronted, wood top, and the back and sides are covered with either muslin or Egyptian cotton netting, which allows plenty of ventilation. They are also large; personally I think that many people use cages which are too small. I keep my cages in a wooden shed which has large glass windows along one side, facing the sun. This gives a partial greenhouse effect during the day, and it gets very warm and does, I feel, suit many larvae, including *fraxini*.

Four Days in the Brecklands

By G. H. B. SELL.

Staying at Brandon, on the Norfolk-Suffolk border, from 12th to 15th July this year I saw few butterflies owing to the dull weather, but found some interesting moths.

Searching a single row of Scots pines one afternoon I found two *Hyloicus pinastri* L. Owing to its size the moth is not difficult to see at any time, but these were particularly noticeable as they had just emerged from the pupa and their limp wings were partly raised to aid drying. The time was about 3 o'clock. This row of pines also yielded, on the one inspection, two *Euphyia cuculata* Hufn., five *Hadena serena* Schf., one *Semiothisa liturata* Cl., two *Hadena conspersa* Schf., and a few of the commoner Carpet Moths.

The following day I took another freshly emerged *H. pinastri* on the same pines. It was half-past three, and the wings were in the normal resting position, although not completely dried. These three hawkmoths were all about two feet from ground level. Another, found elsewhere on the same day, which had been flying before capture, and three found on an earlier stay in the area (16th-18th June) were all between 4 and 8 feet from the ground. All were on rows of pines isolated from any pine plantation: to look for them in the large areas of pine forest in that part of the country would be too much like looking for a needle in a haystack.

Nothing in some wooded areas near the village of Mundford before dark, and afterwards with the aid of a pressure lamp, I found *Colostygia pectinataria* Kn. to be one of the commonest geometers on the wing. *Zanclognatha cribrumalis* Hb. was common in one damp, but not marshy, spot.

A feature of the district was the great abundance of *Abraxas sylvata* Scop. in the wooded areas. By day they could be found in quantity as they rested listlessly on the undergrowth, and by night they swarmed in places. *Comacla senex* Hb., *Scopula immutata* L. and *Lygephila pastinum* Tr. were flying in a marshy spot.

In two nights' sugaring here I got nothing unusual, but the following moths, all in some quantity, made a very attractive sight: *Thyatira batis* L., *Habrosyne derasa* L. (*pyritoides* Hufn.), *Dypterygia scabriuscula* L., *Euplexia lucipara* L. and *Polia nebulosa* Hufn. There were also an *Agrotis vestigialis* Hufn., a *Phalaena typica* L. and an *Apamea sublustris* Esp.

A trip one evening to one of the Cambridgeshire fens produced a specimen of *Perizoma sagittata* Fab.

One afternoon I came across a tract of broom in flower, on a planta-

tion of young Forestry Commission pines just outside Brandon. Beating the flowering branches of this plant I found that the larva of the Green Hairstreak, *Callophrys rubi* L., was abundant there. I beat them at the rate of one every one-and-a-half-minutes on an average, although it took some time to search through the flower-heads in the beating-tray. The only other 'catch' was a gentleman of the Forestry Commission who, after observing my activities through binoculars, from a fire observation tower a good distance away, and not being able to see what was going on at that distance, came over to investigate. He thought my white beating-tray might be a tent, which would not have been welcome there owing to the fire risk.

Collecting in Berwickshire: January to June 1956

By A. G. LONG, M.Sc.

During the early months of 1956 I made several excursions to search sallows for borings of *Sphacia bembeciformis* Hubn. At Kyles Hill, Gordon Moss, Kaysmuir, Duke's Wood, Middlethird Bog, and Threepwood, near Lauder (Roxburghshire), I discovered many old borings, but only at one locality did I find living larvae, betrayed by the presence of newly formed frass. This was by the Duns to Greenlaw road, about a quarter mile west of Woodheads Farm.

In March I sawed the willow trunk and removed about one foot, which I placed on a tray of damp sand in an old meat safe. The larvae continued to produce frass until June, when I discovered that three larvae had left their borings and were lying in the bottom of their cage looking very shrunken and under-nourished. I concluded that the wood had become too dry, and although I replaced the larvae in their borings I failed to get any moths. Perhaps it would have been better to have left the sawing of the willow trunk until late May.

I saw my first moth of the year fluttering round a Gavinton lamp on 29th January, but failed to catch it. On 6th February, eight *Phigalia pedaria* Fab. and four *Theria rupicaprararia* Schf, appeared at these lamps, and others followed through the month. After severe wintry weather towards the end of February, March came in with some fine spring-like days and on the 3rd I found a larva of *Phragmatobia fuliginosa* L. sunning itself at Kyles Hill. Others were found on the 11th March at Elba on the banks of the Whitadder. They spun up within a week but one produced puparia of a Tachinid fly.

By 9th March I had taken *Alsophila aescularia* Schf., *Erannis marginaria* Fab., and *E. leucophaearia* Schf. at Gavinton lamps. These street lamps keep one well informed of emergences in the early part of the year when it is scarcely profitable to work a solitary m.v. light trap. On 24th March I found a young larva of *Dasychira fascelina* L. at Kyles Hill, but as it went into aestivation I released it. I also searched oak trunks at the same locality and found one *E. leucophaearia* sitting about two feet above the ground.

On 25th March I again searched oak trunks at the Aiky Wood, near Whitegates, on the Duns-Grantshouse road, and found another *E. leucophaearia* together with one *P. pedaria* and one female *Colostygia multi-strigaria* Haw.; it was a beautiful sunny morning with skylarks and

chaffinches singing, and several times I heard the 'yaffle' of a green woodpecker in the woods bordering the Whitadder. At night I tried my m.v. lamps for the first time this season at Kyles Hill road (Bent's Corner). The temperature was at 50° F. to begin with but later fell to 40°. It was calm and the full moon was obscured by cloud. Between 7.15 and 9.45 p.m. I recorded nine species, including about eighty *Achlya flavicornis* L., three *Orthosia incerta* Hufn. and hibernated specimens of *Eupsilia transversa* Hufn., *Conistra vaccinii* L. and *Xylena exsoleta* L. I was also visited by two Greenlaw policemen who had been given a telephone call by a well-meaning motor cyclist who had seen my lamps and imagined vain things concerning their purpose.

On 27th March a pupil brought me a nice batch of larvae of *Setina irrorella* L. from the sea braes about one mile north of Burnmouth. Later I visited this spot and found the larvae in fair numbers both on the rocks and among the herbage.

On 31st March I visited Threepwood Moss, near Lauder. During last century the late Andrew Kelly, one of several Berwickshire collectors of that time, recorded *Dasychira pudibunda* L. from near this locality. So far this species has evaded me and I cannot help wondering whether any collector who reads these words knows of its occurrence in Scotland. As I walked round the moss searching shallows for *bembeciformis* borings, I found larvae of *Lasiocampa quercus* L. var. *callunae* and *P. fuliginosa* sunning themselves on the bushy heather. A short-eared owl was hunting over the heather, gliding and turning on its long wings, which gave it almost the appearance of a harrier. Curlews and reed buntings were back at their breeding haunts and a large dark fox came trotting down a field where some tups were feeding unconcernedly. As I climbed the wire fence to leave the moss I accidentally dislodged a specimen of *A. flavicornis* which I had overlooked.

On 1st April I visited Dogden Moss, approaching by way of the Kettlehiel Burn and the Kaimes—large gravel ridges bordering the moss to the north and supposed to be of glacial origin. My object was to spy out the land and look for larvae of *Macrothylacia rubi* L., of which only one was found. Golden plover, black grouse, redshanks and curlews were seen, and one rabbit! At night I took my lamps to Kyles Hill and worked them near the oak trees, hoping to get *Biston strataria* Hufn., but it failed to appear. Eight species were recorded including *Orthosia gothica* L.

On 7th April I was at Gordon Moss in the company of Dr. Macnicol and Mr. Pelham-Clinton of Edinburgh. A south-west wind rather spoiled the moth flight though the temperature remained steady at 44° F. The most interesting species taken was one female *Dasypolia templi* Thun. Not even *O. gothica* nor *O. stabilis* put in any appearance. The following night I took *stabilis* abundantly at Oxendean Pond and a single *Panolis flammea* Schf.

On 9th April I paid my first visit with m.v. lamps to the Hirsell, near Coldstream (by kind permission of the Earl of Home). I pitched my lamps under the large oak trees in the valley of the Leet, near Montague Drive. It was my surmise that *B. strataria* might be breeding there, and my hopes were more than realized when at least 38 specimens of this moth put in an appearance. There is no doubt, therefore, that this species is established in Berwickshire. Altogether I recorded ten

species between 8 p.m. and 12.30 a.m., when I switched off, well satisfied with this first visit to a new locality. Motoring home I nearly struck a barn owl which rose from a ditch at the side of the road. The following night, 10th April, I took one more *strataria* at a Gavinton lamp.

On 12th April I was back at Gordon Moss and worked my lamps from 7.45 p.m. to 10.30 p.m. The wind was moderate north-westerly and the temperature steady at 43° F. I recorded eight species, including thirteen fresh *Orthosia advena* Schf. and one female *D. templi*. I was also surprised to find one *Orthosia cruda* Schf. as I know of no oak trees on the moss. On this date the first of a good series of *Ectropis bistortata* Göze emerged, bred from a female taken in Duns Castle Woods.

On 20th April I revisited the Hirsell, but the night became clear with moonlight and ground frost. No *strataria* came on this occasion, but I took *Earophila badiata* Schf. and *Eupithecia abbreviata* Steph. I packed up about midnight, the flight having virtually ceased.

Again on 21st April at Gordon Moss the temperature fell rapidly to 30° F. and I had to finish collecting at 10.30 p.m. I saw my first *Nothopteryx carpinata* Bork. for the season. Back at Gavinton I found the thermometer at 45° F. and a good flight of moths round my garden lamp.

On 22nd April I visited Dogden Moss again by day, approaching from Hallyburton Farm near Greenlaw. The only moth seen was a male *Saturnia pavonia* L. but I noted that the habitat seemed well suited for *Coenonympha tullia* Müll. and this surmise proved correct as later in the year (12th July) I found this butterfly flying abundantly. I also noted a good growth of cranberry (*Oxycoccus palustris*) and wondered whether *Carsia paludata* Thun. could be found here in August.

I was at Gordon Moss again on 24th April hoping to get *Orthosia gracilis* Schf., but ground frost put an early stop to collecting. *Cerastis rubricosa* Schf. appeared at the lamps in fresh condition. Back at Gordon again on 28th April I was rewarded by my first *gracilis*. This species had been recorded from only one other locality in Berwickshire, viz. Pease Dean—by James Hardy, over a hundred years ago. The temperature again dropped below freezing point and I returned home soon after midnight.

My next quarry was *Odontosia carmelita* Esp. and on 4th May I took my lamps to the birch strip near the main Greenlaw Road west of Polwarth. I placed the lamps on the south-west side about 150 yards apart, but results were disappointing—eight common species appeared, but no *carmelita*. Last year I tried hard to get this species at Kyles Hill where birch abounds, but I drew a blank so I began to doubt whether it could be in the county. Bolam recorded it in 1898 at Foulden Hag, but the birches there have been cut and replaced by conifers. He also recorded a specimen bred from a larva taken at Earlston by Mr. Haggart of Galashiels in 1901. These were the only Berwickshire records known to me but sufficient to raise hopes. On 5th May therefore I went to the Hirsell and after seeing the gamekeeper I pitched my lamps on one of the rides in Kincham Wood. This was formerly an oak wood but within recent years the oaks were felled and in their place are thickets of self-sown silver birch, ash, hazel, crab apple, and privet. The night was very windy but I was able to find sheltered spots and switched on my lamps about 9.30 p.m. At 10.20

p.m. I found two *Chaonia ruficornis* Hufn. in one trap. Then I walked back to my other trap and saw a moth come into the cone; immediately I recognized the yellow flashes on its wings and knew it was *carmelita*. This was the only one I took that night, but it was sufficient to show that the species was probably breeding among the young silver birches. I also recorded two *O. gracilis* (a new locality), one *Selenia lunaria* Schf. (an early date), and several *S. bilunaria* Esp. in a total of thirteen species.

Back at the same place on 7th May I took two more *carmelita* at 9.45 p.m. and 10.15 p.m. (B.s.t.). Again there was a strong S.W. wind which rather spoiled collecting though the temperature stood at 56° F. I returned the following night (8th May) and saw a roe deer near where I put my lights. At first there was a cool wind but later this died down. Another *carmelita* came about 10.5 p.m. and then no more until suddenly four appeared between 11.45 p.m. and midnight. Other species noted were *Pheosia gnoma* Fab., *Ectropis bistortata* Göze., *P. flammea*, *Colocasia coryli* L. and *Ecliptopera silaceata* Schf.

On 12th May I returned to Kincham Wood in the Hirsell but failed to take any more *carmelita*. *Celama confusalis* H.-S. and several *Lithina chlorosata* Scop. were present in a total of 18 species.

On 14th May I went to Gordon Moss. Sedge warblers and reed buntings were singing though the evening was rather cool. Fourteen species came to light including one fresh *Xanthorhoë ferrugata* Cl. and one early *Hadena thalassina* Hüfn.

At Kyles Hill on 18th May I worked one lamp in the disused quarry at the edge of the heather moor and the other I placed to the south overlooking the belt of oak trees. Results were disappointing—many *gothica* and *stabilis* and one *Hadena bombycina* Hüfn.

On 19th May I paid a visit by day to a moor by the Hen Toe Bridge near Abbey St. Bathans. Here six dotterels had been reported. We found them feeding on a bare patch of burnt heather. Afterwards we searched the moor for larvae and found one *Dyscia fagaria* Thun. My small daughter spotted a cocoon of *Macrothylacia rubi* L. which later produced a fine female moth and was very useful for assembling.

On 21st May I visited Gordon Moss again. The day had been hot but the night was cold with ground frost. Only four species came to my lamps, including one male *Cerura vinula* L. I caught a fresh *Xanthorhoë designata* Hufn. under my hat while laying down the flex.

On 23rd May I was back at Kyles Hill Quarry, and succeeded in taking three *H. bombycina* and one *D. fagaria*—an early date. Back again on the 25th I failed to get any more *bombycina* but took one female *M. rubi*. The night became very clear and cool with a full moon.

May 26th was a glorious sunny day, and I visited Coldingham and walked down the coast to Linkum Bay. In a little gully near the south end of this bay, I netted one specimen of *Cupido minimus* Fues. (an early date); a few *Coenonympha pamphilus* L. were also on the wing.

On 27th May my pupa of *M. rubi* produced a fine female moth so I took it to Kyles Hill and set it down in a cage on a grassy knoll behind the quarry. Between 7 p.m. and 8.15 p.m. over twenty males assembled although the evening was dull with a cool easterly breeze. In the afternoon I saw a few *Anarta myrtilli* L. feeding at bilberry flowers in the same locality.

On 29th May I visited Kincham Wood again, thinking I might possibly get *Drymonia dodonaea* Schf., but in this I was unsuccessful. I recorded thirty-two species, including *Thyatira batis* L., *Tethea duplaris* L., four fresh *Deilephila elpenor* L., *Pterostoma palpina* Cl., and one *Scoliopteryx libatrix* L.

On 3rd June I visited White Gates on the Duns-Grantshouse Road in order to beat the junipers growing at the edge of Drakemire. I soon had large numbers of larvae of *Eupithecia sobrinata* Hb., though I discovered later that a good proportion were parasitized by a small Chalcid. The first imago emerged on 17th July.

On 7th June I visited The Retreat, where I treaced oak trees and worked the m.v. lights from 10.30 p.m. to 1.30 a.m. Thirty-one species were recorded, including *Eupithecia pulchellata* Steph., *T. batis*, several *Apatele rumicis* L. and *A. psi* L. A large fresh female *Biston betularia* L. was taken near a treacle patch.

On 9th June I tried a new locality at Paxton Dean, not far from the Tweed. Unfortunately, the night became clear and cold (37° F.) and was never really dark. Only eight species appeared, including *Laothoe populi* L. and *Agrotis segetum* Schf. I have noticed that *L. populi* males have a very late flight, usually about 2 a.m., while females fly soon after dusk.

I walked up the coast on 10th June from St. Abbs to Pettico Wick, but insects were very scarce. Returning home we stopped on Coldingham Moor about 6.30 p.m. and a good flight of *M. rubi* males and *Eupithecia nanata* Hb. was in progress.

On 14th June I was at Gordon Moss and treaced telegraph poles and fence posts along both sides of the railway. I had my lamps on from 10.45 p.m. to 2.45 a.m. The night was cloudy, calm but cool (42° F.). Thirteen *L. populi* came to light (all males) and one *Harpyia furcula* Cl. At treacle I took one *S. libatrix* and three fresh *Hyppa rectilinea* Esp. The total was twenty-five species. The following night I treaced at the Hirsell and worked my lamps near Montague Drive. Another *S. libatrix* came to treacle and I took a good series of *Xanthorhoë designata* Hufn. (about 20) at light. The total catch was forty species.

On 20th June I visited Broomhouse on the Whitadder where *Apamea unanimitis* Hb. was recorded as not uncommon about eighty years ago. I failed to get *unanimitis* but took 39 species including another *S. libatrix*, some fresh *Perizoma affinitata* Steph., and *Zanclognatha grisealis* Schf. The following night a single *Hadena serena* Schf. came to my garden trap; this species was new to me, although Bolam recorded it as common about Berwick-upon-Tweed. On the same night I visited Kyles Hill and took three female *M. rubi* at light in the quarry; I also got one *Entephria caesiata* Schf., which is an early date, one *Hadena nana* Hufn., two *H. bombycina*, several *D. fagaria* Thun. and one *Bena fugana* Fab., just before dawn. In all, 29 species were taken.

I visited the Bell Wood above Cranshaws on 23rd June; there was low cloud and drizzle. Treacle was well attended and moths came to light in good numbers though everything was wet and it was rather unpleasant climbing up the steep bracken-covered hillside to my 125 watt lamp. I recorded 48 species, among which was a very dark *Triphaena orbona* Hufn. I was also pleased to take a good series of *H. nana*, which species seems to be rather local in Berwickshire. Other species listed

were *Drepana falcataria* L., *D. lacertinaria* L., *Phalera bucephala* L., *D. fagara*, *H. furcula*, and one male *M. rubi* (at light). I also recorded the 'prominents' *capucina*, *ziczac*, *gnoma*, *dromedarius* and several *D. fascelina*, one *Eupithecia pulchellata* Steph. and one *S. lunaria*.

On 23rd June a single *Plusia gamma* L. appeared in my Gavinton trap, and on 25th I took my first black *B. betularia*. Prior to this I was inclined to think that all the *betularia* in Berwickshire were of the typical peppered form as I have seen scores, if not hundreds, of these. Later, I took another black specimen at the Hirsel on 29th June. I would estimate, however, that in Berwickshire the black form averages less than one per cent. of the total population.

I was again at Kyles Hill on 26th June, hoping for *Apatele menyanthidis* View., which, however, failed to appear although I took one *Semiothisa liturata* Cl. and three *H. rectilinea*, which was a new locality record. *P. palpina* and *Venusia cambrica* Curt. appeared and another *B. fagana* was taken just before dawn. I finished at about 2.30 a.m. with a total catch of 39 species in spite of a cool northerly wind.

On 29th June I revisited Kincham Wood at the Hirsel. The night was good with a temperature of 54° F. and slight drizzle which turned to heavy rain at dawn. Sixty-seven species appeared, including *Hadena conspersa* Schf., which was new to me. Other species noted were *Pheosia tremula* Cl., *Z. grisealis*, *Cleorodes lichenaria* Hufn., *T. batis*, and the aforementioned black *betularia*.

On the last night of June I decided to visit the coast. This was my first experience of working the m.v. lamps within sight and sound of the sea. After visiting the farmer at Fleurs Farm and asking permission, I ran my van down the side of one of his fields and parked overlooking Linkum Bay between Coldingham and Eyemouth. I put one lamp on a little eminence commanding a wide view of the bay and the other I placed on an old path near the foot of the grassy braes. The evening started with rain, but this cleared and I had a great time; I took three species that were new to me, viz., *Deilphila porcellus* L. (eight at dusk), *Eupithecia centaureata* Schf., and *Epirrhoë galiata* Schf. I also took a good series of *H. conspersa* and *Pyrrhia umbra* Hufn., *Ortholitha mucronata* Scop., *D. elpenor*, *P. palpina*, *P. bucephala*, *Cleorodes lichenaria* Hufn., *Z. grisealis* and *Eupithecia absinthiata* Cl. Dawn came up over the sea very slowly to the cries of curlew and herring gulls, and the night was a fitting conclusion to the first half of the year, with a record catch of seventy-one species.

The Green, Gavinton, Duns.

DIPTERA

On *Syritta pipiens* L. (Syrphidae) and its habits

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

This species is an easily identified Syrphid "common and widely distributed" in this country. It has been found in the heart of the City of London, the parks and gardens and almost all types of open countryside. Colyer and Hammond have an illustration of the fly in *Flies of the British Isles* and make a brief reference to its habitats.

It was first described by Linnaeus in 1758 as *Musca pipiens* in *Syst.*

Nat., 10th edit., but was made the genotype of *Syritta* by Lepelletier de St. Fargeau et Audinet-Serville in 1828 and has rarely been known under any other generic name. Thus details of the early stages can be followed through the volumes of entomological literature from the days of Degeer in 1776 and later students of its immature forms—T. Beling 1882, C. L. Metcalf 1916, H. C. Efflatoun 1922, R. H. Smith 1923, F. Krueger 1926 and W. E. H. Hodson 1931. Its students have been of many countries and continents, for the species is known from all over Europe, North America and recorded from Africa and Asia. The larva has a short tail and occurs in rotting vegetation and decaying animal manures. Although it is stated to be on the wing from the end of March until mid October, its best months seem to be May to September.

It is an excellent hoverer around flowers and bushes as well as about heaps of decomposing vegetation such as the compost heaps of our gardens. Zetterstedt has written of the male hovering before the female as she sat on a leaf just prior to their mating. Little, however, has been recorded of the habits of the mature fly. Verrall, at the end of the last century, had a garden at Newmarket of flowers, vegetables and lawn of about one acre (later it was enlarged). In this he estimated some 500 species of diptera occurred including 47 Syrphidae. *S. pipiens* was one of these and he declared it to be "exceedingly abundant, and a most amusing species to watch as it seems to enjoy itself in mimic fights with its own species, and even in teasing such formidable insects as the small Crabronidae by making sudden dashes at them when they are settled on a flower and then suddenly withdrawing before the more slow moving *Crabro* has realized that it has been assaulted by some apparently invisible assailant". These darting flights at its own and other species I have frequently seen. At other times I have noticed the males patrolling in the neighbourhood of a breeding habitat such as a compost heap and elsewhere. Females are followed and a male will display by swinging from side to side, thus flashing his silvered face and patches on thorax and abdomen. It would be interesting to know whether these habits are widespread and to have a more complete record of their pattern of behaviour.

Fabre found that *S. pipiens* was captured by the wasp *Solenius vagus* L. and others have recorded its slaughter by the wasps *Clytochrysus chrysostomus* Lep. & Brullé, *Crossocerus elongatulus* v. d. Lin. and *Thyreopus cribrarius* L. I have found the Asilid fly *Dioctria rufipes* Deg., which normally feeds on Ichneumonidae, with *S. pipiens* as its prey. I have also found it taken by *Empis tessellata* F. and by the Asilid *Machimus atricapillus* Fln. The frequency of its capture and indeed the complete variety of its enemies are still to be recorded, a task open to all. Curiously I have not come across a note of its falling prey to a spider.

When collecting flies I have found this insect to be a visitor to many species of flowers, from the ground rosette-type such as the daisy and silverweed to those of the tall bushes or even trees such as hawthorn. The colours visited are chiefly white or yellow. Both nectar and pollen are taken and judging by the pollen-dusted heads of captured specimens, the species must be an important factor in flower pollination.

During the spring and summer months I have noted this fly visiting the following blossoms:—

April—Sallow *Salix caprea* L., Blackthorn *Prunus spinosa* L.

May—Hawthorn *Crataegus monogyna* Jacq., Wayfaring tree *Viburnum lantana* L., Lesser Celandine *Ranunculus ficaria* L., Greater Stitchwort *Stellaria holostea* L., Wood Spurge *Euphorbia amygdaloides* L., Keck *Anthriscus sylvestris* (L.) Bernh., Alexanders *Smyrniium olusatrum* L., Oxford Ragwort *Senecio squalidus* L. and Daisy *Bellis perennis* L.

June—Hawthorn *Crataegus monogyna* Jacq., Hedge garlic mustard *Alliaria petiolata* (Bieb.) Cavara & Grande, Perennial wall rocket *Diplotaxis tenuifolia* (L.) DC., Hogweed *Heracleum sphondylium* L., and Oxford Ragwort *Senecio squalidus* L.

July—Creeping buttercup *Ranunculus repens* L., Tamarisk *Tamarix anglica* Webb, Wild Parsnip *Pastinaca sativa* L., Hogweed *Heracleum sphondylium* L., Elder *Sambucus nigra* L., Bramble *Rubus fruticosus* L., Fool's watercress *Apium nodiflorum* (L.) Lag., Oxford Ragwort *Senecio squalidus* L., Yarrow *Achillea millefolium* L., Corn Marigold *Chrysanthemum segetum* L., Ox-eye Daisy *Chrysanthemum leucanthemum* L., Creeping thistle *Cirsium arvense* (L.) Scop., and Common Sow-thistle *Sonchus oleraceus* L.

August—Japanese anemone *Anemone japonica* Sieb. & Zacc., Red campion *Melandrium rubrum* (Weig.) Garcke, Bramble *Rubus fruticosus* L., Creeping Cinquefoil *Potentilla reptans* L., Upright Tormentil *Potentilla erecta* (L.) Rausch, Silverweed *Potentilla anserina* L., Perennial wall rocket *Diplotaxis tenuifolia* (L.) DC., Gipsywort *Lycopus europaeus* L., Marjoram *Origanum vulgare* L., Wild Thyme *Thymus serpyllum* L., Round-leaved Mint *Mentha rotundifolia* (L.) Huds., Water Mint *Mentha aquatica* L., Upright Hedge parsley *Torilis japonica* (Houtt) DC., Wild carrot *Daucus carota* L., Fennel *Foeniculum vulgare* Mid., Wild Parsnip *Pastinaca sativa* L., Wild angelica *Angelica sylvestris* L., Common St. John's wort *Hypericum perforatum* L., Lady's Bedstraw *Galium verum* L., Ling *Calluna vulgaris* (L.) Hull, Tripartite Bur-marigold *Bidens tripartitus* L., Oxford Ragwort *Senecio squalidus* L., Golden Samphire *Inula crithmoides* L., Fleabane *Pulicaria dysenterica* (L.) Bernh., Sea Aster *Aster tripolium* L., Yarrow *Achillea millefolium* L., Sneezewort *Achillea ptarmica* L., Scentless Mayweed *Matricaria maritima* L., Knapweed *Centaurea nigra* L., and Hawkweed *Hieracium umbellatum* L.

September—Soapwort *Saponaria officinalis* L., Perennial wall rocket *Diplotaxis tenuifolia* (L.) DC., Ivy *Hedera helix* L., Devil's-bit Scabious *Succisa pratensis* Moench, Common Ragwort *Senecio jacobaea* L., Oxford Ragwort *Senecio squalidus* L., Sea Aster *Aster tripolium* L., Michaelmas daisy *Aster* sp., Wild carrot *Daucus carota* L., and Burnet Saxifrage *Pimpinella saxifraga* L.

October—Tansy *Tanacetum vulgare* L.

This list could be lengthened by the addition of the observations of Hermann Müller and P. Knuth as well as those of later observers in this country. The short proboscis causes the fly to visit the more open blossoms, avoiding those with long tubular corollas. More study in the field, coupled with relative laboratory work, should indicate the

selection range of the fly and whether it is restricted by colour, scent or ease of access.

The variety of species of flies, their utilisation of so great a number of habitats tempts dipterists to capture or study too many but with too little intensity. Now that the British fauna is becoming better known more time may be given to the study of each species, its habitat requirements, its habits and thus its place in the web of life. In two more years, when two centuries will have passed since Linnaeus first named *pipiens* and showed how to recognise it, how much shall we know of *Syrirta pipiens* and its life?

The Genus *Ceriocera* Rdi. (Trypetidae)

By M. NIBLETT, F.R.E.S.

Ceriocera cornuta F.: I have seen few published records of this Trypetid; it is local in its occurrence, being confined to localities where *Centaurea scabiosa*, the food-plant of its larva, grows. Audcent (1933) recorded the flies from the Bristol District; Andrews (1939) from Eynsford, Kent; Hamm (1918) from the Oxford District; Saunt (1946) from the Isle of Wight, but he does not include them in his Trypetidae of Warwickshire (1932); Hincks (1946) makes no mention of it in his List of Yorkshire Trypetidae. The fly has been taken at Shoreham, Kent; and at Caterham and Coulsdon in Surrey.

My own records, based on the discovery of the larvae and breeding the flies, are from Beachy Head, Sussex; and from the following localities in Surrey: Addington, Banstead Downs, Banstead Wood, Boxhill, Coulsdon, Dorking, Epsom Downs, Fetcham Downs, Headley, Lacey Green, Langley Vale, Mickleham Downs, Riddlesdown and Woodmansterne.

Hamm stated that the flies were very plentiful in the Oxford District in 1917; this, I think, is an exceptional case. I have during the past 23 years collected about 3,000 flower-heads of *Centaurea scabiosa* in which the larvae feed; from these 60 flies have emerged, 27 ♂♂ and 33 ♀♀.

It had been considered that the larvae always pupated in the flower-heads, but in August 1945 I collected a number of these heads at Headley. They contained 12 larvae of *cornuta*, 9 of which left the heads, while the other 3 remained in them. Earth was provided, the larvae immediately entered and in due course pupated there, the flies emerging at the normal time. On six other occasions I have had these flower-heads with *cornuta* larvae in them, some or all of which have left them to pupate in the soil. There is no question of these larvae having been shaken out of the heads, the conditions under which they were kept ensuring that this could not happen. During 1950 and 1951 I collected 658 heads of *scabiosa*, of these 490 contained no *cornuta* larvae, the remainder contained 22 larvae, 7 of which went to earth to pupate, 22 flies emerged, 9 ♂♂ and 13 ♀♀.

The general emergence time for this species is in June and July of the second year. I have had a few flies emerge in August and September of the first year, and on two occasions I had a partial emergence in September, the remaining flies emerging in the following June and July. All the larvae I have had have been entirely free from the attacks of

parasites; this is rather strange, as another Trypetid, *Trypeta colon* Mg., whose larvae feed in flower-heads of the same plant, and are protected by a dense cocoon of pappus hairs, are sometimes heavily parasitized by Chalcids.

Ceriocera microceras Hering.: There appear to be fewer published records of this species than of the preceding one. The fly was discovered by Dr. Hering in Germany and by Prof. G. C. Varley in Cambridge-shire at about the same time, and was described by Hering (1935). It has been recorded from Cambs. by Collin (1937), and from Yorkshire by Hincks (1946). The fly has also been taken at Caterham and Coulsdon.

The larvae live in the stems of *Centaurea scabiosa* from September onwards, and pupate there, there is no outward sign of their presence, and the flies emerge in June and July of the second year. It appears to be confined to *C. scabiosa*; quantities of stems of *C. nigra* collected in the same localities were found to contain no *microceras* larvae. I have found the larvae in fair numbers in the following Surrey localities: Banstead Downs, Banstead Wood, Boxhill, Epsom Downs, Farthing Down, Riddlesdown and Woodmansterne.

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COLEOPTERA

The Coleoptera of a Suburban Garden

5—Clavicornia (Part 2)

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

(Continued from Vol. 65, page 231.)

RHIZOPHAGIDAE.

Rhizophagus perforatus Er.—A subterranean species not uncommon in the garden, although not found before about 1945. In soil, on half-buried pieces of wood, and under stones or other traps on moist ground, at intervals between early spring and late autumn; odd specimens in compost heaps; twice by sweeping and once crawling up a wall of the house.

Rhizophagus parallelocollis Gyll.—In similar situations, but much rarer; mostly by single examples, occasionally in company with the last. First taken in a rotting cabbage root in 1943.

**Monotoma spinicollis* Aubé. (The species of this genus listed here live in compost, rotted grass mowings and decaying vegetable matter of most kinds, hibernating in the imago state.)—Very sparing indeed;

*As in past instalments of this list, the asterisk indicates species generally uncommon, rare, very local, or of restricted distribution—without reference to the garden.

found singly at intervals from 1948 onwards, but so far only in autumn; usually together with some of the following.

Monotoma picipes Hbst.—Common as a rule; also taken flying, or swept off herbage in warm weather near its breeding-places.

(*)*Monotoma brevicollis* Aubé.—Equally common, and perhaps of even more regular occurrence. Once in some numbers amongst mouldy orange-peel; a specimen beaten from cherry blossom in May 1953. (Why this species should be considered rare surpasses my comprehension. I have found it as freely as any of the genus not only here but in other localities in the south-east.)

Monotoma bicolor Villa.—As for *M. picipes* above, but sometimes more plentiful and sometimes less; not so often at large as the last two species. On one occasion, in November 1944, it was present in numbers in old grass-mulch to the apparent exclusion of its congeners.

Monotoma testacea Mots. (= *rufa* Redt.).—In rotting grass heaps; extremely scarce here; one or possibly more about 1937, and another in August 1953.

Monotoma longicollis Gyll.—Found singly at rather long intervals, in cut grass, etc.; once by sweeping; first taken in the spring of 1933 from a pile of old dahlia roots. For a few days in August 1953, however, it occurred in plenty in some mouldy and well-rotted mowings.

SILVANIDAE (=CUCUJIDAE auct., partim).

Ahasverus advena Waltl.—Of this species, originally an alien but for some thirty years established in the open, an example was obtained from a mass of putrid kitchen refuse containing many rotten apples, 28.ix.52.

LATHRIDIIDAE.

Found in a variety of habitats, but most if not all feed on cryptogamic substances,—often the spores and hyphae of moulds; they occur throughout the year, more sparingly in winter. The family is well represented in the garden fauna and several of the less common species have been met with.

Lathridius lardarius Deg.—Only in fairly recent years, and by solitary specimens; swept off grass in the summer months, occasionally in vegetable refuse. The first was beaten from twigs and foliage in a shrubbery, 6.xi.51.

Lathridius (Coninomus) nodifer Westw.—Exceedingly common generally, and especially on mildewed articles of any sort, in heaps of mouldy vegetation, etc.; also by sweeping and beating, and hibernating among withered leaves and twigs, in shrivelled rotten apples on the ground, in dry carrion, and in humus.

**Lathridius (Coninomus) bifasciatus* Reit.—This interesting Australian species, first detected in Britain at Esher, Surrey, by the writer (1951, *Ent. mon. Mag.*, 87: 114) has by now become quite common over an area stretching from Sussex to Essex and will doubtless continue to spread. It appeared in the garden only a year after its discovery in this country, and soon became (and remains) fairly frequent. Found in piles of dead grass and other mouldy plant material, such as decaying roots; and by sweeping

Enicmus minutus L.—Unaccountably rare; taken singly from time to time since 1951; in a piece of dry boletus, by sweeping, from old

cabbage stems, etc. (Like *L. nodifer* it is a common cosmopolitan insect found all over Britain.)

Enicmus transversus Ol.—Generally abundant, but rather more periodic in its incidence than *L. nodifer*. In all kinds of decomposing herbage, especially when somewhat dry and mildewy; on trees and bushes, in moss and dead leaves; odd specimens at carrion. See also below under *E. testaceus*.

Enicmus histrio Joy.—Found very sparsely from 1952 only, though a look-out had been kept for it for some years before; in the past two seasons, however, it has been less infrequent, now and then even outnumbering its close ally *E. transversus*. Mostly in vegetable debris, in traps of dead grass, etc. Also occasionally by beating and sweeping, and once on the wing near the above-mentioned heap of cabbage stalks.

**Enicmus testaceus* Steph.—A fine specimen under some small sawn-off boughs of horse-chestnut lying on a patch of waste ground since the previous summer, numerous *E. transversus* being present, April 1953; a second taken climbing up a wooden paling beneath which was a quantity of old wood, in July of the following year. (Usually found in small powdery fungi growing on dead trunks and stumps, and not so rare as generally indicated.)

Enicmus brevicornis* Man.—An example of this very local and scarce beetle was swept off rank grass on a warm day in May 1951 and recorded in the same year in *Ent. mon. Mag.*, **87: 255; it is properly a forest insect, occurring as a rule under bark or about freshly cut trees, and may perhaps have been casually imported into the district with timber. On the other hand, the specimen could have come from a poplar which was being felled and sawn up at the time, beyond the field next to the garden—a point I omitted to make in the note referred to. (Although, of course, the present one must be regarded as a visitor, five out of our eight species is a good proportion to have occurred in the garden.)

Cartodere fliformis* Gyll.—Another very rare Lathridiid which has so far been met with but once, a specimen having been sifted out of a small pile of dead grass (scythed, not mown—such piles form excellent traps) in September 1954 (1955, *Ent. mon. Mag.*, **91: 6). The species seems not to have been previously found out of doors in Britain, except perhaps once. (Oddly enough I have taken no other example of a *Cartodere* in the district.)

Corticaria impressa Ol.—One shaken from old roots as long ago as 1933 remained the sole record up till lately; in the past few years it has become not uncommon, at least in spring and autumn, in various sorts of vegetable rubbish and especially in the grass traps.

Corticaria elongata Gyll.—Twice singly in siftings of rather dry straw litter; 18.ix.54, 30.ix.55. Its apparent scarcity in the garden is strange.

**Corticaria crenicollis* auct. Brit. nec Man.—Under the same conditions as the last, and single specimens under dead grass and on a wall over a pail of kitchen refuse; mostly in late summer and autumn. It first turned up in a little heap of straw- and grass-litter in July 1953, in which most of the examples were taken that year and the next. Always found sparingly.

**Corticaria ferruginea* Marsh.—A very dark specimen sieved from

debris of nearly dry grass-cuttings, 8.ix.52, is the only one that has occurred.

Corticarina gibbosa Hbst.—General and very common; in vegetable rubbish of every sort and at all times of year, and sometimes plentiful by beating and sweeping. Also found in loose soil under dry carrion, at roots of herbage, and in moss and dead leaves.

Corticarina similata* Gyll.—An uncommon species first met with in May 1951; between June and September 1952, it was obtained in small numbers by beating shrubs under trees overhanging a wall, usually in company with the last or next species or both; since when it has occurred singly here and elsewhere in the garden, e.g. hibernating in holly, off flowers of lilac and golden-rod, and by sweeping long grass under apple trees. Said to be connected with spruce and oak, neither of which grows nearby. (See *Ent. mon. Mag.*, 1952, **88: 258.)

Corticarina fuscula Gyll.—Fairly general, but much less abundant than *C. gibbosa*, with which it is often associated; the habitat-range is similar.

COLYDIIDAE.

The two members of this family here represented are both subterranean, blind, sluggish insects hard to find, and easily overlooked even when one has them before one on the collecting sheet.

**Anommatus 12-striatus* Müll.—In the damp bottom layers of vegetable refuse (chiefly straw, grass-litter, etc.) and in the earth and humus beneath; more seldom under boards and suchlike traps in moist places; not common, although occasionally taken rather freely in recent times. The first was found under a stick lying on bare ground, in March 1949.

Langelandia anophthalma* Aubé.—A rare species recorded from only three British localities until I turned it up in the garden (1954, *Ent. mon. Mag.*, **90: 42); it occurred there in October 1953, together with the last species, in the rich loamy soil of a small mound (the remains of a marrow-bed) and in the lower layers of dead grass and debris of straw that had been placed on it. A good series was secured by hard work, but it is a curious fact that except for a few more examples in the next month not a trace of the beetle could be found at any time subsequently.

MYCETOPHAGIDAE.

Typhaea stercorea L.—A specimen of this long-expected species was brushed from herbage near a compost heap, 30.ix.55.

ENDOMYCHIDAE.

Mycetaea hirta Marsh.—Twice singly under dry bark on a piece of old log, v-vi.51; in the last three years it seems to have increased and now occurs rather regularly (but still nearly always by single specimens) in dead grass and other refuse; sometimes under pieces of wood on bare earth at base of fence.

COCCINELLIDAE.

**Adonia variegata* Goeze.—One example amongst raspberry-canecanes, 10.vii.52. In my experience it is very local; I have never seen another in the district.

Adalia bipunctata L.—Abundant throughout; especially on roses and, of course, other plants and trees particularly favoured by aphides.

It is the only ladybird that I know to enter the house for hibernation; a few are noticed each spring trying to effect an exit, but four years ago it took up winter quarters in large numbers in my study along the upper angle of the window frame.

Adalia 10-punctata L.—Very frequent but, as a rule, hardly as common as the preceding, with which it generally occurs. I have, however, no record of finding it in winter either indoors or out, so that its habits in this respect may differ. As with *bipunctata*, the ordinary range of variation is found.

Coccinella 7-punctata L.—A good deal less plentiful than either of the last, and much commoner in some years than others; perhaps most often seen in spring and autumn, and (in contrast to them) more on low plants than on trees or bushes. Not seldom found hibernating in straw, vegetable rubbish, etc.

Coccinella 11-punctata L.—A single specimen by grubbing at the edge of a flower-bed, end of April 1953, is the only one I have seen anywhere hereabouts; the species is commoner near the coast than inland, and like *A. variegata* above is evidently a casual visitor to the garden.

Thea 22-punctata L.—This very pretty little species was not observed earlier than about 1948, but has become not uncommon and can almost always be found in a particular part of the garden by sweeping coarse grasses, or between late autumn and early spring at roots of docks, etc.

Propylea 14-punctata L.—General and more or less common, more so in certain seasons (as 1953), but not hitherto seen in winter. Habits similar to the two *Adalia* species; not strikingly variable.

Exochomus 4-pustulatus L.—Not noticed before the present decade, but possibly passed over earlier with the common red-spotted black form of *A. bipunctata*, which it much resembles in a general way. On fruit trees and bushes, especially apple, in the summer months. (Often regarded as attached to fir trees, and doubtless commonest in heathy areas.)

Rhizobius litura F.—By general sweeping (not beating) in summer, and very often at roots of herbage and under refuse from autumn to spring; common. Very dark forms approaching *ab. maura* O'Mah. occur. Abnormally rare in 1953.

Scymnus auritus Thunb.—One from foliage of *Pyrus japonica*, August 1952; a second by sweeping mixed weeds, September 1953.

**Scymnus punctillum* Weise.—Occasionally from 1944 onwards, on the wing, by beating, etc.; more than once off pear trees, and of late years in some small numbers on the foliage of a plum tree in early summer.

CORYLOPHIDAE.

Sericoderus lateralis Gyll.—Amongst decaying vegetation, grass cuttings, etc.; moderately common, but rather irregular in incidence.

PHALACRIDAE.

Phalacrus coruscus Panz.—A specimen swept from long grass under fruit trees, June or July 1953.

Olibrus corticalis Panz.—By sweeping low plants and rank weeds, summer and autumn, since 1950 or thereabouts; sporadic, and not often

seen in the last few years. Has been swept in small numbers from groundsel in flower.

Olibrus aeneus F.—As for the preceding, but somewhat more common; has been taken from flower-heads of *Achillea eupatoria*, and may be associated in the garden with *A. millefolium*.

Stilbus testaceus Panz.—At roots of grass, etc., in early spring; rare.

BYTURIDAE.

Byturus tomentosus Deg.—In the flowers of raspberry, loganberry and blackberry, on whose fruits the larvae feed; often also on other flowers; common. (The nomenclature of the genus has been much confused; this is the smaller species with smaller eyes. I cannot at present follow some recent authors in splitting off from it another species—*urbanus* Lindem.)

CRYPTOPHAGIDAE.

In feeding-habits these agree for the most part with the Lathridiidae.

**Antherophagus pallens* F.—In flowers of weigelia (*Diervilla* sp.) in a shrubbery, where it was first found in 1952, and usually when worked for since. Occurs sparingly, May to July. Probably breeds in bees' nests in the vicinity.

**Cryptophagus (Micrambe) villosus* Heer.—Occasionally in late years by sweeping rough herbage. (N.B.: this is not synonymous with *vini* Panz. as given in the Check List of Kloet & Hincks, p. 188.)

Cryptophagus setulosus Stm.—By sweeping lush grass, especially near or under trees, towards evening; once or twice in vegetable refuse in late autumn; very uncommon. Believed to breed in bees' nests.

Cryptophagus pilosus Gyll.—One of the commoner species of the genus in the garden, yet never plentiful. In heaps of rotting herbage, straw litter, etc., sometimes in winter.

Cryptophagus scanicus L.—Found under similar conditions, and odd specimens by beating hedges, sweeping, etc.; can hardly be called common.

Cryptophagus postpositus J. Sahlb.—Taken singly since 1943 at rather long intervals in various situations: in decaying cabbage roots with several *C. pilosus*, by brushing pear foliage, and on two or three occasions in compost and grass traps. (This species is the *C. hirtulus* and *C. badius* of most of our collections.)

Cryptophagus dentatus Hbst.—Apparently rare in the garden, but often difficult to separate from the next; the first certain record is of one sieved out of mouldy shrivelled apples, October 1952; one or two in subsequent years from vegetable refuse. (Often common under bark and in fungi in other areas.)

Cryptophagus pseudodentatus Bruce (= *pallidus* Joy nec Stm.).—Infrequent, but less so than the last species; odd examples by sweeping, in flight over rotting herbage, in dead grass debris and hibernating in holly tree.

**Cryptophagus pallidus* Stm. (= *fowleri* Joy).—One beaten from a plum or apple tree in June 1950 is the only securely identified specimen, but the species can be hard to distinguish from the unicolorous form (*patruelis* Stm.) of *C. scanicus*.

Cryptophagus acutangulus Gyll.—This very distinct species has been met with at intervals from 1933 to the present, but occurs only sparsely, almost always singly; in grass-heaps, decaying vegetable matter (four

or five specimens once, with more *C. pilosus*, in old cabbage roots), on the wing, on a fence, etc.

Cryptophagus pubescens Stm.—Chiefly by evening sweeping, especially long grass under trees, and occasionally by beating blossoms; first taken 8.ix.50, and odd specimens from time to time since. Breeds in bees' and wasps' nests.

(Another species, *affinis* Stm., has occurred once in the house, and it and two or three others may well be found eventually in the garden—where, it may be noted, not one species of *Cryptophagus* is really common as are some of those of *Atomaria*, although ten have occurred. For a revision of our species of this difficult genus, see Coombs and Woodroffe, 1955, *Trans. R. ent. Soc. Lond.*, **106** (6): 237-282; and the same authors give a useful annotated check-list in 1955, *Ent mon. Mag.*, **91**: 249-50.)

**Atomaria fuscicollis* Man.—One was captured in a pile of cut grass as far back as April 1933, and remains unique in the garden records.

Atomaria linearis Steph.—In debris of grass-heaps and other decaying plant material, but perhaps more often by sweeping rank weeds or long grass, in sultry weather, or around sunset; also taken flying in the neighbourhood of rotting vegetation; erratic in occurrence and never very numerous.

Atomaria fuscata Schön.—In more diverse situations than most of the species; by general beating and sweeping and at roots of plants, as well as sparingly in grass-heaps and most kinds of refuse; mainly in summer.

**Atomaria lewisi* Reit.—An interesting species which when first taken in the garden (three from a grass-heap, 1937) was new to Europe, being recorded only from the Far East. From that time it became more or less common in the garden and has remained so ever since; sometimes the most plentiful of the genus in vegetable refuse (especially in early autumn), at others it is scarce or not seen—though seldom for long. Also to be found sparingly in winter, and, like most of the species, by sweeping in fine weather near its breeding-sites. (Subsequently detected in Holland, Sweden and Norway and in several more British localities.)

Atomaria atricapilla Steph.—Common in similar habitats; found also at roots of herbage, in moss, humus, and surface soil throughout the year, and very frequently by sweeping.

Atomaria pusilla Payk.—Exceedingly rare; singly in siftings of straw litter and swept from long grass under fruit trees at sundown (vi.53; ix.54).

**Atomaria berlinensis* Kr. (*bicolor* auct.).—Not seen until 1951 and very rare for the next year or two, but during the last few has been found in some numbers at times, and is now not scarce, though erratic. On one occasion it was the dominant species for a week or two in old cabbage stems. Hitherto not encountered by sweeping, nor hibernating.

Atomaria mesomela Hbst.—An example swept off mixed vegetation, 25.v.53. Clearly a stray from a pond then existing not very far off, where the species was common.

Atomaria apicalis Er.—In company with the following species, but of less common and regular occurrence.

Atomaria ruficornis Marsh.—The most abundant of the genus in the

garden, occurring throughout the year in all the above situations, and often copiously in vegetable refuse; generally with some of the other species, but can always be found even when they are absent.

Atomaria analis Er.—As for *A. pusilla*; seemingly most uncommon, a very few specimens having been taken during recent years.

Ephistemus globulus Payk.—Common as a rule in all sorts of decaying plant remains, cut grass, straw litter, etc.; sometimes in profusion; casual specimens swept up on hot days.

DERMESTIDAE.

**Megatoma undata* L.—Not known to breed in the garden until last year, 1955, when, and again this year, it was found with its larvae, very sparingly, on fences and once on the trunk of a plum tree, in May, living on spider exuviae and the remnants of insects caught in their webs.

Anthrenus verbasci L. (*varius* F.).—Our local 'carpet beetle', only too common indoors and a fearful pest of boxes of insects as I know to my cost. Also in the garden from May to July on flowers; especially fond of parsley and golden-rod.

Anthrenus museorum L.—Unlike the last, does not appear to breed in the house (though I believe it once occurred in an old cupboard years ago). On flowers during the summer months, often with one or both of the other two species; only definitely observed in recent times, but probably overlooked earlier, and not uncommon.

Anthrenus fuscus Ol. (*claviger* Er.).—Habits and incidence similar to *museorum*, or if anything rather more frequent. These two species have been shaken, together, from thistle-heads (including the globe-thistle, *Echinops*, really a teasel) and golden-rod, etc. The present one seems to be wholly an outdoor species; all three probably breed freely in birds' nests.

(Two other members of the family, *Dermestes lardarius* L. and *Attagenus pellio* L., have occurred in the house in past years—but only casually. Both, however, live outdoors in many localities, the former in old carcasses and the latter in birds' nests and flowers, but neither can so far be claimed as an inhabitant of the garden.)

BYRRHIDAE.

Simplocaria semistriata F.—Under stones and other cover, at grass-roots along base of fence, etc.; mostly in rather dry conditions; also by pulling up chickweed on cinder path, and once crawling on asphalt in spring; found sporadically from about 1934 onwards.

Cytilus sericeus Forst.—A solitary example was dug up from turf in a small area of lawn allowed to go fallow, April 1951, but no other has been met with. The species is thought to feed on moss, of which there is little in the garden but a few patches on the lawns.

(To be continued.)

Book Notes

A year ago, reviewing in these pages a catalogue of entomological books which had come to us from abroad, we remarked that the legend of the Englishman's wealth still persists on the Continent, books printed in England, no matter how common or even trivial being, almost

invariably, highly priced. Happily this complaint does not apply to most of the books in the Natural History catalogue of Asher & Co. of Amsterdam, which has recently come to our hands. This large catalogue contains 5,423 items and has quite a number of 'plums' for book-hunters. With one or two exceptions the prices, even of well-known and desirable books, are moderate; certainly they are no more than would be asked for the same books in this country. Who would grudge paying the equivalent of 40 guilders (about £3 15s) for "a fine copy" of the rare first edition of Belt's *The Naturalist in Nicaragua* (London, 1874) with the coloured map and text illustrations and, best of all, in the original cloth binding? A snip for someone.

Barrett's big book in 11 royal octavo volumes, 1893-1907—the large paper edition with 504 coloured plates—is certainly cheap at less than £26, cheaper perhaps than it usually is in this country. Nor is twelve guineas exorbitant for Distant's *Rhopalocera Malayana*, 1882-6, with its 46 coloured plates. And if we had the money to spare we should be sorely tempted by the *magnum opus* on the butterflies of France by Godart, Duponchel and Guénée, in all 15 volumes (Paris, 1821-44) with 545 exquisite hand-coloured plates—"a very fine copy" bound in half green morocco—at little more than £55. Sepp's magnificent book—the three series complete (13 vols.), with 610 hand-coloured plates, is certainly moderately priced at £150 seeing that owing to the extended period over which this splendid book was issued (it was begun in 1762 and finished only in 1928!) complete sets are exceedingly rare. This copy too is finely bound in full morocco, richly tooled. Sepp's plates are usually reckoned second only to those by Jacob Hübner. This fine book is in the nature of a gilt-edged investment.

Cantering through the nine hundred and more entomological items of this voluminous list our eyes lit upon a book which we do not remember to have seen in any other catalogue for a great many years. It is described as "Very scarce. A fine copy", and the price is in the neighbourhood of thirteen pounds. It is indeed a scarce book: we know of only one copy outside the great libraries, and that is in the collection of one of our learned societies. The author is John Hill and he is best known to entomologists as the reviser of Swammerdam's *Book of Nature*. The title-page of Hill's book reads: *A Decade of Curious Insects: some of them not described before, shown in their Natural size; and as they appear enlarged before the Lucernal Microscope*. It was published at London in 1773 and is a quarto of only 24 pages; its interest lies in the ten coloured plates with which it is embellished. Alas, our book-collecting days are over, or a telegram would have been despatched to Amsterdam ere this.

Our old friend Tom Muffet of course puts in an appearance—judging by the frequency with which his books occur in catalogues he must have been the 'best seller' of his day, at least so far as 'scientific' books were concerned. On this occasion he is represented by his *Insectorum sive minorum animalium Theatrum*, 1634, with some 500 woodcuts—not forgetting the one of a ferocious pussmoth larva which must always evoke a smile from the lepidopterist. Ninety guilders is the ransom for this copy, which is about £8 10s. As every entomological bookworm

knows, Muffet drew upon the works of Edward Wotton, Conrad Gesner and Thomas Penny. Of Wotton's splendidly printed book *De Differentiis Animalium*, printed at Paris in 1552, we have long since given up hope of ever finding a copy. We have never seen one outside the British Museum, though possibly there are copies at the Bodleian and Cambridge, and perhaps at Edinburgh.

Current Notes

The Nature Conservancy announces the establishment of four new reserves as from 17th July 1956. Lullington Heath reserve consists of 115 acres of Downland heath three and a half miles north-west of Seaford, Sussex. It is described as the site of prehistoric or very early cultivation which has been turned over to uncultivated grazing land for many hundreds of years. This land shows the curious combination of a shallow acid top soil supporting shallow-rooted acid-loving plants such as heathers, with the chalk, only a few inches below, supporting lime-loving deep-rooted plants. Careful records of changes in vegetation subsequent on the incidence of myxomatosis have been and are being made, and in consequence of this, those wishing to collect animals or plants should first apply for permission. The Conservancy's address is 19 Belgrave Square, London, S.W.1.

Cothill Nature Reserve, Berkshire, covers only $4\frac{1}{2}$ acres and has been leased from the National Trust. It is noted for the richness of its flora and fauna and has been used extensively for instructional purposes. Access is by permit only, for which application should be made to the Regional Officer, Fursewood Research Station, Wareham, Dorset. We hear that the Conservancy is negotiating for further adjoining sites.

Newborough Warren and Ynys Llanddwyn reserve in Anglesey has now been extended under lease from the Glynllivon Estate by a further 500 acres. This is an area of dunes, three miles west of Caernarvon across the Menai Strait, with biologically and botanically rich "slacks" or damp dune hollows. The site is used extensively by students, and collecting is by permit from The Conservation Officer, Wales Nature Conservancy, c/o School of Agriculture, University College of North Wales, Memorial Building, Bangor, Caernarvon.

The reserves at Axmouth and Lyme Regis undercliffs have now been united by the addition of 86 acres lying between the two areas, under lease from the Governors of Allhallows School. This now covers $6\frac{1}{2}$ miles of undercliff foreshore and includes the chasm left by the landslide of some seven million tons of rock in 1839, in which a natural ash wood has established itself. Permits for collecting should be obtained from Wareham as for Cothill, above.

At Whitsun this year I visited the New Forest and went to a part where previously there were many rotting beech stumps standing, from which many *Tinea* species could be disturbed and also the Oecophoridae associated with rotting wood, including *Schiffermulleria grandis* Desv. if one's luck were well and truly in. To my dismay, on this visit the spot had the aspect of a London park; these stumps had been removed or sawn off at ground level and the whole place had been organised out

of existence. I expect the next visit will show public seats, litter bins, and a uniformed official complete with spiked stick assisting in the filling of these bins. Alas, for the Old New Forest!—THE EDITOR.

Notes and Observations

CELERIO GALII SCHIFF. AND PLUSIA BRACTEA SCHIFF. AT SHEFFIELD.—You may be interested to know that I took *Celerio galii* in the trap in my garden on 22nd July 1956. It is in such perfect condition that it looks as though it had just emerged, but I expect it has travelled for many miles under its own wing power. *Plusia bractea* turned up in the second week of July—the first I have seen in Sheffield.—W. REID, 6 Whirlow Park Road, Sheffield. 23.vii.56.

ACHERONTIA ATROPOS L. AT KENDAL.—A friend, Mr. N. S. Halliwell of Burton, to-day brought to me an extremely battered but identifiable specimen of a female *A. atropos*. This had been seen fluttering in a garden in Kendal about a week earlier and was then caught and mauled by a dog. Though all the markings were almost gone, the yellow and black striping of the abdomen was clearly visible and served to identify the insect.—Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal, Westmorland. 1.viii.56.

ACHERONTIA ATROPOS L. AT WESTON-SUPER-MARE.—I took a fine specimen of *Acherontia atropos* L. in my moth trap in this garden on the morning of 8th August.—C. S. H. BLATHWAYT, Weston-super-Mare. 9.viii.1956.

LITHOSIA QUADRA L. AT WESTON-SUPER-MARE.—So far as I am aware *Lithosia quadra* L. does not occur regularly in this neighbourhood. It may therefore be of interest to record the occurrence of 27 specimens during the latter part of July in my moth trap in this garden as follows: 19th July, one; 24th, one; 25th, three; 26th, fourteen; 27th, eight. All the specimens were males with the exception of one female on 26th July.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 9.viii.1956.

LITHOSIA QUADRA L. AND ORIA MUSCULOSA HB. IN SURREY.—It may be of interest to record that on the night of 27/28th July 1956, three specimens of *Lithosia quadra* L. and one specimen of *Oria musculosa* Hb. were taken at light at Woking.—E. TRUNDELL, Sedge Cottage, Golf Club Road, Woking, Surrey. 3.viii.1956.

MIGRANTS ON LUNDY ISLAND.—During a two-hour visit to Lundy Island off the North Devon coast on the afternoon of 7th August I noticed that *Vanessa cardui* L., *Macroglossum stellatarum* L. and *Nomophila noctuella* Schiff. were all comparatively common on the island. As the more usual migrants do not seem to have been at all plentiful so far this year it may be worth while mentioning the above.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 9.viii.1956.

CACOEZIA AERIFERANA H.-S. IN SURREY.—While looking through some recently captured and still unidentified micros, Mr. S. Wakely drew my attention to a fresh male of this species. It had been taken in my

garden mercury vapour moth-trap on the night of 6-7th July 1956, apparently rather an early date. None has been seen since then.

Since first recorded by Dr. Scott as occurring in 1951 near Ashford, Kent (*Entom.*, **85**: 170) this species appears to be spreading rapidly. This is the furthest west record, and, I believe, the first from Surrey.—ROBIN MERE, Mill House, Chiddingfold, Surrey. 31.vii.1956.

EMERGENCE OF *CALLIMORPHA JACOBÆAE* L.—Last year I bred some larvae of *Callimorpha jacobæae*, a few larvae escaping from the cage and pupating in cracks and corners of the room. Of these larvae, two moths emerged on 15th March, one while I was away in April, the majority in May and early June, and one as late as 3rd July. They were not of course under natural conditions, but this was an extremely long period of emergence. I was surprised on 2nd August to find an almost fresh example in my m.v. trap. The time of emergence of the ones which I observed was between 10 and 11.30 a.m.—ALAN KENNARD, Torns, Ashburton, Devon. 4.viii.56.

EARLY *CALLIMORPHA JACOBÆAE* L.—The first specimen to appear in Cambridge was seen on 6th April, and whilst not so early as that recorded by Mr. Pitman in the May issue of the *Record*, rather confirms that this species may have come out early generally this year. Several more specimens were seen towards the end of April and beginning of May, both by myself and three friends in different parts of the city who were struck by the colour of the moth and showed me the specimens. It has certainly been commoner than usual here this year, as well as earlier.—B. O. C. GARDINER, 43 Woodlark Road, Cambridge. 12.vi.1956.

A VARIETY OF *THECLA W-ALBUM* KN.—Extreme varieties of *T. w-album* Kn. are very rare and none are figured by Frohawk in his various works on British butterflies. Richard South, however, in his well known publication *Butterflies of the British Isles* states, when describing this species, that Barrett refers to a specimen in which there is "on the underside an extension of the white colour from the white line towards the margin, in the forewings forming a broad wedge-shaped band, but in the hindwings occupying the whole space from the white line to the orange band".

It is interesting to record that I took an example of this very striking variety at Tilshead this morning. What is even more extraordinary is that, although I have been stationed here for the past three years, this was the first occasion on which I have seen the butterfly in this isolated village on Salisbury Plain. It was one of four feeding on flowers in my garden.—Brigadier C. G. LIPSCOMB, Tilshead House, Tilshead, Wilts. 24.vii.1956.

A VARIETY OF *AGLAIS URTICÆ* L. IN SUSSEX.—An interesting aberration of *Aglais urticæ* L. was taken on 23rd July 1956 by Mr. F. de la M. Norris in his garden at Crowborough, Sussex, and, by his generosity, is now in my possession. It approaches very closely to ab. *nigra* as depicted on plate 22, fig. 4, in Frohawk's *Varieties of British Butterflies* excepting that the hindwings have a rather greater suffusion of red-brown and carry a series of diminutive blue lunules.—F. DENE GREENWOOD, Solefields Lodge, Sevenoaks, Kent. 9.viii.1956.

STERRHA RUSTICATA SCHIFF.—RESIDENT OR MIGRANT?—I was interested to read A. H. Dobson's views on the status of *Sterrha rusticata* Schiff. in south-west England (*Ent. Rec.*, 68, 121). It is unfortunate that he did not reply to a letter asking for information before my original article was compiled (*Ent. Rec.*, 67, 45).

It is possible that the specimen in question, taken on 2nd June 1949, was a migrant, but surely then, that taken by Lupton on 1st August 1918 cannot be, if continental *rusticata* flies earlier than the British? Why, too, is the bulk of the south-east coast—generally a good area for migrant insects—so free from *rusticata* records at the present time? And why are almost all the records of the species from coastal regions? Migrants would surely also be found inland.

We have been told that a colony of *rusticata* still exists at Portland, the "home" of *Sterrha degeneraria* Hb.; could not the factors which have caused the extinction of *degeneraria* at Torquay have had a similar effect on *rusticata* a few years later? Have other readers any views on this question?—A. J. SHOWLER, 19 Harvel Crescent, Abbey Wood, S.E.2. 11.vi.1956.

GENTIANAS AND MOTHS.—With respect to the article on "Gentians and Moths" in the *May Record* (pp. 129-132) it may be of interest to note that recently I found *Gentia verna* particularly plentiful in the Dolomites; they were blooming in dense masses which made one regret not being expert in colour photography so as to be able to record the lovely sight. I took a specimen of what I take to be the true *Stenoptilia graphodactyla* Treits., which species should not be too difficult to separate from our *S. pneumonanthes* Schleich. The best distinction is the whitish line across the posterior part of the thorax and tegulae of *graphodactyla* which does not appear in *pneumonantes*. The light pinkish brown dorsal shade is clearer in the former species, while in the latter it is not very distinct, and is often absent. A genitalia check, of course, would be desirable should a supposed example of *graphodactyla* be taken in this country.—S. N. A. JACOBS.

AGLAIS URTICAE L. ABS. NIGRA AND SEMINIGRA IN WILTSHIRE.—On Sunday, 8th July this year, my wife and I took our tea to a collecting ground on the outskirts of a wood on Salisbury Plain. The object of our expedition was for myself to look over the great number of *A. aglaia* and *A. adippe* which have put in an appearance this year and for my wife to spend a quiet afternoon with a book and the Sunday papers.

After parking our car at the edge of the wood I set off up a favourite valley, wooded on one side and with open downland on the other. On the valley floor there is one small bed of nettles.

My dog accompanied me and I had not gone far when he flushed an *A. urticae* from some long grass in which he was poking about. Although it was some way off it looked peculiar, so I marked it down and made my way towards the spot where it had settled. When I reached it I found to my joy that it was a lovely var. *nigra* sitting with expanded wings on a bare patch of soil. Without more ado I clapped my net over it and that was that.

My search for varieties of the two big fritillaries proved fruitless and I eventually returned to the car for tea or, to be more accurate, a thermos of iced coffee. Refreshed, I set off again up the same valley and presently saw another *urticae* which looked abnormal. This one

refused to settle and was chased and bullied by every male *aglaia* it encountered as it flew over the open downland. I personally lost a lot of weight trying to keep up with its wanderings, but eventually a patch of wild thyme took its fancy and it settled to feed. This time the wings were closed, but I had already seen enough to know it was something good and it was a matter of seconds to carry out the final stalk and bang the net down over it. The capture proved to be a very fine var. *semi-nigra* with black hindwings, but with the forewings not quite so extreme as in the true var. *nigra*.

The following day, 9th July, I found time to get back to my valley in the late afternoon, nor was I disappointed, as I took another extreme var. *nigra*. This time, there was no exciting chase as the butterfly was sitting waiting for me, basking with open wings in the late afternoon sun in the heart of the one and only nettle bed.

On neither day did I see more than a dozen *urticae*, and as the three varieties were in mint condition I imagine they must have hatched locally and originated from the same brood.

This particular area suffered severely from the May frosts this spring which killed all the young fresh growth on the lower branches of the trees at the bottom of the valley. Assuming that the *urticae* larvae which produced these varieties were bred in this valley they must have been subjected to great extremes of temperature in the early stages of their development, but whether under natural conditions this would cause variations I don't know. Perhaps some entomologist with greater experience than I have would care to elaborate on this possibility.

To revert to the original object of my Sunday expedition, I have never seen *aglaia* and *adippe* so abundant as they are this year. Near my car were some fresh cow droppings on which at one time on Sunday I counted no less than thirty-seven of these butterflies, all males, as they sat and indulged their rather doubtful taste.—Brigadier C. G. LIPSCOMB, Tilshead House, Tilshead, Wilts. 10.vii.56.

PAPILIO MACHAON L.: A POSTSCRIPT.—In my article on *P. machaon* (*Ent. Rec.*, 67: 220) I mentioned that eight out of sixteen pupae were going over the winter. From all of these, imagines emerged in due course, but whereas last year all the butterflies emerged between 1st and 5th August, the period of emergence this year was a very long one, extending from 26th May to 2nd July, and falling roughly into two divisions, the first lasting from 26th May to 5th June, during which four imagines emerged, and the second from 21st June to 2nd July, during which the other four emerged. There were six males and two females. From the pupa which had wintered in a horizontal position there emerged an imago crippled in all four wings. One of the males, though otherwise perfect, was very small, measuring only 67 mm. across the wings.

I have heard recently that there were plenty of larvae of *machaon* on the Broads last September, and a large number of imagines on the wing this June, which is reassuring news.—H. SYMES, 52 Lowther Road, Bournemouth, Hants. 26.vii.1956.

ANTS ATTACKING LARVAE.—Going one morning to a cage containing some second instar larvae of *Platysamia ricini* I was horrified to find it overrun by ants (*Lasius niger*?). These were attacking the unfortun-

ate larvae vigorously and carting them off to their nest; sometimes three ants were carrying the same larva and some larvae had already been partially devoured by the ants. Larvae which had been seized by the ants' mandibles did not recover and only a few of the brood were left.

A cabbage plant containing some first instar larvae of *Pieris brassicae* L. was placed near the ants and these suffered the same fate. Some emerging pupae of *P. brassicae* were then offered and the unfortunate butterflies were devoured by the ants before they had had time to spread their wings. I am informed that the ants must have been hungry for protein food.—BRIAN O. C. GARDINER, 43 Woodlark Road, Cambridge. 12.vi.1956.

LEPTIDEA SINAPIS L. VAR. GANAREW IN SALCEY FOREST.—I enjoyed reading about A. B. Farn, and was interested to learn that he had discovered the var. *ganarew* of *L. sinapis*, as I had the luck to capture one of these at Salcey Forest on 6th June. It is in prime condition. I am curious to know how frequently—or infrequently—the variety occurs.—F. H. N. SMITH, "Turnstones", Perrancombe, Perranporth, Cornwall. 19.vi.1956.

[Mr. F. W. Byers recorded *L. sinapis* ab. *ganarew* from "one of the larger Northamptonshire woods" (which we believe was Salcey Forest) in 1951. See *Ent. Rec.*, 63: 176.—ED.]

ABRAXAS SYLVATA SCOP. AT DOVER.—In a note to *The Entomologist* (72: 220) G. H. Youden records the discovery of this species on the outskirts of the town after many years' absence, and in 'The Butterflies and Moths found in the Dover and Deal District of Kent' he states "several were taken at Kearsney and Temple Ewell in 1939". In view of the fact that what appears to have been its headquarters here is now being destroyed, I should like to put on record that I have taken it in the garden of my father's former house, "The Red House", River-in-Dover, Kent (which lies between Dover and Kearsney) in most years between 1938 and 1954; in 1942, for instance, I see from my diary that larvae were common on elm, and in most years the imago could be flushed by beating the hedges.

The last seen were two worn specimens which came to m.v. light during the last week in July 1954. When I was last down in Dover I noticed that the extensive garden of the house, which contained many trees including some half dozen elms and wych elms, was being extensively cleared and much felling was in progress. It will be a pity if *A. sylvata* disappears again from Dover, and if anyone is down that way perhaps he would keep a look-out for it.—BRIAN O. C. GARDINER, 43 Woodlark Road, Cambridge. 12.vi.1956.

EGG-LAYING HABITS OF NYSSIA ZONARIA SCHIFF.—On the 23rd May 1956, Dr. H. B. Williams and I were walking on the sandhills near Ballyconeely in the south-west of Connemara, Co. Galway. This is one of the coastal areas in the west of Ireland where *Nyssia zonaria* is abundant, and, as it was too late in the year to find the moths, we considered whether it might be possible to discover the eggs.

According to Barrett (*Lep. Br. Is.*, 7, 150) the eggs are laid "in masses, in grass sheaths", but on these wind-swept and sheep-grazed sandhills, except in isolated sheltered hollows, there appeared to be no

suitable grass tufts; the ground being carpeted with low-growing stunted plants, including quantities of bird's-foot trefoil, one of the principal foodplants of *zonaria*.

Since several closely related species deposit their eggs in crevices of bark, we considered whether the female *zonaria* might thrust her eggs into the surface of the sand. If this were so, the chances of finding them would be remote indeed. I then noticed that, scattered about the surface of the ground, were numerous small pieces of driftwood and bits of stick, and it occurred to me that any minute cracks in such pieces of debris might be utilized for egg-laying. Having made this suggestion, Dr. Williams replied by pointing to a small piece of stick, about an inch long, lying at my feet, and said "What about that one"? I picked it up, detached a loose fragment, and immediately saw a batch of *zonaria* eggs! The larvae are now being bred by Dr. Williams.

Unfortunately, by the time we had made this discovery it was too late to continue our investigations, but we have little doubt that numerous batches of eggs could be found in this way.—E. S. A. BAYNES, 2 Arken-dale Road, Glenageary, Co. Dublin.

[These eggs duly hatched. There were eighteen larvae, of which sixteen attained full growth and have, I trust, duly pupated. They fed readily on sallow. I find it remarkable that these sandhills should support a strong colony of *zonaria*, but Mr. Baynes has, on a previous visit, found larvae in some abundance.—HAROLD B. WILLIAMS, West Moushill, Milford, Surrey. 6.viii.1956.]

SEASONAL NOTES FROM CAMBRIDGESHIRE.—(i) *Light*. I have now installed the m.v. bulb inside a small room, and have arranged a time switch for the light and an automatic shutter to close the window aperture when desired. In spite of the fact that the rays of the lamp only fan out at about 90°, the catch compares very favourably with a m.v. bulb in the open.

So far there have been few good nights, but several quite interesting species have turned up, such as *Drymonia chaonia* Hb. (4), *Cucullia chamomillae* Schf. (1), *Cerura vinula* L. (1), *Polyploca ridens* Fab. (2), *Selenia tetralunaria* Hufn. (several), *S. lunaria* Schf. (several), *Notodonta trepida* Esp. (1). Many of these have never been taken here at an ordinary light trap.

(ii) *The Breck Area*. Further ploughing of waste land, and two dry springs, have further reduced the vegetation. What is left is very poor both in size and in variety. Flixweed, the food plant of *Lithostege grisata* Schf., seems to have practically died out in the few localities I know for this moth. I can see no reason for this, it just has not come up where last year's dead stalks are plainly visible; as a result I have only seen a few moths this year.

Scopula rubiginata Hufn. I have only seen one specimen by day on a pretty extensive expedition.

Cirrhia ocellaris Bork. I am pleased to report that this insect continues to flourish. The larvae can easily be collected from fallen catkins around Barton Mills, or, if too early, as I was, saw down a bough which has plenty of catkins on it.

The food plant of *Anepia irregularis* Hufn. still occurs very sparingly, as no doubt also does the moth; but what a vast area to explore

for possible good localities still remaining (200 square miles, I am told)!

I can give two hints to collectors in this area:—(a) Have a good look at the area north of Brandon; I hear good reports of it but have not been able to penetrate so far myself. (b) Look well at unpleasant localities such as abandoned plough land (if any) and disused camp sites. I took *L. griseata* this year on an abandoned camp site on which was to be found a herd of bullocks (tame) one dead, lumps of discarded coke and bricks, a derelict hut and some sort of water-purifying plant still working, but no consumers visible for miles! *S. rubiginata*, among several localities, favours a spot used as a rubbish dump, all of which reminds me of an article in, I think, this month's *Countryman* pointing out the strange way in which birds and insects seem to collect round the habitations of human beings, and even such localities as those occupied by refuse dumps and sewage farms.

So far I have done little work in the fens beyond one trip to Chippenham Fen to introduce two friends to *Eustrotia argentula* Hb.—still, I am glad to say (the moth), in flourishing condition.—GUY A. FORD, Balsham Rectory, Balsham, Cambs. 14.vi.1956.

FACTS CONCERNING *HEODES VIRGAUREAE* L. AND OTHER 'COPPERS'.—In the current number of *The Entomologist's Record* I observe that the question of the number of broods produced by *H. virgaureae* has been raised. Fortunately I am in a position to supply first-hand information on this point. For many years I have been engaged in genetical and cytogenetical researches in the Lepidoptera, and amongst the species investigated by me was *Heodes virgaureae*, which I reared from eggs procured from Freiberg in Saxony.

I discovered that the insect possessed a haploid chromosome number of 24. Moreover, to my astonishment, although I bred the butterfly many times, it turned out that it passed the winter in the egg state, and was uniformly univoltine.

Lycaena amphidamas Esp. was also out of harmony with the rest of the 'coppers' with which I worked as it hibernated in the pupal condition. It, also, has a haploid chromosome number of 24.

I also determined the chromosome numbers of *H. dispar* var. *rutilus* Wernb., *H. dispar* var. *batavus*, *H. alciphron* Rott., *H. tityrus* Poda, *Lycaena phlaeas* L. and *Palaeochrysophanus hippothoe* L. All these hibernate as larvae and likewise possess chromosome numbers of 24.

In stating these facts, I have supplied the latest series of kaleidoscopic generic names put forward for the species once so comfortably labelled "*Chrysophanus*".

I should add that, for many reasons, I consider *L. amphidamas* to be out of place in this assemblage. One of these reasons is the circumstance that its larvae feed on *Polygonum bistorta*.—J. W. HESLOP-HARRISON, University of Durham, King's College, Newcastle-upon-Tyne. 29.vii.56.

Current Literature

La Revue Francaise de Lepidopterologie, 15, 4, 1955, has as its cover design a photograph of *Papilio podalirius* L. taken at 1/50 second while alighting on a plant, by the editor, Louis Le Charles. R. Olivier

contributes a note on *Chloroclystis chloerata* Mabilie and its early stages. A. Dumez writes a short collecting note on insects at light including *Simyra büttneri* Hering, and Jean Bourgogne gives some good advice on collecting, killing, setting and storing insects in the light of his vast experience and notwithstanding various existing publications on the subject. J. T. Betz continues his notes on the rehabilitation of the Departement du Nord, and also contributes a note on *Vanessa (Aglais) urticae* L. in high altitudes. C. Dufay writes on the Lepidoptera of the Black Perigord, beginning Part I with the Macro-Lepidoptera of Eygies (Dordogne) giving a long list of species.

No. 5 of the same volume has for cover design an enlarged photograph of the larva of *Procris manni* Led. *in situ* on a *Dorycinum* sp. (?*suffruticosum*) from Roquebrune, Cap-Martin, Alpes Maritimes. L. Le Charles describes an example of the care of ants for a pupa of *Polyommatus (Lysandra) bellargus* Rott. A portion of the ants' nest had inadvertently been taken in a sod containing a root of *Hippocrepis comosa* intended for raising Zygaenid larvae. The *bellargus* larva was noted on the leaves, and on its pupation the ants took precautions for shielding it from the direct sunlight. Jacques Aubert writes his portion of the preliminary revision of the *austriacaria* group of *Calostigia* with two half-tone plates illustrating 53 specimens and text figures of antennae and genitalia. This is Part II of the work started by Part I in the *Zeits. Wien ent. Ges.*, **40 (66)**, 1955. J. Louis Augustin notes Macro-Lepidoptera collected in the Basses Pyrénées, a large proportion of which are not mentioned in the Lhomme catalogue as being noted from this region.

S. N. A. J.

Proc. zool. Soc. Lond., **126**, 1956, has a paper "On the life history of *Trichocera saltator* (Harris) (Diptera, Trichoceridae)" by our contributor Dr. B. R. Laurence. The egg, larva and pupa are illustrated, the habitat of the larva described and its diapause discussed. In dealing with the behaviour of the adult, laboratory work and field collecting have their share. The variation in the adult is mentioned especially as at times the species has been considered to have been synonymous with *T. fuscata* Mg. A brief reference is made to the habits and distribution of the other members of the genus to be found in this country and the paper is neatly rounded off with a summary and list of references. A useful piece of work which shows the need of further study in the field and laboratory to assist the taxonomist in delimiting the species of the genus. The winter gnats have not tempted many to study them, due probably to their appearance as adults being mainly confined to dusk in the winter. It is to be hoped that Dr. Laurence will succeed in attracting more attention to their problems of systematics, ecology and general bionomics. Readers are reminded of his appeal of recent months in our "Exchanges and Wants" section.

L. P.



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Wanted.—Set, named specimens of micro-lepidoptera wanted for cash. Most species required.—W. F. Davidson, 9 Castlegate, Penrith, Cumberland.

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Notes on three common British species of Agrotid Moth

1. Longevity and Oviposition

By M. P. SINGH* and D. K. McE. KEVAN
(Univ. Nottingham, School of Agriculture).

Recent investigations at the University of Nottingham School of Agriculture (Singh, 1956) included observations on oviposition, in the laboratory, by three common species of Agrotid moth, namely *Triphaena pronuba* (L.), *Agrotis segetum* (Schiff.) and *Amathes c-nigrum* (L.). Since details of the biology of these species are surprisingly incomplete, it is thought that the following notes might be of interest.

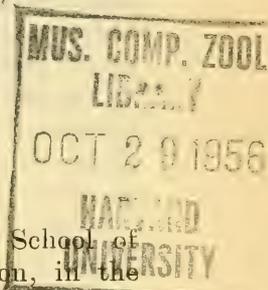
Triphaena pronuba (L.).

There is a considerable degree of variation in the longevity and pre-oviposition periods of adult females of this species which would appear to be dependent, at least in part, on inherent causes rather than on external factors. Certain of these latter were examined, both singly and in combination, by subjecting newly emerged moths to different temperature régimes between 15° and 25° C. during December and January, the artificial day-lengths ranging from eight to 16 hours in 24. In all cases there was a considerable delay between emergence and the commencement of oviposition. Insufficient observations were made to indicate what precise effects, if any, the various treatments had, but it was clear that, at least during the winter months, an obligatory pre-ovipositional period of considerable duration was necessary under the conditions tested. A change of diet from pure carbohydrate, such as sugar syrup, to proteinous substances, such as natural honey, also failed to produce any perceptible reduction in the pre-oviposition period, and it was later discovered that the moths possessed under-developed reproductive systems. Dissection of individual moths at irregular intervals revealed signs of gradual maturation of the ovaries after about five weeks. The pre-oviposition period lasted, on an average, for 58 days (± 8.06) and normal oviposition followed thereafter in all cases, apparently without effect on fecundity.

The temporary retardation of the commencement of oviposition appeared at first to have been caused by the subjection of the larvae and pupae from which the moths were obtained to artificially controlled temperature conditions, but the phenomenon was also noticeable, though less marked, later in the season (July-August) amongst moths which had developed from naturally overwintering larvae. In no instance was there less than 30 to 32 days' pre-oviposition period. This behaviour appears similar to the imaginal diapause in Lepidoptera recorded long ago by Pospelov (1911) and known to occur in several Agrotids.

The egg-laying capacity of *T. pronuba* varied from 675 to 1680 eggs with an average of 1014 eggs (see Table I). The longevity of the moths of the first brood (*i.e.* those from overwintering larvae) was found to

*Now returned to Entomology Division, Dept. of Agriculture, Sabour, Bihar, India.



be prolonged, lasting for 60 to 80 days in those females which laid eggs and from 100 to 120 days in those which abstained from oviposition. These latter were found on dissection to contain from 300 to 500 eggs in the ovaries. Johnson (1956) has also observed reluctance to oviposit by females of this species; he records comparable, but somewhat larger, numbers of eggs for this species, his maximum being 1980 for a single moth. According to him the average number of eggs laid by *T. pronuba* is about 1500.

TABLE I.
Fecundity and Longevity of Adult Moths.

Species	No. of pairs	No. of eggs per female			Pre-oviposition period (days)	Oviposition period (days)	Longevity (days)	
		Maximum	Minimum	Mean			♂	♀
<i>T. pronuba</i>	8	1680	675	1014	30-70 (av. 58)	8-12	40-80 (av. 55)	60-120 (av. 75)
<i>A. segetum</i>	10	775	170	330	3-6	8-9	12-14	10-12
<i>A. c-nigrum</i>	16	148	55	95	2-4	5-7	8-10	6-7

The eggs of *T. pronuba* are laid in large, compact masses and neatly arranged in symmetrical rows, usually on the undersides of the leaves of the foodplants. Occasionally during the current investigations eggs were found on the walls of breeding cages as well as on dry, loose soil. Each egg-cluster usually consisted of 200 to 300 eggs; the maximum number recorded for one cluster was 850 and the minimum 75. The eggs, at first creamy-white, show signs of pinkish coloration after 24 to 36 hours and deepen gradually to dark purplish-grey towards the end of the incubation period.

Agrotis segetum (Schiff.).

In this species there does not appear to be any obligatory retardation in the development of the ovaries and the pre-oviposition period was found to last for only three to six days. The ovipositional impulse in this species is much more directly influenced by environmental conditions such as temperature. Temperatures of over 25° C. caused failure to deposit eggs, or, if eggs were laid, all were sterile. Similarly a relative humidity of less than 60 per cent was found to be unsuitable for oviposition. A photoperiod of less than four hours per day also adversely affected egg-laying. In continuous darkness only one female out of six pairs of moths laid a few eggs (15) and all these failed to develop.

Optimum conditions resulting in maximum reproductive activity and longevity were as follows:—Temperature range 15° to 20° C.; relative humidity 70 to 85 per cent; photoperiod 14 to 16 hours in 24. The maximum numbers of eggs per female recorded in Table I were obtained at 15° to 20° C. with a relative humidity of 75 to 85 per cent; the photoperiod was as above, with a light intensity of 450 foot-candles. The effects of climatic conditions on the fecundity of phalaenid moths (especially *A. segetum*) has been examined by Prikhodkina (1938) with interesting conclusions which will be referred to again at a later date.

The egg-clusters of this species are rather small and irregular, nor are the eggs symmetrically arranged in rows nor in compact masses like those of *T. pronuba*. They are milk-white when laid but become light cream after about 24 hours, turning dark greyish subsequently. There is a reddish brown spot at the top of the egg and a transverse band of a similar colour.

Amathes c-nigrum (L.).

As in *A. segetum*, egg-laying commences shortly after emergence, the pre-oviposition period lasting usually some three or four days or even less. Comparable observations with those on the other species were not made, but the number of eggs per female was found to be comparatively very small (see Table I). This was to some extent compensated by the larger number of generations per year (up to six under laboratory conditions), but the number of eggs per female declined steadily from one generation to the next throughout the year.

The eggs of *A. c-nigrum* are laid scattered, most often singly, although sometimes in small clusters of two or three, on almost any part of a plant, but frequently on soil clinging to exposed roots. They are, at first, light milky-white, but this changes fairly rapidly to pinkish and later to reddish-brown.

The eggs of all three species have been described in some detail by a number of authors and no account of their structure is called for here. Results of investigations on the incubation period will be published later; meantime, reference may be made to Singh (1956).

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The Foodplants of *Peronea caledoniana* Steph.

By H. N. MICHAELIS.

The listed foodplants for *Peronea caledoniana* Steph. are sweet gale or bogmyrtle (*Myrica gale* L.) and alpine Lady's mantle (*Alchemilla alpina* L.). While I have no experience of the larva on *Myrica*, there is a single Cheshire record by A. W. Boyd of a moth from a locality where the plant grows. I have long suspected that the growth of *Alchemilla* on the Cheshire and Derbyshire moors was insufficient to support the large numbers of *caledoniana* which occur there.

Observing the moth to fly where *Vaccinium myrtillus* L. (bilberry) was well established, I searched the plant on the Goyt moors in early July when I considered that the abundant *Acroclita naevana* Hb. (*geminana* Steph.) should have pupated. A score of green larvae were found between spun leaves together with nine pupae, which latter, as expected, produced *A. naevana*. The larvae pupated in late July

and ten *P. caledoniana* emerged from 11th and 18th August, the emergence time being between 1800 and 2000 hrs. B.S.T.

I found no sign of the larva on *Alchemilla* and presume that *Vaccinium* is the predominant foodplant of this species on the moors in the absence of *Myrica*. My search of the *Alchemilla* was rewarded by one *Xanthorhoe munitata* Hb., which is always a scarce moth in this district.

I have not been able to trace the original record of *Alchemilla* as a foodplant. Stainton omits foodplants in the *Manual*, while Spuler in *Schmetterlinge Europas*, II, p. 244, and Wilkinson in *The British Tortrices* give *Alchemilla* only. *Myrica* and *Alchemilla* appear in Meyrick's *Handbook* and in *A Guide to the Smaller British Lepidoptera* by L. T. Ford.

An interesting note by R. S. Edelsten appears in *British Tortrices*, p. 180: "In the vicinity of Manchester, it is captured among *Vaccinium myrtillus*, the males flying in the afternoon sun, the females at rest". Edelsten, who lived at Bowdon, Cheshire, was a skilled collector and observer, possessing an unfortunate tendency to disguise his localities.

A further note appears in Tutt's *Handbook for the Field Lepidopterist*, Vol. I, for late March-April, indicating that larvae of *P. caledoniana* may be found in spun leaves of *Vaccinium* in the spring. March and April are much too early for leaves to appear on moorland bilberry, and mid-May to mid-July would be a more profitable time to search for larvae. With regard to *Myrica*, the late Basil Snell bred two specimens (det. B.M.) from Cardiganshire. In the collection of the late Wm. Mansbridge are two specimens labelled "New Forest, ex *Myrica*" and a few from Aviemore bred from spun leaves collected with larvae of *P. maccana* Treits.

Does *caledoniana* exist in Kent, as stated by Meyrick, or does this record arise from confusion with a brown form of *P. comariana* Zell.?

A few days in North-west Devon

By H. SYMES.

On 4th July, I travelled with Mr. P. Cue to the Hartland area, where we stayed at the West Country Inn, Bursdon Moor. We arrived in most unpleasant weather, the principal ingredients of which were fog, rain, and strong wind. On 5th July this weather continued, and we could do nothing except some reconnaissance work in the localities where we had been informed that our two main objectives, *Maculinea arion* L. and *Lygephila craccae* Schiff., had been taken last year. We found the foodplant of the latter, but I think we were a week or a fortnight too early for the imago.

Next day the weather improved, but was still rather cold and there was only broken sunshine. We proceeded to one of the haunts of *arion*, which I shall call Locality A, and spent most of the day there without seeing a single specimen. During some sunny periods we saw a number of *Argyannis aglaia* L., mostly in good condition, a few *Callophrys rubi* L., and a good many *Maniola jurtina* L., *M. tithonus* L., *Coenonympha pamphilus* L. and *Melanargia galatea* L. The only 'blue' we saw was *Polyommatus icarus* Rott. and they were scarce. This was a disappointing day, but worse was to follow, as 7th July was a repetition of the 5th. More reconnaissance, this time in Locality B.

Sunday, 8th July, was a much better day, and we visited Locality B. Soon after our arrival there I took a male *arion* in somewhat worn condition. Shortly afterwards two entomologists arrived from Bristol, and they quickly took an *arion* apiece. No more were seen for some hours; but after lunch I took another, a female. We heard that *arion* was quite plentiful in this locality in 1955, but early this year the gorse on the northern slope of the valley had been fired, and the fire seems to have got out of control, as the whole slope was charred and there were few thyme-clad ants' nests left. I climbed to the top of the hill and in the distance I saw another blackened slope. I learned afterwards this was part of an area where *arion* is very properly preserved. Someone who had been there told me that there was a notice board on which were some such words as "Nature Reserve. Anyone found catching insects will be prosecuted". Underneath this had been chalked "Then why burn the b—— place down?" It is a difficult situation. If the gorse is not controlled, it smothers the thyme, and if the fire is not controlled, it burns the thyme; in either case *arion* has "had it".

On 9th July, in ideal weather, we revisited Locality A. Here I saw an *arion* as soon as we arrived, but leaving Mr. Cue to deal with it, I made my way towards the coast, where ants' nests were plentiful. However, after two unprofitable hours I rejoined Mr. Cue, and found that he had taken three *arion* in good condition. We ate our sandwiches and both of us remained on the ground where he had been successful. In the early afternoon I took four *arion*, and Mr. Cue took one more. They were settling on heather or thyme. We saw two or three others, but during the whole day probably not more than a dozen, including those that we had taken. They were all on the slope of the valley that faced south: on the other side of the small stream, although there were some very promising-looking spots, with long grass and plenty of thyme and ants' nests, not one was seen.

Our comparative lack of success with *arion* was partially redeemed by two wonderful nights with the m.v. light which Mr. Cue brought with him. In fixing this up on a small grass plot behind the inn we received the greatest possible help from the proprietors, who were most co-operative in every way, and took the utmost interest in our proceedings.

On 8th July the weather was ideal: it was a warm, dark night, with much cloud, very little wind, and a hint of moisture in the air. We spent the earlier part of the evening looking for *craccae*; there were plenty of moths at bramble and valerian, but they were nearly all *Agrotis exclamationis* L. and *Apamea monoglypha* Hufn. We did not switch on the m.v. until nearly 11 p.m., and before the light reached its brightest, moths were hurrying down to the sheet. How many individuals arrived it is impossible to say: we were too busy boxing the more desirable species to keep a complete score. But on this and the following night, when conditions were not quite so favourable—there was a clear sky, a heavy dew, and a lower temperature—we counted 67 different species, of which 66 arrived on the first night: the only newcomer on the second night was *Hepialus humuli* L.

The best catch and the greatest surprise was *Mythimna turca* L., of which we took eight on the two nights. It would not have been such a surprise if I had remembered that Mr. Clifford Craufurd reported

having taken it in North Devon last year (*Ent. Rec.*, 67: 209). Two of the most abundant species were *Deilephila elpenor* L. (males only) and *Arctia caja* L. (both sexes): at one time there must have been a dozen 'Elephants' on the sheet, and the 'Tigers' were almost as plentiful. Next in numbers to these heavy-weights came *Habrosyne pyritoides* Hufn. (*derasa* L.), *A. exclamationis*, *A. monoglypha* (one or two nice forms), *Spilosoma lubricipeda* L., and *S. lutea* Hufn. There were more than half-a-dozen *Abrostola tripartita* Hufn. and *Plusia pulchrina* Haw., the latter being more numerous than *P. gamma* L.

The following species were taken in addition to those already mentioned:—*Smerinthus ocellatus* L. (1), *Notodonta ziczac* L., *N. dromedarius* L. (1, a very dark specimen), *Lophopteryx capucina* L., *Pterostoma palpina* Cl. (1, also a very dark specimen), *Phalera bucephala* L. (1), *T. batis* (1), *Philudoria potatoria* L., *Callimorpha jacobaeae* L., *Cybosia mesomella* L., *Apatele psi* L., *A. rumicis* L., *Lycophotia varia* Vill., *Amathes baja* Schiff., *A. stigmatica* Hb., *A. triangulum* Hufn., *A. c-nigrum* L., *A. ditrapezium* Schiff., *Diarsia brunnea* Schiff., *D. festiva* Schiff., *Ochropleura plecta* L., *Triphaena comes* Hb., *T. pronuba* L., *Axylia putris* L., *Polia nebulosa* Hufn., *Mamestra brassicae* L., *Melanchra persicariae* L., *Diataraxia oleracea* L., *Ceramica pisi* L., *Hadena bicruris* Hufn., *H. cucubali* Schiff., *Euplexia lucipara* L., *Phlogophora meticulosa* L., *Apamea obscura* Haw., *A. lithoxylea* Schiff., *Procus strigilis* Cl., *P. furuncula* Schiff., *Coenobia rufa* Haw., *Leucania impura* Hb., *L. pudorina* Schiff., *L. pallens* L., *Cucullia umbratica* (one of each sex), *Jaspidia pygarga* Hufn., *Plusia festucae* L. (1), *P. chrysis* L., *Zanclognatha tarsipennalis* Treits., *Hypena proboscidalis* L. (1), *Biston betularia* L., *Alcis repandata* L., *Pseudoterpna pruinata* Hufn., *Perizoma alchemillata* L., *P. flavofasciata* Thunb., *Eupithecia linariata* Schiff., *Lomaspilis marginata* L., *Cabera exanthemata* Scop.

These nights were not without their humorous side. There was a goat tethered not far from our pitch, and when the sheet was laid down early in the evening, her two kids came prancing up and started gambolling all over it. They had to be driven off two or three times and removed to a safe place; we did not want our sheet to be devoured. When the light was switched on, a dog and two cats from the inn turned up to inspect proceedings, and one of the cats sat perfectly still on the edge of the sheet for some time, staring at the moths and apparently fascinated yet bewildered by their numbers. Later on, the proprietors of the inn with the waitresses and their boy friends put in an appearance, and seemed to be genuinely interested, while keeping all the time well in the background.

On the first night, a number of moths took refuge inside the bottom of my trouser legs, but they did not stay quiet there; no, sir, it was a case of "Excelsior!" One made its way out at my neck, and when at last I undressed to go to bed, more than a dozen emerged from my shirt, mainly *monoglypha*, *exclamationis* and *pronuba*, some of them almost unrecognizable. Amid the confusion in my room, an *ocellatus* began to throw its weight about: I do not know if it came in through the window or had travelled up on the outside of my clothes; it certainly had not had an inner berth. On the second night I took the precaution of tucking my trousers into my socks.

During our stay in Devon, we were not looking for larvae, but came

across a few odd ones: three *Saturnia pavonia* L., one *Lasiocampa quercus* L., one *P. potatoaria* L. (these two were full-fed and spun up in a day or two); three *Cerura vinula* L., one *Biston strataria* Hufn. (on black poplar: surely a most unusual food) and two *Abraxas grossulariata* L., on blackthorn.

Finally, I had the best close-up views of a curlew and a buzzard that I have ever enjoyed. The curlew was running over a marsh, probing the surface with its long curved bill, within a few yards of the road, and took no notice of our car, while the buzzard was sailing over the arion ground, and at one time it flew so low that when it banked the markings on its back and the upper surface of its wings were plainly visible.

New Lamps for Old

By The Rev. F. M. B. CARR.

As I look back to the early days of my moth collecting I find myself floundering about in semi-darkness, first by reason of failing memory, and, secondly, by reason of the lights that then prevailed, for a naked gas-jet was neither very cheerful nor very illuminating. In the course of time the incandescent mantle wrought some improvement.

My clearest memory of this gas area, during which we lived in South London, is of the behaviour of the "old ladies". On certain very hot summer evenings the old dears would come fluttering into the house through the French windows that opened on to the back garden, pry into the corners of the room in which the family was sitting, pass thence into the hall, and leave the house by the front door. I never have been able to make up my mind whether *Morma maura* L. would or would not inspect people's dwellings just as readily if they were in complete darkness. So far as my memory serves me, the moths that came indoors to light during the gas era were not numerous.

My first memorable experience of light was in Wicken Fen in 1899. Probably few of those who read these notes know how unwary moths were lured to their doom in the fens at that time. The late Mr. Russell James kindly told me what I had to do: I must write to one Solomon Bailey, who lived at Wicken, and arrange with him to prepare for us (I went with my father) a sugaring round and the light. And behold, the needful was done; sugared stakes marked the round, and the light was set up. It consisted of six oil lamps in a glass case that looked like an aquarium tank on a stand. This was faced by a perpendicular sheet. We had nine nights' collecting with the aid of this erection. *Phragmatoecia castaneae* Hbn. appeared in gratifying numbers, as did *Zanclognatha cribrumalis* Hbn., and certain other local species came in ones and twos. The weather was not ideal, and it must be admitted that the rather poor results gave no fair indication of what even oil lamps and a perpendicular sheet might achieve under more favourable conditions.

My next adventure with light was at Salisbury in 1902-03, where for a while I taught at the Cathedral Choristers' School in the Close. In those days there was a pleasant countrified walk from the High Street to George Herbert's little church at Bemerton. This lane was punctuated with street lamps, the business part of which could be reached with a stick, or the lamp-post scaled if the worse came to the

worst. Moreover the lamps, old-fashioned though they were, were much sought by moths, and no one said me nay. The 'Head' encouraged me and would often come to my room when I returned from my hunting, and exclaim over the beauty of some of the captures. The High Street gate was locked at an early hour, but the porter never once grumbled nor reproached me for ringing the bell after hours. The policeman, in whose beat was my light round, not only did not take my name and address, but even gave me a leg up now and again.

In the autumn there were many lovely *Colotois pennaria* L. on those lamps, and these, with that other beautiful autumn species, *Chloroclysta miata* L., aroused special gasps of admiration from the Head on my return. No rarities were taken, but it was all great fun and there was plenty of variety, which included *Gastropacha quercifolia* L., *Poecilocampa populi* L., *Episema caeruleocephala* L., *Brachyonycha sphinx* Hufn., *Antitype flavicincta* Schf., *Nonagria typhae* Thnbg., *Larentia clavaria* Haw. and *Biston strataria* Hufn.

So far as the actual light was concerned the acetylene lamp was a big step in the right direction. It was most aggravating, however, when, at an exciting moment, one had to put the light out because it had caught fire in the wrong place. I remember in 1905 having some thrilling evenings with my father in the Wye Valley, our light being an acetylene bicycle lamp. We took up our position on a steep birch-clad slope of the valley near Symonds Yat, and directed the light downwards amongst the birches. A host of moths fluttered up to it: they included 36 *Tethea fluctuosa* Hb., *Geometra papilionaria* L. in quantity, and many and varied forms of *Alcis repandata* L., some lovely ab. *conversaria* amongst them.

Many years passed between our adventures with an acetylene bicycle lamp in the Wye Valley and any further opportunity for experimenting with lamps old or new. When the opportunity did come, it was my very good friend, Gordon Smith of Chester, who provided it.

During twelve years of primeval darkness (1917-29) or, in other words, of oil lamps in a country vicarage in Cheshire, the moths, as might be expected, passed us by with their palpi in the air. But for Gordon Smith, I might well have jumped straight into the mercury vapour era with practically no experience of any light superior to an acetylene bicycle lamp. It was he who rescued me from the gloom, and dazzled my eyes with the light of a 2000 c.p. electric lamp. I spent many exciting evenings with him thus "lit up". He had two of these lamps; one was on the balcony of his house overlooking the Dee at Chester; the other went with his motor caravan.

I particularly remember two evenings with the latter. The first was on 6th July 1921 at Hatchmere in Delamere Forest; this was marked by one of my very infrequent encounters with *Apeira syringaria* L. of which five or six individuals appeared. According to my diary 53 species turned up. The second memorable occasion was at Witherslack on 9th June 1922. This was, I think, beyond anything I had yet seen, for moths simply swarmed, and 90 species were represented; but S.G.S. himself has put this night on record with many others in his interesting volume of "Records of experiments with light for attracting British moths, 1919 to 1923".

For a few years from 1920 onwards *Apocheima hispidaria* Schif.

appeared in astonishing force in Delamere Forest. On 5th March 1921 I found as many as 21 by examining tree trunks. It was of common occurrence to find from 8 to 12 a day; at night the species came freely to light. But S.G.S. had a remarkable experience one evening, female charms putting electric lamps entirely in the shade. He took a female enclosed in, if I remember rightly, a round wire gauze container, and hung it on a branch. I can only compare the host of males that clustered round this container to a swarm of bees.

For many years, twenty-two in all, I was so busy that I sold my collection and could find no time for further operations

From 1929 for eighteen years I was in Ditton on the outskirts of Widnes. The only locality in which I have lived that was less productive was Leyton; but to give Ditton its due, Leyton was an easy first. I continued to take notes during this period of non-collecting, and to examine anything that came indoors to the electric light. Amongst these, the most worthy of mention were:—*Leucoma salicis* L., *Plusia festucae* L., *P. iota* L., *P. pulchrina* L., *E. caeruleocephala* L., *Aporophyla lutulenta* Schf., *Procus literosa* Haw., *Arenostola pygmina* Haw., *Orthosia gracilis* Schf., *Cucullia chamomillae* Schf., *Rhizedra lutosa* Hb., *Mesoleuca albicillata* L. and *Biston betularia* L. The last-named with only one exception was always melanic.

The coming of the second world war provided the moth population with six years' respite, so far as I was concerned, from the unwelcome lure of lamps old and new. It was not until I retired and came to live at Sandbanks in 1947 and at Mudeford five years later that I was able to work light regularly. Even then, it had to be an ordinary 200 c.p. electric bulb indoors. I have already recorded the results both of this and of collecting by kind invitation with various entomological friends at their m.v. lamps.

It would be ridiculous to pretend that an indoor electric bulb can begin to compete with an outdoor m.v. lamp. It is, however, very much better than no lamp at all. I have never been fortunate enough to be able to have my own m.v. light. I am thankful to have such good neighbours, but it would be quite unthinkable at such close quarters to make a practice of switching on so brilliant an illumination night after night.

A few evenings ago Mr. B. C. Barton tried his m.v. light in the garden, due warning having been given to the neighbours and their assent obtained. The result was stupendous in every way, for first, my own household slept through it, also the neighbour on one side, and secondly moths swarmed. What struck me as so extraordinary about this swarm was that though *Triphaena pronuba* L. has not appeared at all at my indoor light this year, it dominated the m.v. scene. It refused to settle quietly on the sheet or allow moth or moth-hunter a moment's peace. I always have preferred *T. pronuba* in a cabinet. On this occasion Mr. Barton and I wished it anywhere; one moment the brute almost knocked one's nose sideways, the next it administered a biff behind the ear. Then, horror of horrors, he was crawling up inside the trousers of the unwary bug-hunter who had been so unprepared as to neglect tucking his trousers into his socks. No, I never did like him alive, he has no manners at all. Just when I was congratulating myself that he must have left the neighbourhood, lo and

behold, it needed but a whiff of mercury vapour to reveal his presence in scores.

Habrosyne pyritoides Hufn. was a worthy second, both in numbers and boisterousness. Two *Hyloicus pinastri* L. slithered round the sheet on their backs. Three *Deilephila elpenor* L. joined the company, this moth not having previously appeared at light here. Other visitors were *Stauropus fagi* L. sitting peacefully on my trouser leg just as Mr. Barton was preparing to switch off, *Tethea ocularis* L., *Apatele leporina* L. and a few *Leucania straminea* Tr.

Beside *D. elpenor*, I think the only species not previously recorded at my light was *A. leporina*. 57 species came to m.v. as against 15 species the night before to my light, and 24 the night after. Meteorological conditions were similar on the three evenings.

DIPTERA

Flies and their Selection of the Flowers they Visit

By L. PARMENTER.

That a large number of species of flies visit flowers for their nectar and in many cases for their pollen, is well known. What is not known is the full list of flowers visited by each species. It is obvious from what is already on record that in some families of Diptera only a few species are accustomed to visit flowers, e.g., *Sciara thomae* (L.) in the Sciaridae and *Asindulum flavum* (Winn.) in Mycetophilidae, whilst the Stratiomyidae, Empididae, Syrphidae, Muscidae, Calliphoridae and Tachinidae have large numbers of species feeding or drinking at flowers. In certain cases—*Rhingia campestris* Mg. and *R. rostrata* (L.) and in the Empididae, the mouth parts appear to be modified to enable tubular flowers to be visited, whereas most flies are restricted to open flowers such as the Ranunculaceae, Rosaceae and Umbelliferae. Thus some selection is thereby necessitated by the type of the mouth parts.

Although it is often said that flies visit whatever flowers are available, this statement seems to generalise too easily and is not based on collected data. Probably few week-end collectors spare time to observe closely what happens, but a few minutes observation might be worthwhile. Recently, on a cloudy, breezy day with little weak sunshine, this August, in a small area in the middle of Mitcham Common, Surrey, near to the 7-island pond, a patch of ground had areas roughly equal in extent, of the white-flowered Yarrow, *Achillea millefolium* L., the yellow-flowered Long-rooted Cat's Ear, *Hypochaeris radicata* L. and the mauve-flowered Knapweed or Hardhead, *Centaurea nigra* L. Counts were made within a period of half an hour as follows:—

A. millefolium. *H. radicata* *C. nigra*

Diptera

Syrphidae

<i>Eristalis arbustorum</i> (L.)	132	34	1
<i>E. intricarius</i> (L.)	—	—	1
<i>E. sepulchralis</i> (L.)	2	—	—
<i>Helophilus trivittatus</i> (F.)	3	—	24
<i>Miatropa florea</i> (L.)	1	—	—

<i>Sphaerophoria menthastris</i> (L.)	1	3	—
<i>Syrphus balteatus</i> (Deg.)	—	2	2
<i>S. corollae</i> (F.)	—	1	—
<i>S. ribesii</i> (L.)	—	1	—
<i>S. vitripennis</i> Mg.	—	—	1
Tachinidae			
<i>Eriothrix rufomaculata monochaeta</i> Wain.	13	—	—
Muscidae			
<i>Orthellia cornicina</i> (F.)	11	—	—
Hymenoptera			
Apididae			
<i>Apis mellifera</i> L.	—	—	18
<i>Bombus lapidarius</i> (L.)	—	—	6

Thus it will be seen that of the species where over 10 individuals were present, *Orthellia cornicina* and *Eriothrix rufomaculata* were confined to *A. millefolium* whilst *Eristalis arbustorum* preferred this species to *H. radicata* and almost entirely neglected *C. nigra* which attracted almost all the *Helophilus trivittatus* present. But why? From the presence of the bees on *C. nigra* and its hidden pollen, the visitors are all likely to have been sucking nectar. It is interesting to note the presence of *S. balteatus*, almost the only species of *Syrphus* known to visit this plant. Whereas *A. millefolium* offers its pollen with the easiest of access and its heads of dense terminal corymbs produce a broad table of food for its pollinators.

It is not so often possible to find adjacent areas of equal size of different flowers in bloom. The above count suggests, however, that when found, it would be of value to study the visitors to these patches.

EARLY APPEARANCE OF VOLUCELLA ZONARIA PODA.—On 30th June I saw a specimen of *Volucella zonaria* Poda on Buddleia in my garden. Although this species has appeared regularly for the last five or six years during August and September, this is much the earliest date that I have recorded. I did not see another until 9th August. Since then one has appeared on the flowers of hemp agrimony (*Eupatorium cannabinum* L.) which it seemed to prefer even to Buddleia, on most sunny days in August, and on the 20th I saw two on the same clump of *Eupatorium*. This was the first occasion on which I have seen more than one at a time.

Mr. Redgrave tells me that on 14th August he found a specimen of this handsome dipteron sitting on the tablecloth at breakfast-time in his sun parlour, which is open to the air at one end.—H. SYMES, 52 Lowther Road, Bournemouth. 30.viii.56.

COLEOPTERA

Beetles visiting the flowers of Dogwood, *Cornus sanguinea* L.

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

Although the fresh northerly breeze brought dull cloudy weather most of the day on 24th June, this year, at Box Hill, Surrey, there

were spells of sunshine. These brought out quite a variety of insects but far fewer than in most years. One of the slopes of the valleys faced the sun and held a large patch of Dogwood bushes in full flower at one to eight feet over the ground. The only other flowers noticeable in this spot were those of the abundant Mouse-eared Hawkweed, *Hieracium pilosella* L., but these were not visited by a single insect. A number of diptera appeared at the Dogwood flowers and 35 worker Honey bees, *Apis mellifera* L., were counted as they collected pollen on the blooms. I was surprised to see 5 species of coleoptera at the flowers. Mr. E. Lewis, F.R.E.S., has kindly helped with their identification and as they are not mentioned as visiting this flower by P. Knuth in his *Handbook of Flower Pollination*, 1906-9, the details are now recorded.

SCARABAEIDAE—*Cetonia aurata* (L.). One specimen taking pollen. In central Europe it has been noted on several flowers biting the anthers and even petals of the blooms. In this country it has been seen at Golden rod, *Solidago* sp., and Hawthorn, *Crataegus* sp. (H. Symes and A. A. Allen).

Phyllopertha horticola (L.). One specimen. Like *C. aurata* this has been seen at the flowers of *Rosa canina* L., *Aegopodium podagraria* L. and *Sambucus nigra* L. in Europe, amongst others but mostly on those white in colour.

ELATERIDAE—*Adelocera murina* (L.). A male and female; another known visitor to *Aegopodium podagraria* L.

ALLECULIDAE—*Isomira murina* (L.). One specimen. Yet another visitor to *A. podagraria* L. in central Europe.

DASCILLIDAE—*Dascillus cervinus* (L.). Seven, taking nectar. B. Verd-court, 1952, in *Ent. mon. Mag.*, **88**: 76, records this species on *Heracleum*. This is presumably a capture at the flower-head though unfortunately, as in so many 'records', the vital data is not given.

The flowers most favoured by each of the species appear to be coloured white and thus perhaps the species were to be expected on Dogwood flowers. As I am not a coleopterist. I have no knowledge of the preferences of these beetles in this country and should be interested to hear of others' experiences. To find that all five species had not been noted on this flower by Herman Müller or P. Knuth has astonished me. All five beetles were known to Linnaeus in 1758 and one would think that in two centuries a complete list of the flowers frequented by these creatures would have been compiled by their collectors.

The other species of coleoptera recorded in Knuth, *op. cit.*, as visiting Dogwood flowers, are:—CERAMBYCIDAE—*Clytus arietis* (L.), *Alosterna tabacicolor* (Deg.), *Leptura livida* F., *Pachyta octomaculata* F., *Strangalia armata* Hbst., *S. atra* Laich, *S. attenuata* L.; CURCULIONIDAE—*Otiorrhynchus singularis* (L.) = *picipes* F.; BYTURIDAE—*Byturus fumatus* (F.); ELATERIDAE—*Athous niger* (L.), *Dalopius marginatus* (L.); TELEPHORIDAE—*Telephorus pellucidus* F.; NITIDULIDAE—*Meligethes* sp., *Thalycra fervida* (Oliv.) = *sericea* (Sturm.).

The Prices of Books

A number of entomological books were sold in a miscellaneous sale at Sotheby's on 23rd and 24th July. A couple of dozen lots had been the property of the late F. H. Haines, some of the books were described as "the Property of a Lady", some simply as "Other Properties".

In the first day's sale there was a copy of Albin's *Natural History of English Insects*, 1720, the first edition, which sold for £13. It was in very worn contemporary red morocco, and was not a brilliant copy, but this is a book which is nearly always more or less discoloured. It is interesting to the entomologist, but the plates are not of a quality to attract the attention of the "breakers", who have bought up so many of the beautiful 18th and 19th century colour-plate books, throwing away the text and selling the plates for framing or even for dinner-mats. This will probably be the fate of a fragment of Cramer's *Papillons Exotiques*, about 1775, which sold for £26; this was Vol. I only of four, and without a title-page at that, containing text and 84 out of 400 coloured plates. There was also a copy of the 1782 (second) edition of Moses Harris, *An Exposition of English Insects*, which fetched £12 in spite of being without the curious engraved frontispiece. A somewhat rare volume was the folio *Entomologiae Neapolitanae Specimen Primum*, Naples, 1787, by Domenico Cyrillo (no more of it was published). This had 12 extremely good coloured plates depicting a variety of insects, and sold for £28.

The books in the second day's sale were all comparatively modern—modern, that is, by antiquarian standards; perhaps some readers will hesitate to class as "modern" MacLachlan's *Trichoptera of the European Fauna*, 1874-80, with Supplement, 1884, which realized £40. The only book in the sale which exceeded this figure was Jules Culot's *Noctuelles et Géomètres d'Europe* in 4 volumes, with 151 exquisite coloured plates, which reached £42. The edition of this work was, I believe, a small one, and the last copy in the English auction records was in January 1945, when it fetched £18 10s 0d. I was delighted, therefore, only a month ago, to be able to acquire an excellent copy from a Paris sale: uncommon books are apt to turn up in pairs. Culot was assistant to Charles Oberthür both as entomologist and printer, and these volumes were printed between 1909 and 1920 at the Imprimerie Oberthür at Rennes. The accuracy of Culot's drawings and of the colour printing is a delight to the eye.

Other books on Lepidoptera included Buckler's *Larvae of the British Butterflies and Moths*, 9 vols., 1886-1901, published by the Ray Society, which sold for £11; vols. I and II are now out of print, and when the remaining volumes follow them this price is likely to rise steeply. Barrett, *Lepidoptera of the British Isles*, 11 vols., 1893-1907, with the *Alphabetical List of Species*, 1907, in a separate volume, all bound in half morocco, sold for £36; I do not think this price has been exceeded at auction. Tutt's great but incomplete work on the British Lepidoptera, 9 vols., in cloth, sold for £6, as did Humphreys and Westwood's 2 vols. on moths and one on butterflies, 1841-45. The folio Frohawk's *Butterflies* in half morocco sold for £5, and his *Varieties*, the first (1938) edition in which the plates are so greatly superior to those in the post-

war edition, in a lot with the Bright and Leeds monograph on *coridon* fetched only £4.

Works on the "other Orders" realized some good prices. Thus Lundbeck, *Diptera Danica*, 7 parts in 3 vols., Copenhagen, 1907-27, sold for £19. Morley, *Ichneumonologia Britannica*, 5 vols., 1903-14, with the *Revision*, 3 vols., 1912-14, sold for £13. Menge, *Preussische Spinnen*, 2 vols., Danzig, 1866, sold for £7. Schiner, *Fauna Austriaca: die Fliegen (Diptera)*, Vienna, 1862-64, sold for £9. Two works on Aphidae in one lot, Theobald, *Plant Lice of Great Britain*, 3 vols., 1926-29, and Davidson, *List of British Aphides*, 1925, sold for £8. Kieffer, *Diapriidae*, Berlin, 1916, sold for £4 10s. Wytsman, *Genera Insectorum*, 5 parts only, each describing a family of Hymenoptera, Brussels 1907-11, sold for £6 10s. Walker, *Insecta Britannica: Diptera*, 3 vols., 1851-56, sold for £2 10s. Chyzer and Kulczynski, *Araneae Hungariae*, vol. I and vol. II, part 1, Budapest, 1891-94, sold for £4 10s.

There was not a great deal in the way of periodicals. *The Entomological Magazine*, 5 vols., 1832-38 (all published), a quarterly edited by Edward Newman, fetched £10 in spite of a very shabby binding. Among much interesting material this includes Edward Doubleday's letter describing his discovery of "sugaring". A large bundle of unbound parts of the *Transactions* and *Journals* of the Society for British Entomology and the Entomological Society of the South of England, 1925-45, sold for £11.

There were a good many other books in the sale, a few of them of some importance, but they were put together, in one case as many as 12 in a lot, so that individual prices are not available.

J. O. T. H.

Notes and Observations

LITHOCOLLETIS SCABIOSELLA DOUG. IN SURREY.—Most of my attention this year has been given to the micros, and I have just bred several *Lithocolletis scabiosella* Doug. from mines in the leaves of *Scabiosa columbaria* that I found at Addington in August. I think this is a very local species and I believe only recorded from Surrey.—J. M. CHALMERS-HUNT (*in lit.*), 70 Chestnut Avenue, West Wickham, Kent. 11.ix.56.

HETEROGRAPHIS OBLITELLA ZELL. IN KENT.—I took a single imago of this species in the Isle of Sheppey on the night of 22nd June 1956. It was flying over some rough ground bordering a saltmarsh on the south side of the island, and was netted by the light of my Coleman hand lamp. The identity of the specimen was determined by Mr. R. W. J. Uffen, and it has also been compared with a series of *oblitella* from Benfleet in the collection of Colonel W. B. L. Manley. This is the first record of *oblitella* for Kent.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 11.ix.56.

DIORYCTRIA SPLENDIDELLA H.S. IN DORSET.—On 31st May I took a fresh male specimen of *Dioryctria splendidella* at my m.v. lamp at Canford, Dorset. A further specimen arrived on 13th July. Both were confirmed by Mr. Watson of the Natural History Museum.—ALAN KENNARD, Torns, Ashburton, Devon. 13.ix.56.

POLYGONIA C-ALBUM L. AB. F-ALBUM IN DEVON.—On 31st July I netted at Ashburton, Devon, a striking aberration of *Polygonia c-album*. On the upper side the markings are all run together to form a black blotch. On the underside the 'comma' is large and pear-shaped, while there is a trace of a 'comma' on the upper side. It is apparently the form *f-album*.—ALAN KENNARD, Torns, Ashburton, Devon. 13.ix.56.

ACHERONTIA ATROPOS L. IN CUMBERLAND.—A number of specimens of *Acherontia atropos* L. have lately been taken in the Penrith district. Mr. W. Baker, of Langwathly, near Penrith, reported to me that he had taken two specimens of the Death's Head hawkmoth in his moth trap on 3rd September. He is a beginner and the trap had been in operation for less than a week!

On the following morning, 5th September, a specimen was brought to me from Penrith Hospital, where it had been found on a wall.

Mr. Baker trapped another on the 7th September. It is not without interest that Mr. Baker is an apiarist and in addition to a number of hives, he had in a shed in his garden a large number of wet honeycombs, which smelt strongly.

Another specimen was taken by Canon G. A. K. Hervey, of Great Salkeld, Penrith, in his trap on 9th September. A sixth was brought in from a farm, one mile north of Penrith, on 10th September. This specimen was small, and rubbed, in contrast with the others, which were large and fresh in appearance.

The last, at the time I write, was found at Newbiggin (Temple Sowerby), Westmorland, which is seven or eight miles east of Penrith, on 12th September. It was found on the wall of the post office and was also in perfect condition.—W. F. DAVIDSON, 9 Castlegate, Penrith. 14.ix.56.

ACHERONTIA ATROPOS L. IN DEVON.—I had given to me this morning, 14th September 1956, a fine specimen of *Acherontia atropos*. It was found dead on his garden step by Mr. Loram, manager of Lloyds Bank, Colyton. It was in excellent condition and could not have been dead for long as the wings were quite flaccid. How it met its end is a mystery.—ARTHUR BLISS, Golden Mist, Whitford, Axminster, Devon. 14.ix.56.

CELERIO GALII ROTT. AND HERSE CONVULVULI L. IN HAMPSHIRE.—You may be interested in the following note about immigrants to the moth trap. Two have visited my m.v. trap recently. On 24th July *Celerio galii* Rott. appeared. It was very lively and was flying round the inner side of the cowl of the trap and unfortunately escaped when I raised the cover of the trap. On 8th September I secured a good specimen of *Herse convolvuli* Linn. ♂.—P. MAGGS, Brockenhurst, Hants. 15.ix.56.

LEUCANIA ALBIPUNCTA IN NORTH WEST SURREY.—In a year in which migrants have been so far extremely scarce, it is pleasant to report the capture of a fine male *Leucania albipuncta* Schiff., of the chocolate-coloured form, in my mercury vapour light trap here on the night of 6th/7th September. I know of only one previous record from this part of Surrey, by Baron de Worms, also at light, at Milton Park, Egham, on 15th August 1934 (*Ent.*, 67: 283).—R. F. BRETHERTON, Ottershaw, Surrey. 9.ix.1956.

DECREASE OF *MINUCIA LUNARIS* SCHIFF. IN KENT.—My records show that *M. lunaris* was noted annually in the Ham Street area from 1947 to 1955 inclusive, but was noticeably less frequent in 1952 and the subsequent years. So far as I am aware, very few were seen in 1955, and in 1956—at least in Kent—none at all. Whether, therefore, *lunaris* still exists here is questionable, but it is perhaps significant that there now appear to be far less stool oaks in the Ham Street woods than there were a few years ago. Having regard to this, I would be most interested to hear from anyone who may have seen or heard of the occurrence of *lunaris* in Kent this year.—J. M. CHALMERS-HUNT, 70 Chestnut Avenue, West Wickham, Kent. 11.ix.56.

CACOECIA AERIFERANA H.S. IN SURREY.—With reference to my previous note (*Ent. Rec.*, 68: 225) I have just had a further look at some micros taken in 1955 which I was unable to identify last winter, and find that I took another *C. aeriferana* in the garden m.v. trap. This, the first, was on 8th July 1955, a male in good condition.—ROBIN MERE, Mill House, Chiddingfold, Surrey. 29.vii.56.

SEASONAL NOTES FROM LINCOLNSHIRE.—The first *Gonepteryx rhamni* L. was seen near the Trent in Nottinghamshire on 23rd March. We had had such a ghastly winter in Lincolnshire that I did not expect much this summer. Early in January a blizzard struck us and telephone wires and electricity cables for miles round were damaged. The ice round one foot of telephone wire here weighted 1½ lbs.

The first *Pieris rapae* L. I saw was on 15th April and the first male *Anthocaris cardamines* L. on 2nd May. This, strangely enough, was three weeks earlier than in 1955. I saw no female *cardamines* this year, and two other collectors have had similar experience. I hope that we have only been unobservant, as I do like to see this butterfly each year!

Pararge aegeria L. and *Lycaena phlaeas* L. both seemed more common than usual. In the nearby wood *Argynnis euphrosyne* L. and *Erynnis tages* L. were flying in the sun on 22nd May, and I saw *Pyrgus malvae* L. on the 25th. At this time our water board was begging us to conserve water as all the authorities who supply our area (we have very little of our own) were threatening to cut us off.

Earlier on 25th May, Canon Holden of Lincoln and I went to Gibraltar Point, a nature reserve, just south of Skegness. I had long wanted to visit this spot to see the numerous colony of *Callophrys rubi* L. there, and it was indeed common, although not in quite such numbers as before. *Polyommatus icarus* Rott., *Aricia agestis* Schf. (rare in Lincolnshire), *Pararge megera* L. and *Coenonympha pamphilus* L., together with the burnet moths, were also flying.

Then, on 15th June, I saw one *Vanessa (Pyrameis) cardui* L. at Minting post office garden. But no more have been observed. One male *cardamines* was seen in the Rectory garden on 24th June, and *Hemaris fuciformis* L. was flying by the honeysuckle. On 26th June *Aphantopus hyperantus* L. and *Ochlodes venata* Br. & Grey were noticed by the roadside, and I was very glad to see again *Limenitis camilla* L. in good numbers in the wood on 22nd July, with *Thymelicus sylvestris* Poda flying along the rides.

On 15th August, on holiday, I climbed the Malvern hills, and was delighted to see again *Satyrus semele* L. looking worn but healthy, flying over the grass slopes.—The Rev. PETER HAWKER, Gauthby Rectory, Lincoln. 20.viii.56.

COLLECTING AT STUDLAND.—In mid-August I went to Studland, on the Dorset coast, with my friends, Mr. H. Symes and Mr. B. Goater, and worked the sand dunes very thoroughly with m.v. light for three nights; but bad luck and bad weather prevented us from being really successful. The weather was dreadful; the first night we got soaked, but Goater took a number of the silvery form of *Agrotis vestigialis* Hufn. The second night was all right so far as weather conditions were concerned, but my m.v. bulb broke down. However, Goater got some more *vestigialis* and I took one or two to complete a row. The third night it was blowing a gale, but a few more *vestigialis* were taken and a single specimen of *Actebia praecox* L.

On 30th August we went to Studland again, and took another singleton *A. praecox* and 15 *A. vestigialis*, mostly males. It was the first night of the cold spell and our breath condensed in the air as in winter—it was colder by far than 5th November last year. We were interested to note that *vestigialis* hardly flew at all; in several cases the moth made its way to the sheet by running from the heather across the sand to the edge of the sheet; in many other cases it flew in towards the lamp in short flights from heather clump to heather clump.

Actebia praecox was not a new record for Studland. Stewart and King took it on 3rd September 1954 and apparently Studland is well known amongst local collectors as a locality for it. Parkinson Curtis has written to me following the publication of my collecting notes. He conjectures that *Sedina buettneri* Her. might be found on the mainland and suggested that we might make a joint endeavour to find it. Goater and I thought the marsh at Titchfield Haven, right opposite the Isle of Wight, looked a very suitable place; so we went there one October evening in 1953 with the m.v. apparatus. But it was cold, windy and moonlight, and we took little else but *R. lutosa* Hb. Even they weren't flying, but were sitting about. I see your point about *buettneri* being at the extreme northern limit of its range, but it has always struck me that it could very well occur elsewhere as few collectors visit marshes with m.v. equipment in October. That is why I think *heucherardi* may have been resident in this country for some time before it was discovered. Few collectors go out in the latter part of the year regularly; most seize the opportunity when an exceptionally warm night (for the time of year) occurs, and they are infrequent.—A. C. R. REDGRAVE (*in lit.*), 47 Swanmore Road, Boscombe, Bournemouth.

WINTERING THE LARVAE OF *MACROTHYLACIA RUBI* L.—Having failed after several attempts to keep the caterpillars of *M. rubi* through the winter I had some success in hibernating a batch of fully grown larvae taken in October last year. The method employed was as follows:—

I had in my possession an oblong orange box, 24" × 12", divided into two compartments by a wooden partition. The floor of this box and the lower half of the partition were removed, and a lid of wire gauze was fitted. The box was placed in the garden on a firm soil base.

For convenience of description I will call the compartments *A* and *B*, and it will be noted that there was free inter-communication between them.

Compartment *A* was rendered comparatively dry by an additional

cover of impervious material, and into it was placed some agricultural peat for the larvae to hibernate in.

Compartment *B*, which could receive some sunlight, was exposed to weather conditions, and was thus moist. Into it was placed in the autumn the foodplant, in case some of the larvae were not quite fully fed, and in the early spring thin layers of turf (from old lawn edgings) were inserted for pupation purposes.

Five larvae were placed in this box. These hibernated well in the peat. Between the 10th and 15th of May three pupated on or between the layers of turf, and two in the peat (date unknown).

The cocoons were removed to a cage and four moths emerged (two ♀ and two ♂) between the 23rd of June and the 10th of July.—Colonel E. V. WHITBY, Four Oaks, Sutton Coldfield. 10.ix.56.

LEPIDOPTERA VISITING FLOWERS.—Preparing some accounts of insect visitors to flowers for the Biological Flora for the British Ecological Society has made me wonder whether the system of collecting has prevented many lepidopterists from noting what lepidoptera visit the various flowers. If any reader has paid attention to this side of our science I should like to hear from him.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 19.viii.56.

INSECT VISITORS TO THE FLOWERS OF HOLLY, *Ilex aquifolium* L.—When looking through the *Handbook of Flower Pollination*, vol. 2, by P. Knuth, 1908, I was surprised to find no reference to visits by the Holly Blue, *Celastrina argiolus* L. The only insect mentioned is H. de Vries record of the honey bee, *Apis mellifica* L. whose workers were frequently observed at the flowers.

I have in my collection a male *Criorhina asilica* (Fln.) (Dipt., Syrphidae) taken by Mr. K. M. Guichard at Holly flowers at Bricket Wood, Herts., on 29.v.1937. This species Schiner took frequently on flowers of *Euonymus europaeus* L. in Austria and I have generally found it at the flowers of hawthorn, *Craetaegus* sp. Although most Syrphidae take both pollen and nectar, the small secretion of nectar in Holly flowers suggests that pollen is probably the chief attraction. Dr. C. D. Day in his *British Tachinid Flies*, 1948, records *Onesia aculeata* (Pand.) at the flowers of Holly.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey. 19.viii.56.

HELL COPPICE.—When looking through some back numbers of the *Record* recently, I noticed the figures of *Cyenia mendica* Clerck on Plate VIII (*Ent. Rec.*, 63: 261), and saw that fig. 4, of ab. nov. *lineata* was identical with a specimen in my own collection. This was bred in 1951 from eggs laid by a female that I took in Hell Coppice on my last visit there in 1950.

Additions to my list of larvae are *Laothoe populi* L., *Cerura vinula* L., *Nola cucullatella* L., beaten in large numbers from blackthorn.

Of butterflies, a notable absentee was *Pararge aegeria* L.

I was most interested by Mr. H. C. Dunk's note on his recent visit to the locality (*Ent. Rec.*, 68: 158). It is good to know that *Strymonidia pruni* L. still frequents the blackthorn thickets, but I hope I shall never see the disgusting sight which met his eyes when he looked over the remnants of the boundary hedge.—H. SYMES, 52 Lowther Road, Bournemouth. 30.viii.56.

SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: ANNUAL EXHIBITION, 1956.—The Annual Exhibition of this Society will be held again this year in the rooms of the Royal Society at Burlington House, Piccadilly, on Saturday, 27th October. Visitors are always most welcome, and copies of the instructions to exhibitors, etc., will be sent to any interested friends of members upon request to the Secretary (F. T. VALLINS, Esq., 4 Tattenham Grove, Epsom, Surrey).

Both members and friends are asked to make a special effort to bring exhibits. Interesting Natural History objects of all Orders are required, and it should be borne in mind that most importance is attached to rarity and scientific value. Series illustrating Genetics are always particularly appreciated. The Orders for special attention this year are *Neuroptera* and *Orthoptera* and it is hoped that specialists on these Orders will do their best to provide an impressive display. Space will be available for photographs, paintings, drawings and lantern slides of appropriate subjects.

The exhibition will be open from 11 a.m. until 6 p.m., and tea will be served on the premises between 3.30 and 5 p.m. at a charge of 2s 6d each person.

Current Literature

INSECTS OF FARM, GARDEN, AND ORCHARD (5th Edition) by L. M. Peairs and R. H. Davidson; Cloth 8vo., 635 + 24 pp. John Wiley (Chapman & Hall) 68/-. Although of American origin, and therefore intended to cover American insect pests, many of these pests occur in this country, and the book is bound to be of the greatest interest to the student of Economic Entomology, to the farmer, and also to those interested in the pests of stored products.

The initial chapters: 1, The Importance of Insects to Man; 2, The Structure and Development of Insects; 3, Classification of Insects; 4, Natural Control; 5, Applied Insect Control (Chemical); 6, Applied Insect Control: Mechanical, Cultural, Biological and Legislative; and 7, Insecticide Formulae, Applications and Dilution Tables; covers 120 pages and give a very sound introduction to the subject.

The following sixteen chapters deal separately with insects injurious to various crops, to stored products, to man, and to domestic animals, and are well and profusely illustrated by half-tone plates, figures and excellent drawings of early and adult stages and also of typical damage. In each case the insect is described, and a note is given on its habits and origin, and finally there are suggestions for its control. Each insect is described by both its scientific and its popular name, thus making the book useful to the uninitiated as well as to the entomologist, and the matter is so well presented that the uninitiated reader may soon acquire a very sound knowledge which should encourage him along the road to becoming a very fair field entomologist. Spiders and mites are included with insects as also are centipedes and woodlice as being germane to the subject, and much useful information is given.

The paper is good and the print is bold and clear; this is a book for the shelves of the student, the farmer and grower, and also of any entomologist who has interests outside his own particular subject, or

who requires a book to assist him in answering the many questions which always come to the entomologist, most of which concerns pests.

S. N. A. J.

SPECIES REVALUED by Desmond Murray, O.P., Blackfriars Publications, London, 1955, Cloth 8vo., 161 + 4 pp. and 3 plates; 13/6. This work is intended to give the student some alternative theories to weigh against those propounded by Charles Darwin. The matter is argued with reference to many works and the final four pages give a bibliography of the works cited. The arguments are based on botany and entomology, in which the author has some experience, but it is explained that similar arguments can be used to cover other branches of biology. Although the argument may seem unconventional to some readers, the book gives food for thought. We may have misread the substance, but it seems a little unfair to write off Charles Darwin's efforts to throw light on the works of the Creator as atheistic; we seem to recollect a quotation attributed to Darwin which, as nearly as we can remember, says: "A little science makes men atheists; a little more soon brings them back to God".

S. N. A. J.

HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS, Vol. I, part 5, DERMAPTERA AND ORTHOPTERA by W. D. Hincks (Roy. Ent. Soc.), 6.vii.1956; 22 + 2 pp., 6/-, follows the line of these useful booklets with keys applicable in the field, and also with microscopic details for verification at home. 10 species of *Dermaptera*, 14 species of Blattidae, 17 of Tettigoniidae, 2 of Raphidophoridae, 1 of Gryllotalpidae, 6 of Gryllidae, 3 of Tetrigidae and 15 of Acrididae are mentioned, which numbers include accidental and possible importations as well as resident species. The whole is profusely illustrated with excellent line drawings of anatomical details.

S. N. A. J.

Vol. I, No. 10, of the same series, ODONATA, by Lt.-Col. F. C. Fraser, I.M.S. (Roy. Ent. Soc., 17.vii.1956), 47 + 2 pp.; 10/-. This part also follows the broad lines of the parts already published and is very fully illustrated by excellent drawings of anatomical details, both generic and specific, and of both nymphs and of adults.

Clear details for separating the sub-orders constitute the first key and the two sub-orders of *Zygoptera* and *Anisoptera* are then keyed into families and the families into genera. Finally the 21 genera are keyed into 46 species (including three additions to the British list since the Kloet & Hincks list). There is also a key to the identification of nymphs and a list of references.

As in the other parts, the anatomical details used in the keys can all be discerned in the field with a good pocket lens.

S. N. A. J.

The VASCULUM, July 1956, calls attention to the usual fires on the moors at Whitsun and their deleterious effect on the colonies of the Brown Argus and the Dark Green Fritillary. A note on melanism mentions the finding of typical *Biston betularia* L. at Chester le Street, and the various aspects of the effect on the fauna and flora of upper

Teesdale of the proposed reservoirs are discussed with special reference to the rare plants in the district. The remainder is taken up with records of local societies including interesting short notes, one being on *Aricia agestis* Schiff. in the Durham Coast localities.

ENTOMOLOGISCHE ZEITSCHRIFT, 66, No. 11, 1.vi.1956, commences with a note by Dr. Werner Marten of Barcelona on light trapping and tries to solve the question of why insects are attracted to artificial light. Hans Friedmann contributes a note on the life history of *Ipomorpha (Plastensis) subtusa* and Franz Josef Grosz writes a first instalment of a paper on the Lepidoptera of the Isle of Borkum.

66, No. 12, 15.vi.1956, has the first instalment of a paper by Bernhard Fust on collecting in Kals, East Tyrol, and there is a second instalment of Franz Josef Grosz's Borkum list.

66, No. 13, 1.vii.1956, has the description by A. Schulte of a new sub-species of *Syngrapha (Plusia) interrogationis* L. called *norrlandica*, a small dark bluish grey race from Finnish Lapland. The conclusion of Bernhard Fust's note on collecting in East Tyrol ends with a short list of species, and the conclusion of Franz Josef Grosz's Borkum paper is also included. H. Marx commences a paper on protection, especially by mimicry.

66, No. 14, 15.vii.56 consists of the commencement of a paper on Greek and Macedonian Lepidoptera by Dr. Ludwig Roell.

66, No. 15, 1.viii.56, has a note by Franz Josef Grosz on a hybrid between *Coenonympha arcania* L. and *C. hero* L. with six photographic illustrations showing the upper and undersides of the parent species and of the hybrid. Dr. Roell completes his paper on Greek and Macedonian Lepidoptera, the article being illustrated by half-tones illustrative of the country worked. H. Marx gives a further instalment of his mimicry paper.

66, No. 16, 15.viii.56, has a note by Dr. Werner Marten on the relationship between *Coenonympha iphis* W.V., *C. satyrion* Esp. and *C. iphicoides* Stgr. describing also a new variety of the last named sub-species. There are half-tones of eleven undersides illustrating the paper. H. Marx completes his paper on Mimicry.

BULLETIN ET ANNALES DE LA SOCIETE ROYALE D'ENTOMOLOGIE DE BELGE, 92, I-II, 28.ii.1956. This section carries the list of members, and an account of the general meeting of the society together with the President's address, in which after regretting that more young entomologists do not study entomology as a whole before they specialize in one or more orders, M. R. Mayne examines the various causes for the diminishing entomological fauna which we are all regretting, some of us peacefully and others with some feelings of anger. The President, however, deals with this as a scientific fact, and examines the causes one at a time.

He sets out the following headings as contributory causes of the decline in the entomological fauna: (1) The influence or chemical manures used in agriculture; (2) Modifications in the extent and species of trees; (3) Agricultural methods; (4) The progressive reduction in the area of grassland; (5) The reduction of waste land and of fallows, and (6) The general use of insecticides, and under this last heading, he points out the complexity of the position and the different interests to

be taken into account; those of the strawberry grower are not those of the grower of carnations, and the insecticide merchant only cares about selling his wares. There are many paradoxical happenings, and the extermination by aerial dispersion of insecticide, of almost the whole insect population may result in over-production of the few resistant species, and the general upset in the balance of nature often results in plagues of insects offensive to vegetation, animals or to man himself. We have mentioned the heading which interests us most, but the whole paper is one worthy of detailed reading by all who are interested in the survival of insects.

92, III-IV, 30.iv.1956. Beside accounts of the March and April meetings in which E. Derenn gives a list of interesting Coleoptera from Belgium, and A. Collart mentions a Ceratopogonid parasite, *Forcipomyia velox* Winnertz, new to the Belgian list. Gaston Fach describes, in part XXXIV of his contribution to the knowledge of the Staphylinidae, *Ancyrophorus corsicus*, a new species from Corsica. A. Dufrane contributes a note on Cheletids attached to moths. J.-M. Vrydagh continues his study of the Bostrychidae with part 9, on the genus *Amintinus* Lesne. E. Grundmann reviews the Carabid subfamily Chlaeniinae. J. Semal gives a detailed catalogue of the Aphids of Belgium and G. Demoulin concludes with the description of a fossil may-fly, *Electrogenia dewalschei* (new genus and species) from amber.

92, V-VI, 30.vi.1956, reports the May and June meetings. H. Synave describes a new African Hemipteron, *Anigrus capeneri*. J. Pasteels describes several new parasitic flies, and S. Breuning describes several new Cerambycidae from the Belgian Congo.

MEMOIRES DE LA SOCIÉTÉ ROYALE D'ENTOMOLOGIE DE BELGIQUE, 1955, is the jubilee number commemorating the centenary of the Society and consists of 513 pages, and forty-five authors have contributed articles to make up a most interesting volume. Space does not permit of a detailed list, but many new and interesting species are described in many different orders.

S. N. A. J.

In NOTULAE ENTOMOLOGICAE, 34, 1954, there is a paper, in German, by Dr. W. Hackman of Helsingfors University Zoological Museum, on the species of the genus *Drosophila* in Finland—"Die *Drosophila*-Arten Finnlands", pp. 130-9. The author provides a key to *Microdrosophila nigriventris* Zett. and 17 species of *Drosophila* of which 13 are known in Finland and *acuminata* Collin is suspected to be present. Most of these species occur in Britain and are probably best known to British dipterists from Mr. E. B. Basden's paper, "The Distribution and Biology of Drosophilidae (Diptera) in Scotland, including a new species of "*Drosophila*" in *Trans. Roy. Soc. Edin.*, 62: 603-54 (14/6, from Oliver & Boyd, 39a Welbeck Street, London, W.1), and from Mr. J. E. Collin's paper "Notes on some Drosophilidae (Dipt.) including five additional British species, two of them new to Science" in *Ent. mon. Mag.*, 88: 197-9 (1952). Dr. Hackman provides figures of the genitalia of *D. fenestrarum* Fln., *alpina* Burla, *histrion* Mg. and of the Finnish specimen of ? *acuminata* Collin, together with 5 distributional maps and a short list of references to literature.

In the following year, in vol. 35, pp. 74-91, Dr. Hackman deals with

a further portion of the family, in a paper, in English, "On the genera *Scaptomyza* Hardy and *Parascaptomyza* Duda (Dipt., Drosophilidae)." Of the 32 figures of genitalia, 11 are devoted to the British species—*Parascaptomyza disticha* Duda, *Scaptomyza trochanterata* Collin, *flaveola* Mg., *montana* Wheeler, *graminum* Fln. and *griseola* Zett. which were keyed by Mr. Collin in his paper "On the British Species of *Scaptomyza* Hardy and *Parascaptomyza* Duda (Dipt., Drosophilidae)" *Entomologist*, **86**: 148-51 of 1953 and two to the British *Drosophila forcipata* Collin.

These genitalia studies have influenced Dr. Hackman when making tentative groupings in the two genera pending further knowledge to enable a phylogenetic tree to be established. His key to the eight Finnish *Scaptomyza* includes our 5 British species, *unipunctum* Zett. and two new species described under the names of *consimilis* and *teinoptera*. The latter, widely spread in Finland, has been found in Alaska. Of these, *flaveola*, *montana*, *graminum* and *griseola* are known to have leaf-mining larvae.

A new species *norica* is described from Austria, *hsui* from California and *atlantica* from the Canary Islands when dealing with the two genera found in the Atlantic Islands and the *Scaptomyza terminalis* Lw. group of North America. A short summary and a list of 15 references to literature end the paper.

L. P.

FAUNA FENNICA, II—THE SCATOPHAGIDAE (DIPT.) OF EASTERN FINNOSCANDIA by Dr. W. Hackman. 67 pp., 165 figs., 4 maps. Helsingfors, 1956.

This work, in English, gives keys to the genera and the 87 species of this family found in this northern portion of Europe. As at least 40 of these species occur in Britain, this study is most helpful to the collector of diptera in this country. Its importance, however, is due to the genitalia studies, so well illustrated by the figures which are almost entirely of hypogia, some based on preparations made from some of Zetterstedt's types. When considering the phylogenetic relationships, the author shows the great help these genitalia studies have given him. The introductory chapters deal with the parts of the genitalia and their terminology (illustrated).

The list of localities is based on the work of 20 collectors but the dates when the adults were found is only given in general terms. Habitats are stated and frequently life history details are mentioned. There is a whole chapter of notes on the ecology and behaviour, including predation and mating. Four new species are described—*Paracosmetopus helleni* from U.S.S.R.—placed in a new genus and *Chlizosoma sellatum*, *Cordylura freyi* and *Amaurosoma multisetosum* from Finland. Among the new synonyms are some involving changes for those on the British List, as given in Kloet and Hincks, 1945, namely:—

Parallelomma fuscipes (Zett.), 1839, replaces *dispar* (Zett.), 1846.
Amaurosoma nigripes Zett., 1846, replaces *tibiellum* (Zett.), 1838.
Delina replaces *Cleigastra* (= *Clidogastra*) *nigrita* (Fln.).
Scatophaga furcata Say., 1823, replaces *squalida* (Mg.), 1826.
Pogonota barbata Zett., 1839, replaces *hircus* Zett., 1846.

Scatophaga scatomyzoides Zett., 1838, is sunk as a synonym of *Scatophaga suilla* (F.), 1794.

He follows Vockeroth's opinion in regarding *maculipes* Zett. as a form of *Scatophaga lutaria* F. and Ringdahl, Séguy and others in regarding *merdaria* F. as a variety of *Scatophaga stercoraria* L.

The execution of the figures and the printing in general deserve high praise.

L. P.

In a short paper recording two additions to the Danish Empididae, Dr. B. R. Laurence, 1956, in ENT. MEDD., Copenhagen, 27: 242-3, describes the differences between the males of the three species of the *Rhamphomyia* subgenus *Amydroneura*, namely *erythrophthalma* Mg., *hirsutipes* Collin and *gibba* Fln. The females of the first two species are still undescribed. "Both *R. erythrophthalma* and *R. hirsutipes* may be distinguished from *R. gibba* by the presence of yellow, not black, hairs on the disc of the thorax, and on the scutellum, and the presence of pale hairs on the abdomen. *R. hirsutipes*, in the male, has very long hairs on the front tibiae and tarsi, and the front tarsi enlarged and swollen, whereas the male of *R. erythrophthalma* has the front legs with hairs of more normal length and the tarsi are not obviously swollen."

His final remarks are of more general interest and importance, for after commencing his paper with a description of the mating flights of the first two species, he ends his comments with a suggestion that there are two types of mating behaviour in this genus and that this may indicate a separation into two phylogenetic groups.

The family has yet to be monographed in this country but has attracted the attention of many dipterists although the early stages are almost unknown. The need for a full study of life histories is obvious. First, however, keys and descriptions with a tentative taxonomy are needed so that names can be attached to the flies whose habits have fascinated so many entomologists who have enriched our dipterological literature, from Eltringham and Hamm to Garrett-Jones and Fonseca.

L. P.



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Studies in the Geography of Lepidoptera VI. (1)

A New suggestion regarding the history of the Swallow-tail Butterfly in the British Isles

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

My observations of *Papilio machaon* L. at Bagdad, which are set out in detail in an article which I shall publish when I eventually leave that city, deal with many aspects of its biology. In the present context it will be enough to say that I found that the Bagdad colony of this butterfly depends entirely on cultivated plants, and principally on rue; in fact, the other two foodplants, *Anethum* and *Citrus*, would not, if *Ruta* disappeared, permit *machaon* to survive; but if they were absent, *Ruta* alone would permit its survival. Rue is cultivated in Bagdad chiefly for medical reasons; it represents a survival of medieval herbalism.

This suggested to me that rue probably played a part in the butterfly's British history unsuspected by those who have already written on the subject.

Allan (2), Beirne (3), and Ford (4) have all three recently discussed the present range in the British Isles of *P. machaon* and have in one way or another offered theories for its localisation, as compared with Europe. Beirne and Ford give good parallels for this localisation in the distribution and supposed history of other species of lepidoptera; they find the reasons for its present restricted range in East Anglia in general geological developments of pre-historic times: and I find much to agree with in their contentions in general. But Allan and Bretherton (5) more recently have pointed out that during historical times the butterfly has been more widely distributed in England. One must therefore ask whether, after all, the localisation of *machaon* is primary or secondary; that is, whether it became local before man began profoundly interfering with the habitats of the British Isles, or after. It is a question impossible to answer with certainty as there can be no proof of the range of the butterfly before, say, the advent of the Romans in Britain. Human interference usually reduces the range of butterflies rather than extends it; but the opposite is the case for a few species which are domestic or associated with cultivation. The above-mentioned writers, in discussing the problem, have only considered the wild foodplants of the butterfly, and have ignored the possibility of its having been for a longer or shorter period dependent on cultivation. The genus *Ruta* is not native in Britain, and the cultivated species like the wild species of rue are of South European and Asiatic origin. As a foodplant the genus can certainly be ignored in considering the pre-historic history of the butterfly in Britain; but should it have been left out of consideration for historical times? Both wild and cultivated species of rue have an extraordinary attraction for *machaon* wherever they grow; this attraction may well lie in the pungent and enduring smell.

Lovers of Shakespeare will recall that rue was one of the plants which Ophelia gathered (*Hamlet*, IV, v, 27-9). It was evidently a well-known herb in Elizabethan times, though hardly ever seen in

British gardens to-day. Lest fanciful speculation carry me too far, I have consulted one or two botanical authorities.

I am informed by Sir Edward Salisbury, Director of the Royal Botanic Gardens, Kew, that "rue is stated by Mrs. Grieve (*A Modern Herb*, II, p. 695; 1931) to have been introduced into Britain by the Romans, but without saying on what evidence this statement is based. The plant was well known to later herbalists and, to judge from the number of references to it, it was presumably much cultivated. It is mentioned in Turner in 1562 as cultivated in England. Nowadays isolated plants can sometimes be found in old gardens and a few herb-growers may have small patches of it. It is also listed in several nurserymen's catalogues. As it is not now used officially in medicine the amount grown commercially must be very small. The species is omitted from Bulletin 121, Min. of Agriculture and Fisheries 1944 "The Cultivation of medicinal plants". Although the number of gardens is now larger than in Shakespeare's day or even one hundred years ago, it is mostly in old gardens that the isolated plants of rue occur, so probably the total amount of the plant is less than formerly, despite the facts that rue is a perennial and has fairly attractive foliage, so that it would persist in gardens for some time after it had ceased to be regarded as of medicinal value."

I am also informed by Mr. G. Taylor, Keeper of Botany at the British Museum, that rue was formerly much esteemed as a medicinal plant and that there are many references to it in Anglo-Saxon and later herbals. He assumes that the herb was cultivated in English monastic gardens as was known to be the case in 842 A.D. in the Abbey Garden of Reichenau. He adds that, in Ion Gardener's poem *The Feate of Gardening* (the MS. is in Trinity College, Cambridge) written some time before 1440, its cultivation is mentioned and he adds that in most villages in medieval times there was likely to be an "old wife" or "wise woman" possessing some traditional knowledge of herbs who may have cultivated rue. He is not, however, convinced that the cultivation can have been sufficient to be a factor in the range of *machaon*.

Observations at Bagdad, however, show that a few bushes here and there in the gardens of a town are enough to enable a colony of *machaon* to thrive, and I therefore think that one should not dismiss the possibility that, combined with fennel and the wild British umbelliferous foodplants, the cultivation of rue may, until it went out of fashion, have supported the butterfly over a wider range in England than it now has.

Bretherton, whom I have quoted above as having in a recent article proved that at least during the eighteenth century and until about 1816 it was not confined, as now, to East Anglian marshes where the foodplant is the umbellifer *Peucedanum palustre* but inhabited Kent and Sussex and extended westwards into Wales, in addition to one or two mentions by old authors of umbelliferous foodplants (*e.g.* fennel) quotes the record of the caterpillar being found on rue in a garden at Tottenham Green, Middlesex.

It is of course difficult to be sure about the relative abundance and range of the plant before and after herbalism went out of fashion; but it appears that the disappearance of the butterfly from habitats other

than the East Anglian marshes was roughly contemporary with the end of rue-growing for medicine. This is suggestive, and, in the necessary absence of firmer evidence, can be taken as a clue in the problem of the Swallow-tail butterfly's history and range. With rue as foodplant it may well have had a garden status in Southern England since Roman or Norman times.

Whether before Roman times the butterfly was localised in East Anglia cannot be proved one way or the other. Beirne and Ford suppose it was. But if we follow Allan and Bretherton in admitting the fact of its wider range in historical times, it is not necessary to suppose that the wider distribution was primary, and Beirne and Ford wrong. If primarily more widely distributed than at present (by which is meant: "if its wider range was pre-historic and therefore dependent on wild foodplants") its present localisation will have to be explained by some cause operating during the historical period.

This is what Bretherton suggests, the hypothetical cause being a climatic deterioration culminating about 1816. But I suggest that perhaps the non-marshland colonies of *machaon* in England owe both their origin and their continued existence principally to rue-cultivation (without its being an exclusive foodplant). This theory seems to me, in view of what I have seen in Bagdad and what I learn about rue-growing in England, at least as possible as the theory of the climatic deterioration put forward by Bretherton. And it reconciles the zoogeographical theories of Beirne and Ford with the fact of the wider historical range of *machaon* stressed by Bretherton.

My suggestion will not really be affected by whether one accepts or not Bretherton's other contention, that the non-marshland colonies were subsp. *bigeneratus* Verity rather than *britannicus* Seitz. Personally I remain far from persuaded that in historical times England was inhabited by two different subspecies, though it is not impossible. Old figures are unreliable for deciding whether the non-marshland *machaon* was a distinct subspecies; a long series would be required. The dates are not decisive either way. Some of the subspecies of this butterfly that have been described are hard to separate, even with good material, from others; and the Bagdad colony, at least, shows considerable seasonal variation both in larva and adult.

Whether the suggested explanation of the formerly wider range in England of *machaon* which I have given above is correct or not, there seems to be a reasonable chance that if *Ruta graveolens* were introduced into sufficient gardens in Southern England, especially Kent and Sussex, and East Anglia, the butterfly might establish itself as a regular garden insect, despite the possibility of large-scale predation such as Bentall (6) has recorded as attending his experiments. The fact that it has not established itself as such on garden carrot is not an objection, since this vegetable is always being up-rooted and the conditions of its cultivation are in many other ways unsuitable. Rue will persist in neglected corners of gardens once introduced, and a bush or two in each of, say, twenty gardens in the Folkestone or Eastbourne districts might perhaps do the trick, especially if the caterpillar were introduced as soon as the plants were established. In the long run, introduction of the caterpillar might not be necessary. Vagrants from France might find the rue and oviposit. A similar

experiment in cottage gardens between Yarmouth and Norwich might cause an expansion of the Norfolk Broad colonies. It would be interesting to see such an experiment attempted, and the result, if successful, would, I am sure, be most welcome to thousands of persons who do not see enough of this lovely butterfly.

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Continental Ramblings in 1956

By S. N. A. JACOBS.

One is never too old to spend many odd moments of pleasurable speculation as to the possible results of a continental collecting tour, even in a poor year. This year, having decided to visit the Dolomites, the speculations on the microlepidoptera of new terrain to be worked filled many moments which might have been more productively employed, but be that as it may they are all part of the holiday pleasures.

Crossing the channel by the midnight ferry, 27th/28th June, we started off in a south-easterly direction from Dunquerque early in the morning of 28th June. Our intention was to travel on this day through the fair fields of France quickly, and reached Macévaux, a small town slightly to the north-east of Belfort, in time to settle in and enjoy a delicious, though not too elaborate dinner at L'Aigle d'Or.

The speed this day was not in order to avoid France; many spots passed cried out to me to stop and work them, but if one obeys these calls when travelling on a limited holiday, one gets nowhere. I am always somewhat annoyed by accounts of continental travel which almost make it a personal affront to the tourist that the great beauty of the French alps, Central and South France have not been extended to the gates of the channel ports and that the roads through France pass also through the industrial part of the country. To me, the whole scene from Dunquerque onwards has continual interest of one sort or another; in the less picturesque parts, the different scene has its interests, and as I enter my stamping ground of the 1914-18 war, I make sentimental journeys back over the years to the goodly company of those fine fellows with whom I had the honour of serving, and to incidents as a billet here or an estaminet there is recognized, still standing after two wars, and I am always happy to meet the French people, for whom I have a very strong regard.

Almost from the start, the wayside flowers try to draw one's eyes from the road, and it is a joy to see the butterflies making use of them as we used to see them here before the mad days of promiscuous insecticide.

During the short halts for food and rest, one can look more closely at the road verges, and one of my friends which I usually see is the little pyralid moth *Mesographa institalis* Hb., whose larvae live in small colonies on the leaves of *Eryngium campestre* L., and they have the temerity not only to spin these tough prickly leaves together, but even to roll them! As regards the flowers, my favourite is a dark blue labiate which grows in colonies by the roadside, but whose name I have so far failed to discover, but as I have this year grown some small plants from seeds gathered, I hope to find out before much longer. This does not mean that I have no eye also for the Chicory, Cornflowers, and the colourful clumps of the pink vetch which adorns the roadside as one reaches slightly more southerly country, and also the yellow of *Inula*, *Hypericum*, *Ulex* and *Cytisus*.

On 29th June we set out for Switzerland, entering by Basle and proceeding through Zurich along the south side of the lake, which road is the most direct, although as this part of Switzerland is the most populous, there is little scenery until the lake is passed, but this improves as one reaches the Wallensee, and on through Sargans into Leichtenstein which we entered at Mäls, through Vaduz, the capital, and out into Austria at Feldkirch. This little principality has modern shops in Vaduz, but one never feels very far from the Feudal Barons, and there are some good examples of their castles still to be seen, usually perched safely on a steep hillock.

There was little to be seen in the way of insects, and it soon became evident that the entomological season was exceedingly backward.

Following the main road through Bludenz and over the Arlberg pass, we reached St. Anton and the comfort of the Hotel Poste. On the Arlberg and its approaches, the alpine plants did their best to please us; here a colony of the mauve *Viola calcarata*, there an expanse of the white *Anemone alpina* with odd blooms of *Gentiana kochiana* and similar species, and clumps of the vivid blue of *G. verna*.

On the morning of 30th June, we set out for our destination, Cortina d'Ampezzo, travelling along the pleasant main road which follows the River Inn, first on one bank and then on the other, crossing and re-crossing as the conformation of the land suited the road builders. At Innsbruck, we stopped to pay our respects to Karl Burmann, one of the modern authorities on the alpine lepidoptera, especially the Micros. Unfortunately, however, he was not at home and we had to go on our way.

This way now lay along the mountain road to Brenner and over the pass down into Italy by the Bolzano road, which we left at Ponte Gardena proceeding up the pleasant valley and over the Sella, Pordoi, and Falzarego passes arriving at Cortina in bright sunshine, and were fortunate to engage pleasant rooms in the Hotel Poste.

Having reached our first objective, I began to think of entomology and set out for a short walk across the fields to the north of the town. I was pleased to see many Zygaenid larvae spinning up on the fences which flanked our path, but it was only at one spot, in a tree-ringed hollow, that insects seemed at all plentiful, and here I took a short series of *Zygaena achilleae* Esp. for Louis Le Charles of Paris; I also took a few *Boloria* species for Alexander Klots of New York, but the Crambidae for which I had hoped were very few and far between, con-

sisting of *Crambus pratellus* L. and *C. hortuellus* Esp. instead of *C. craterellus* Scop. for which I was searching.

However, when on holiday with a non-entomologist, serious work is a thing the entomologist must put aside, and the next day a drive to Venice was undertaken. The car was duly placed in the park adjacent to the railway station, and we set out to walk to a "vaporbus" stop on the Grand Canal where we duly boarded one of these comfortable vessels and set out for St. Mark's Square, drinking in the unspoiled scene as we went. An hour or so was spent in the region of the square, and the camera used to good advantage, and after eating our packed lunch, elaborated by a portion of the local cassata, we boarded another "vaporbus" for the return journey, landing us in time to have entered our car just as the first drops of a heavy thunderstorm fell. This storm in its brewing made a leaden background which showed up perfectly the delicate pinks and greys of the waterside buildings, and it followed us all the way up the Piave and back to Cortina.

This short visit may expose me to accusations of the methods of the humorous cartoons of American tourists, but it gave me exactly what I wanted, a perfect mental picture of the waterside of this unique town, which would certainly have been dulled had we waited to fill our minds from the almost inexhaustible fund of sights to be seen. Had I been an antiquary, a year would not have been long enough for me, but the joy of seeing this town of the middle ages, unspoiled by "progress", is something never to be forgotten. I can definitely say that Venice is the one and only show place I have seen which looks better than the pictures one sees of it!

On 3rd and 4th July we drove round the beautiful Dolomite country with short collecting periods, but nowhere were insects plentiful, and the only species which was in any appreciable numbers was *Eucosma farfarae* Fletcher (*brunnichiana* Frol.) which was almost everywhere; one *E. grandaevana* Zell. was taken and a few other oddments. The flowers, however, repaid us, and although the Lady's Slipper Orchids were over, and only flowerless stalks remained, a lovely narrow-petalled *Clematis* of a deep bluish purple colour crept over the ground in a pine wood, occasionally mounting the bushes and seedling trees, and the lovely little clear yellow *Viola biflora* accompanied it; but our greatest thrill was to find the tall Tiger Lily in bloom.

Daphne mezereum was over and showing small green berries, but we had the joy of finding the fragrant *D. striata* amongst the dry grass on the rising hills beside the road to Misurina, a little north of the Tre Croce pass; I understand it is necessary to climb higher for the even more fragrant *D. cneorum*, which is the despair of so many alpine gardeners in this country. In this district I also encountered a stand of a beautiful deep magenta *Aquilegia* some twenty yards in diameter, growing in a marshy spot. The Oecophorid moth *Anchinia cristalis* Scop. was later bred from a larva found spun up in a head of *Myrica gale*.

On another excursion towards the Falzarego pass we encountered *Gentiana verna* in large masses, sometimes a yard across, and here I took a solitary *Stenoptilia graphodactyla* Treits.

We left Cortina on 5th July and set out on our homeward road over the high passes to Ponte Gardena and then to Bolzano and over

the Tonale pass to Edolo and Sondrio, round the top of Lake Como, and stopping for the night at Menaggio. No collecting was done, but the roadside butterflies, including the graceful *Papilio podalirius* L., were a continuous pleasure.

The following morning we set out for Lugano, but missed our way at Varese and crossed into Switzerland at a very small customs post which had no Italian Motor Club office, so that we could not reclaim 20 litres of petrol vouchers for which we had paid at Brennar, nor were we allowed to take these out with us, so we had the mortification of having to destroy them as our tank was full.

Five days at Lugano provided some interesting collecting, as the situation of this town is such that long drives, excepting on our homeward road, were not possible without crossing back into Italy. We made one excursion to Locarno, where we visited the famous hillside church of the Madonna del Sasso, and here I saw the centipede *Scutigera rubrolineata*, familiar to me from text book figures, for the first time in the life, and was astonished at the speed with which it could run. I was pleased to find mines of *Lithocolletis millierella* Staud. on leaves of the Nettle Tree, *Celtis australis*, which were kindly identified for me by Joseph Klimesch of Linz. This was on a footpath round the back of Monte Bre, and this path also provided several "blues" and *Boloria* to make up my small shipment to Klots.

Most of the collecting time was spent on a grassy clearing between Morcote and Lugano, behind Monte San Salvatore, but most of the material available was butterflies destined for the United States. Of the few micros, *Agrotera nemoralis* Scop. was perhaps the most interesting species; these were in good condition, but of course, it is not the rarity on the continent that it is here. *Batia lambdella* Don., a single example, was also taken with a few other oddments, in fact, my whole bag for the holiday was probably less than fifty specimens.

Our fifth day at Lugano ended with a torrential downpour accompanied by heavy thunder, which ended a few days of humid heat, and also my collecting.

Our road home took us through the Ticino to the Gotthard pass, which had a fair covering of snow near the top and low cloud spoiled the view for the greater part of the day. The north side of the pass is under reconstruction, and much of the driving was on bare earth, but the road should be very good when completed. Over the Furka pass the snow was very deep, and the customary alpine flowers were mostly covered although we did find some colonies of the beautiful *Soldanella alpina* which one expects to find on the margin of the snow. We had lunch on the northern side of the pass in view of the great Rhone glacier, and before continuing our way, we collected a few modest specimens for the rock garden at home including the common but pretty *Trifolium alpinum*, a couple of Gentians, and the sulphur-coloured anemone which brightened such large areas of the mountain turf.

Our way then took us over the Grimsel pass which was also obscured by cloud and on to Neufchatel where we spent the night, continuing our journey the following morning through the Jura and across the central plain of France to Fontainebleau, in time for an evening meal at l'Aigle Noir, and after a good night's rest, on through Paris to Dunquerque in time for the night ferry which was delayed by fog.

In Paris I called at the Rue Buffon to see Pierre Viette, who was unfortunately away, and my only successful call of the whole holiday was on Louis Le Charles, editor of *La Revue Mensuelle de Lepidopterologie*, and here I had the opportunity of renewing our acquaintance. Then came my usual struggle to find my way out of Paris to the Beauvais road. I can always find my way in to Paris and the Rue Buffon, but always go wrong somehow on the way out, and travel many unnecessary miles in order to rejoin my road.

On the approach to Amiens, for about a quarter of a mile, the poplars at the roadside were defoliated by *Leucoma salicis* L. and I had noted lesser infestations at other points along my road home. In the Amiens district, however, the moths were fluttering in my path to such an extent that I thought it wise to inspect my radiator lest it should be obstructed. However, modern design seems to prevent this worry of earlier motorists. This was about our last entomological observation, and our course was set for home. Although we had to follow a diversion in the coastal area before Boulogne, after passing through the town we followed the more peaceful coastal road to Calais via Wimereux and Wimille on to Dunquerque, where the failure of one of the bascule bridges in the docks necessitated a lengthy and tortuous deviation in which all sense of direction was lost, but the route was well flagged with "Ferry" signs. We eventually boarded the ferry and arrived in Dover in the early morning, leaving the town after the customs formalities about 7 a.m., and reaching home about 9.30.

Once again the optimistic entomologist took possession of me and places to be *worked* on a future occasion were memorized, but whether these will remain a joy of the mind, or whether they will in fact, be translated into reality, and a return home with a good winter's setting in the bag, remains to be seen. Anyhow, the change of scene and fresh air and beautiful flowers returned me to work refreshed and ready once more for the daily round, but always with the hopes of the next trip at the back of my mind.

Current Notes

The recent appearance of *Acherontia atropos* L. in many parts of this island has aroused some speculation as to their provenance. Had all these moths flown to our country from the Continent, or were they the progeny of females who visited us in May and June and laid their eggs on our potato and other foodplants? According to Barrett (*Lep. Br. Is.*, II, 17) the moth is "rather unreliable in times of appearance, usually either emerging in September or October, and, probably, hibernating; or else lying in pupa through the winter and emerging in May or June, but occasionally appearing in July, August, or November, and, indoors, in December. Only one generation in the year. It is a curious circumstance that those females which appear in the autumn are usually without developed eggs, but it is not clearly established whether these are actually barren, or whether the eggs are gradually developed during hibernation".

On the other hand, Lhomme (*Cat. des Léop. de France et de Belgique*, I, 353, No. 939) remarks that the species occurs everywhere

in France and that it is double-brooded, appearing on the wing in May-June and again from August to October. Lhomme ought to have known. Newman and Leeds in their useful *Text Book of Brit. Butterflies and Moths*, 1913, p. 51, indicate that the imagines seen in this country in May and June have hibernated as such. Williams (*Migration of Butterflies*, 1930, p. 283) includes *A. atropos* in a category of immigrants "which may complete one cycle but are not permanently established"; but this does not indicate whether the cycle is a twelve-month one or a summer one. This is a matter which should be cleared up, for we do not recollect reading of a living imago being found in this island in wintertime, nor have we heard of a pupa surviving the winter in England out of doors.

The immigration this year appears to have been a considerable one, imagines being reported from Devon to the Orkneys. A writer in the *Scotsman* of 26th September 1956 recorded a specimen "clinging to our doorpost" in Dingwall. "It had evidently just emerged from its chrysalis", but no reason was given for this supposition. Another writer in the same newspaper reported that one was found at Westray, Orkney, "about the middle of July", and a week later another was taken at Corrou, Inverness. Eleven days after this yet another was captured on board the m.v. *Pharos* between Fife Ness and Bell Rock. From 7th September onwards "reports indicate more regular arrivals almost daily over a wide area, including the Border counties, the Lothians, Fife, Perth and Sutherland". . . . "The data so far available", continued this writer, "appear to indicate that these moths have reached us from a common source as yet unknown". The first ones reported seem to have alighted—if indeed they came from the Continent and were not home-bred—on the western seaboard of our island.

Herse convolvuli L. also seems to have been visiting us in numbers this year. In the North, the newspapers reported it from Berwick, Selkirk, Roxburgh, Lanark, Moffat, and even from so far north as Dingwall. In the south of England it appears to have been almost plentiful. Barrett suggests that specimens taken in this island in June "are believed to result from late larvae, of which the pupae have remained unchanged through the winter". Lhomme says that in France and Belgium it appears on the wing in June, July-August, and September. The only occasion on which we ourselves have found the larvae was on 5th September 1901, when two full-grown ones were found feeding on *Convolvulus arvensis* in a potato field. Both went to earth the next day. But the imago seems to occur with us more commonly than *A. atropos*—perhaps because it is conspicuous when flying at dusk over flowerbeds, particularly when hovering at *Nicotiana affinis*.

An interesting letter comes from our good friend Colonel S. H. Kershaw, D.S.O. "I think this year has been the most extreme (except in 'vars.') that I have known," he writes. "Excess of cold and frosts, drought and damp, heat and tropical gales; we had the fuse box of our telephone blown to scrap by a flash of lightning which struck a telephone

post 300 yards away and dished every telephone in Aspley Heath. *Bellargus* has been non-existent in the Dunstable area this year; *coridon* very late—fresh males in mid-September and in good quantities, but few females seen. I saw only one *cydippe* in our local area—on the other hand *paphia* was even more abundant than last year; *tithonus* and *phlaeas* and *icarus* were more in evidence than in 1955. *Camilla* was slightly more plentiful round here, but *c-album* was not plentiful, nor was and are *urticae*, *io* and *atalanta*. Several *urticae* came into our house to hibernate in the third week of August, and I don't blame them! *Rhamni*, *brassicae* and *rapae* have been quite scarce, and *argiolus* did not appear as a first brood. Incidentally, my daughter saw some good colonies of *bellargus* in north Cornwall.

“As regards Mr. Smith's query about ab. *ganarew* in Salcey, I have seen and taken two or three there in 17 years. A friend took another, and I know of a ♀ *ganarew* having been netted there; but I imagine that the last-named is very rare. Two friends travelling by car and tenting up the west coast of Scotland have sent me a lovely lot of *aethiops* (*blandina*) taken at Loch Awe on 10th and in Skye on 12th August. The latter included a grand underside with no trace of black spots in the patches of red in the forewings . . . My daughter and I got a few *caeca* undersides of *coridon* at Cranham in Gloucs.; but we worked with thunderstorms all round us. No sign of *arion* in Gloucestershire this year, so far as I know.”

A Scottish correspondent writes:—“The story of the collection in a country town museum which contained several Large Coppers reminded me of an incident in 1941 when I was in Inverness. A large furniture shop there had for sale at the time a big collection of Lepidoptera (I forget if they were foreign as well as British), and I now regret not having obtained it for the cabinet alone. In this collection there were certainly two and possibly four or five Large Coppers. I was interested in the collection and an obvious possible buyer; but the salesman refused point blank to allow me to open the drawer containing the Large Coppers and examine the labels. I told him I was an entomologist and could inform him with certainty that no entomologist would be ready to buy such a collection for more than a small sum if he was not allowed the chance to examine the labels. We got quite heated about it, but I didn't get my way! I don't know what became of the collection and as I don't deal with the firm in question I never had occasion to ask.”

Dr. A. A. Lisney writes:—“I am compiling a bibliography of early books on natural history, which will shortly be ready for publication. This bibliography is comprehensive, and includes a full collation of every issue and edition of each work to which it refers.

In connection with the undermentioned titles I have, unfortunately, so far been unable to trace copies of certain editions which are known to exist, and in the case of two works there may be other editions of which I have no record.

I am writing this letter in the hope that, with the kind help of subscribers, I may be able to complete the details in my manuscript before publication. The only information I should require in the first place would be the date and the edition, if recorded on the title-page, of any of the following:—

- (Aikin, John) 12° The Calendar of Nature, 4th and 5th editions, published between 1787 and 1801, and any other editions.
- Bolton, James 12° Harmonia Ruralis, 1831, and any other editions.
- Brookes, Richard 12° A New and Accurate System of Natural History, 1790-91 (3rd edition).
- (Boreman, Thomas) 12° A Description of more than 300 Animals. 2nd to 6th editions, published between 1730 and 1753, and any other editions.
- Hill, John 2° A General Natural History, 1773 (2nd edition).''
- Dr. Lisney's address is: "Dune Gate", Clarence Road, Dorchester, Dorset.

Yet more nature reserves are announced by the Nature Conservancy. Morden Bog, near Wareham in Dorset, is an ordinary south of England heathland, such as extend westwards from the New Forest along the coastal counties; but it contains two insects, the fossorial wasp *Pompilus rufus* Haupt and the ant *Formica pratensis* Retz., which are not at present known to occur anywhere else in this island. It covers an area of 168 acres. Wren's Nest in Worcestershire is renowned for its fossils and is described as "a wooded hill with a broad flattened top (now playing fields) bounded by precipitous and deep artificial ravines which descend into great and steeply inclined caverns". Evidently no place for the elderly entomologist.

Notes and Observations

ACHERONTIA ATROPOS L. AT GOTHAM, NOTTINGHAMSHIRE.—The proverbial wisdom of the combined inhabitants of this village not having risen to the occasion, a fine female *Acherontia atropos* L. was brought to me for identification. It had been captured on 16th September while resting on a wall in the village itself. Considering the handling it must have received it was in very good condition and had obviously not come far.—D. K. McE. KEVAN, Karibu, Ridgway, Gotham, Notts. 22.ix.56.

ACHERONTIA ATROPOS L. IN THE ISLE OF PURBECK.—On 2nd August 1956 a ♂ and ♀ *Acherontia atropos* were seen at rest on an outhouse near Swanage, and one was seen at rest on a wall near the sea at Swanage on 10th September.—LEONARD TATCHELL, Swanage. 6.x.56.

ACHERONTIA ATROPOS L. IN SCOTLAND.—A specimen of *A. atropos* was sent me by Seton Gordon in June. It had been caught by the station-master of Corroul (on the line between Rannoch and Fort William). The Director of the Marine Laboratory at Torry, Aberdeenshire, tells me that *atropos* has been found in Aberdeenshire this year too.—J. L. CAMPBELL, Isle of Canna. 15.ix.56.

ACHERONTIA ATROPOS L. IN THE HEBRIDES.—Sunday, the 9th of September, was a fine warm day on Canna, nearly cloudless and with a very light northerly breeze. During the afternoon a party of four went for a sail in a small boat to the far southwest corner of the island and landed at two places, including Sgorr nam Ban Naomh, the site of an old Columban nunnery referred to previously (*Ent. Rec.*, 63: 195). A butterfly-net was taken on this expedition, but nothing was

caught in it, nor were any butterflies seen. The party returned around eight p.m. and the butterfly-net was left on a seat in the porch of my house. The door of this porch had been closed when the party left (about 2 p.m.) but was left open after its return.

At 11 p.m. Miss Sheila J. Lockett, who is secretary in Canna Estate Office, went to get the net to deal with a crane fly in the bathroom, picked up the net, and noticed an enormous moth sitting on it, to which she immediately called my attention. This, I was astonished to see, was a specimen of *A. atropos* in good condition. It was very sluggish. The net was laid on a table, and the moth was covered with a large glass tumbler, and chloroformed.

On the afternoon of Monday, 10th September, my wife returned from the Edinburgh Festival and late the same evening told me she had heard a large moth in the billiard-room, which is also the estate office here. This is an extension added to the house, and there are three doors between it and the front porch. I took it for granted that the moth she heard was a Large Yellow Underwing, of which species there were a good many in the house, escapees from my m.v. trap, so paid no immediate attention. The next morning I went into the billiard-room office to attend to some correspondence. The first thing that I saw was another *atropos* sitting on the window frame! I may say, our office being what it is, full of writing desks, filing cabinets, books, papers, etc., the chances of a moth being visible at all in it are rather small.

This second *atropos* was kept alive all day, and in the afternoon its squeak was recorded on tape by Mr. Francis Collinson, whose name will be familiar to many readers in connection with *Country Magazine*, and who was staying here at the time. The sound is later to be technically analysed. It reminded me, in a way, of the noise a crayfish (*langouste*) makes when taken out of the water, from which he gets his Gaelic name of "Piper"; a stridulation which sounds like the effect of friction. This may be the first time that an *atropos* has been recorded!

After setting the specimens, it appeared that the first was a male, and the second a female. Both are in good condition.

It is not impossible that the moths escaped from my moth trap, which was out the preceding night and was brought into the porch at 5 a.m. and left covered with a fine meshed fishing net. It was a good night for moths, there being 421 in the trap on counting (of which 227 were *pronuba*), but had the moths been taken in this way, and escaped again, by pushing their way out under the net, as they easily could have done, I would have expected them to have been more rubbed than they were, and, in general, large hawk moths entering the trap are liable to batter themselves.

I understand that specimens of *atropos* have been caught at Corrour and in Aberdeenshire this summer, so perhaps it is a year for them. I may add that I examined the potatoes here after getting these specimens but did not notice any signs that larvae of *atropos* had been feeding on them.—J. L. CAMPBELL, Isle of Canna.

HERSE CONVULVULI L. IN CORNWALL.—Last night was very mild, with the moon well obscured by cloud, and I had the great thrill of taking

two *Herse convolvuli* L. at tobacco plants. The reason why I write is that these bring the total to seven during the past fourteen days, which, I think, can only be regarded as a swarm! The previous five came to mercury vapour light on 8th, 9th, 10th, 13th and 17th September; two arrived quite early, about 11 p.m., and the other three must have come in the small hours after 1 a.m. The largest measures 4·9" from tip to tip. Last night's moths at the flowers were very active indeed, shaking the blooms as they drank, and making a loud purring hum—classical *convolvuli*! The first came at 11 p.m. and the second soon after midnight, and I am hoping that the latter will lay some eggs.

The other, for me, extremely noteworthy event, was the appearance of *Rhodometra sacraria* L. at the lamp on 9th September. It escaped and vanished the first time I tried to box it, and I spent a ghastly four minutes before finding it again, back in the trap.—Dr. F. H. N. SMITH, Perranporth, Cornwall. 23.ix.56

HERSE CONVULVULI L. AND LEUCANIA VITELLINA HUBN. IN KENT.—On the morning of 29th September Mr. J. L. Messenger and I found a female *Herse convolvuli*, in fair condition, on a post at Dungeness. No others were seen on that or the two succeeding days. Unfortunately, though the insect was kept alive for eight days, no eggs were laid. A single fresh female *Leucania vitellina* turned up at sugar nearby on the evening of 30th September among about 250 other moths, mostly *Phlogophora meticulosa* L. and *Agrotis ipsilon* Rott., though there were also about ten *Peridroma porphyrea* Schiff.—R. F. BRETHERTON, Ottershaw, Surrey. 7.x.56.

RHODOMETRA SACRARIA L. IN NORTH WEST SURREY.—On 16th September I found a female *Rhodometra sacraria* L. on heather bloom after dark on Chobham Common. It was of the bright ochreous yellow form, with the stripe only slightly darker, and was probably a primary migrant, as other migratory species had been arriving in the previous days and the cold August would have made it difficult for the species to breed here. My lady survived in captivity for eight days, and after five began to lay many eggs in lines on the fibres of a piece of sisal twine. These eggs hatched on 29th/30th September, and the larvae are now feeding up rapidly in a warm linen cupboard on a diet of *Polygonum persicaria*.—R. F. BRETHERTON, Ottershaw, Surrey. 7.x.56.

MIGRANTS DURING SEPTEMBER AT WESTON-SUPER-MARE.—It may be of interest to record the following moths which have all been taken by me in my moth trap in this garden:—*Herse convolvuli* L. (2), 10th and 14th Sept. A wing of a third specimen was found in the garden during this month. *Lithosia quadra* L. (1), 23rd Sept. *Heliothis peltigera* Schiff. (1), 24th Sept. *Heliothis armigera* Hubn. (2), 23rd and 24th Sept. *Cosymbia puppillaria* Hubn. (1), 24th Sept. *Margaronia unionalis* Hubn. (2), both on 24th September.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 2.x.56.

MIGRANTS AT BUDLEIGH SALTERTON, SOUTH DEVON, DURING SEPTEMBER.—During a short week-end at Budleigh Salterton I took the following moths, which were probably migrants, at light:—*Herse convolvuli* L. (1), 21st Sept. *Lithosia quadra* L. (3), 22nd Sept. *Margaronia union-*

alis Hubn. (1), 22nd Sept. *Leucania l-album* L. and *Caradrina ambigua* Fabr. were both quite common but are now no doubt well established residents on this coast.—C. S. H. BLATHWAYT, 27 South Road, Weston-super-Mare. 2.x.56.

MIGRANTS IN DORSET AND DEVON.—By early September the very poor weather that had raged throughout August, making life not worth living for any moths that were about, I too had come to the conclusion that this year was a wash-out—entomologically, that is. However, things commenced to look up again in September and I began to change my opinion of the year, though not of the month of August.

The first migrants that I saw appeared in the mercury vapour lamp trap in the form of 8 *Plusia gamma* on 29th May at Canford, Dorset. May 31st registered a sudden rise to 30 *gamma* with an equally sudden decline the following night. I heard from friends that this same night had produced some of the rarer immigrants and later in the year it became apparent that there must have been a considerable migration of which some species escaped notice. *Nomophila noctuella* did not appear until the middle of July and then only in very small numbers. A single ♀ *Leucania vitellina* appeared on 19th June and a week later a small batch of infertile eggs were laid in some tissue paper which I had provided. On 26th July a single male *Lithosia quadra* came to the m.v. And so back to Ashburton, Devon, for the summer vacation.

On 4th August the first *Vanessa atalanta* that I saw was feeding on valerian and I have seen only two others since. On the morning of 8th August a single *Macroglossum stellatarum* shyly visited the valerian in our garden but was not seen again. I also saw one seven miles away in Newton Abbot that afternoon. I took this to be a good omen, but nothing came of it. That night the numbers of *gamma* rose to 150, the first sizeable number. Also represented were a pair of *Lithosia quadra*. This was the first time I had taken a female, but she let me down with infertile eggs. Two nights later two more males appeared. Others were taken in the district about this date, so it seemed probable that they were immigrants. Nothing of any interest appeared again until 6th September when a small boy brought me a slightly battered ♂ *Herse convolvuli* which had been found at rest on a clothes' line in Totnes. Other *convolvuli* were reported about this time and it was just too bad that I had to go away for ten days. I had feared that I had missed the only week when there was something about as during this time *A. atropos* was recorded at Plymouth and, three miles away, at Buckfastleigh later in the week. I got back on the 19th September, but although it was a good allround take, nothing really exciting was caught. However, for the next seven days the nights were warm, and there was always a haze and often drizzle with a south to south-west wind.

On 20th September one ♂ *Leucania albipuncta*, one *Laphygma exigua* and two *Palpita unionalis* were taken, and a further *unionalis* came the following night. The next night a male *Diasemia ramburalis* came at about 10.30 p.m. and 23rd September produced a ♂ *L. quadra* with another specimen the following night together with a ♀ *D. ramburalis*. September 25th produced seven more *unionalis* and a fine dark female *Heliothis armigera*; four more *unionalis* and a female *Nycterosea obstipata* ended the run.

Of those mentioned, the *H. armigera* would seem to have been bred in the district since it deposited some pink fluid (meconium) in the pill-box. All the *unionalis* too were in good condition, as were the September *L. quadra*, which were smaller than those taken early in August. These two were the first occasions I have taken the insect before midnight, both coming between 9 and 9.30 p.m. The *N. obstipata* also was in perfect condition.

Concerning residents there is little to comment upon for the last two months. *Euplagia quadripunctaria* emerged on 7th August and was common in some places despite the severe winter. August produced three specimens of *Amathes depuncta* in the latter half of the month. This is an insect I have not taken here before as was *Eupithecia irriguata* which came in April. This is a very rare insect in Devon there being hardly any recent records though no doubt it occurs in many of the larger oakwoods. *Asphalia diluta* and *Antitype flavicincta* were much commoner than usual. *Aporophyla lutulenta* and *A. nigra* were also fairly common. I took two *Tiliacea citrargo* for the first time and one *Larentia clavaria*. *Atethmia xerampelina* and *Antitype chi* both put up a very poor show while an interesting capture was a perfectly fresh *Habrosyne derasa (pyritoides)* on 23rd September.—ALAN KENNARD, Torns Ashburton, Devon. 8.x.56.

LEPIDOPTERA IN THE ISLE OF PURBECK.—It may be of interest to record the following. 14th August: two male *Colias croceus* seen at Swanage. 30th August: one male *C. croceus* at Studland. During the first week of September many *C. croceus* were seen in various parts of the island. From the 1st to the 28th September *Polygonia c-album* were very common.—LEONARD TATCHELL, Swanage. 6.x.56.

COLIAS HYALE L. AT BOOKHAM, SURREY.—A specimen of *Colias hyale* L. in good condition was seen at noon on 9th July 1956 flying in my daughter's garden, which was not far from a clover field.—LEONARD TATCHELL, Swanage, Dorset. 6.x.56.

LATE EMERGENCE OF CALLIMORPHA JACOBÆAE L.—In contrast to the extremely early specimen of *C. jacobæae* taken at light at Porton (*Ent. Rec.*, 68: 135) and one not yet recorded on 5th April I would like to report the capture of one to-day, 24th September, taken whilst I was in the company of Mr. Wakefield and Mr. Muspratt. The insect, a slightly worn male, was sitting in the doorway of a building at Porton where an electric light is usually left burning at night. Other species observed at the same time were *O. lunosa*, *A. e-nigrum* and *E. vulgata*. Could this *jacobæae* be a member of a partial second brood? Or perhaps it was an immigrant caught up in a wave of autumnal migration in which *P. gamma* and *A. e-nigrum* are now appearing. It would be interesting to know if any readers of the *Record* working with a m.v. light during recent weeks have seen anything of this species.—C. M. R. PITMAN, Malvern, Southampton Road, Clarendon, Salisbury, Wilts. 24.ix.56.

CUCULLIA ABSINTHII L. IN SURREY.—In view of the spread of *Cucullia absinthii* L. in recent times, and the collection in 1955 of both moths and larvae in Surrey, it may be of interest to record that on 27th Sep-

tember last I found two larvae of this species on *Artemisia vulgaris* L. on Epsom Downs.—W. J. FINNIGAN, 87 Wickham Avenue, Cheam, Surrey. 5.x.1956.

LEIOPTILUS CARPHODACTYLUS HUBN. IN NORTH SURREY.—On 29th August, on the North Downs above Clandon, I noticed a lot of blooms of ploughman's spikenard (*Inula conyza*) of which the petals seemed to be deranged as if by larval attack, though I could not see the perpetrators. Knowing this to be the foodplant of *Leioptilus carphodactylus*, I brought home a few heads and placed them in a breeding cage. To my delight, a beautiful 'plume' emerged on 27th September, and five more up to 4th October. Beirne mentions only Kent, the Isle of Wight, and Winchester as localities for this species, and both he and L. T. Ford give late August and early September as the time of emergence of the second brood, which is a clear month earlier than my experience. Perhaps the late date may have been due to the cold summer.—R. F. BRETHERTON, Ottershaw, Surrey. 7.x.1956.

BLASTOBASIS DECOLORELLA WOOLASTON IN SOUTH EAST ESSEX.—Mr. John Bradley of the British Museum (Natural History) has recently, with his usual kindness, identified some insects that I could not name. He tells me that I should place on record the fact that I took two specimens of *Blastobasis decolorella* Woollaston, one on the night of 17th June, and the other on the night of 19th June 1955 within a few miles of Rayleigh, Essex. I believe that the insect has not previously been recorded from anywhere in this country outside Kent.—ROBIN MERE, Mill House, Chiddingfold, Surrey. 28.ix.1956.

COLLECTING ON THE GOWER PENINSULA, SOUTH WALES.—I decided to spend five days' vacation from 8th September 1956 on the Gower peninsula as I had read so much about its unspoilt beauty. On the south side it has some very lovely sandy bays and a rocky coastline ending at Rhossili, where I was able to find accommodation within sight of Worms Head. Approaching Oxwich Bay, there is a fine reed bed for about half a mile, although my efforts at sugar and light were not very good. The western side has some very fine burrows where I took a quantity of *Agrotis ripae* Hb. larvae, and the northern side, which faces the Burry estuary, has a wide expanse of marshland, where I observed a large quantity of *Althaea officinalis* growing.

The following evening I spent in searching for *Hydraecia hucherardi* Mab. amongst the plants but was not successful in finding it established there. I tried sugaring the flower-heads and also used the paraffin pressure-lamps, and as I was leaving I did see a moth which resembled *hucherardi* in size and flight, but it dived into the marsh mallow and I was not able to locate it. Unfortunately, the weather seemed to be against me as very few moths appeared at the sugar and, in fact, very few were flying during the four nights on which I went out.

Upon reference to many entomological books I could not trace records indicating that this part of Wales has been worked, but I do feel that collectors within the neighbouring counties should give it a trial, as I think this peninsula has decided possibilities. Although

I only worked the coastline, there is a fair amount of woodland.—L. E. SAVAGE, 65 Cranmer Avenue, Hove, 4, Sussex. 29.ix.1956.

IRISH LOCALITIES FOR *NYSSIA ZONARIA* SCHIFF.—Mr Baynes's notes concerning the egg-laying habits of *Nyssia zonaria* Schiff. in the September issue of the Record (*Ent. Rec.*, 68: 229) were of great interest as I myself am familiar with the area around Ballyconeely in the west of County Galway. I have collected on the sandhills where he and his companion Dr. H. B. Williams searched for ova.

The range of *N. zonaria* in Ireland would appear to be largely confined to the west of the country, and I should like to enumerate the various places where I have found the species established. In May 1950, I caught three males flying over long grass on sandy ground at a spot on the coast of Co. Mayo called Ross, some three miles from Killala. On a subsequent visit in June 1952, I searched over a wide area in the vicinity and found numerous larvae. Less than one mile out to sea is the long narrow islet of Bartragh, which consists almost entirely of sandhills. I once obtained permission (the island is private) to spend a day there, and although conditions seemed entirely suitable I saw no sign of the moth. Another colony exists at Ennischrone in Co. Sligo on the eastern side of Killala bay.

Proceeding now to the extreme north-west of Co. Mayo, there is the coastal resort known as Belmullet. From here, a curiously long-shaped peninsula called the Mullet stretches away southwards. On the Atlantic side of this peninsula are very extensive sand dunes, and here, I think, *N. zonaria* is more common than elsewhere. Going south some twenty miles, just off the coast lies the large island of Achill. In July of this year I found larvae among sandhills near a coastal village on the island called Dugort. It has been recorded too from Keel, also on Achill and from Mulranny on the mainland.

Still further south but now in Co. Galway, there is the locality mentioned by Mr. Baynes, namely Ballyconeely. Some miles along the coast there is another extensive range of sandhills near the picturesque village of Roundstone. I have also found larvae common here. Apart from the places I have mentioned there is a record from Ballycastle in Co. Antrim (see Donovan) and a most improbable account of the discovery of larvae at Clonbrock some thirty miles inland also exists.—RAYMOND F. HAYNES, 29 Fairfield Drive, Dorking, Surrey.

ANOTHER NOTE ON *CALOPHASIA LUNULA* HUEN.—I was most interested to read Mr. Symes' notes on this moth (*Ent. Rec.*, 68: 201). Owing to the kindness of a southern correspondent I have this summer had a few larvae of this moth through my hands and hope that these few notes may be of interest.

The larvae reached me in various stages of growth from about half-grown to one or two in process of pupating. The parchment-like nature of the cocoons, which Mr. Symes notes, was very obvious in the one or two which had started to spin up in transit. Some newsprint had been included in the container as packing and the larvae were spinning up in creases in this. In fact so suitable did this material seem for the spinning-up that I placed some screwed-up newsprint in with all larvae when full-fed and almost without exception they took advantage of the

material offered. (*En passant* it may be said that the political flavour of the newspaper offered seemed to be immaterial!)

The main problem the larvae presented on arrival was that of finding suitable food for them. In this part of the country yellow toadflax is far from common and, indeed, I knew of no suitable colony of the plant anywhere suitably near. So I tried them on the ivy-leaved toadflax (*Linaria cymbalaria* Mill.) and this they took to in a most satisfactory way, eating both leaves and flowers. As the ivy-leaved toadflax is an abundant plant on all walls in the district the food problem was solved.

I did notice that the frass produced by the larvae was rather on the loose side—a fact which the unnatural food may have caused.

The conspicuous colouration of the larvae has often been remarked and I noticed that when disturbed the anterior part of the larvae would sway to and fro, thus drawing attention to themselves rather than the reverse. This exhibitionism is a frequent feature of the life of animals with warning colours.

Only one of my larvae left its cocoon after starting to spin and this one was not spinning up in the paper but among the leaves of the food-plant. It duly pupated but the resulting pupa was deformed and soon dried up.—Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal. 20.ix.56.

A MIGRATION OF *PIERIS BRASSICAE* L. IN JUGOSLAVIA.—During the latter half of August of this year I spent a holiday in Slovenia, in the northern part of Jugoslavia. From Klagenfurt in southern Austria I crossed the frontier on 18th August at Ljubelj, 1379 metres (4452 ft.), which was reached by an extremely steep and tortuous road. Down on the Jugoslavian side the road descended none the less precipitously.

Whilst waiting the few minutes required at the Austrian Customs house I witnessed at 1330 hrs. G.M.T. (1430 B.S.T. and local time) what was obviously part of a considerable migration of Cabbage white butterflies (*Pieris brassicae* L.). Something like two hundred flew past me in the ten minutes I was there. Above on either side of where I stood the mountains rose up still further to the ridge of the Karavanke Alps with peaks between 1500-1600 metres high. The frontier post lay, as it were, in a cleft in this massive limestone range.

The butterflies were coming up from the Austrian side and were not flying directly over the tree-tops covering the slopes that I could see below me, but kept close to the ground either along the winding course of the roadway or by using the gullies where the vegetation consisted of low growing herbs. Through the narrow pass they had to fly against a strong breeze blowing in a south to north direction, though once beyond the gap they descended slopes that were much less wooded than on the Austrian side. The weather at the time was warm and sunny although there was a good deal of intermittent cloud about.

When I left Jugoslavia at the end of a fortnight I crossed back via the same route and on 1st September 1956 I again witnessed the same north-south migration, still in progress, though the numbers passing seemed by then to be slightly reduced.—E. W. GROVES, 143 Carshalton Park Road, Carshalton, Surrey. 2.x.56.

DIPTERA

SOME FLOWER VISITORS IN NORTH STAFFS.—I noticed that there are many differences in flower visiting habits in this district as compared with Surrey. For example, hawthorn in Staffordshire does not attract anything like the number of diptera as in Surrey. I have never taken *Myopa buccata* L. anywhere except on wood anemone. Here, *Servillia ursina* Mg. is only to be found on sallow or occasionally on butter-bur flowers. I believe the reason for this to be that in N. Staffs sallow and butter-bur are in flower just at the right time for the emergence of the flies while hawthorn is not in flower until at least a fortnight (or more) later. I have noticed this over a period of nine years. Here, too, *Criorhina ranunculi* Pz. is to be found only during the very short period during which wild cherry (*Prunus padus*) is in flower, long before hawthorn is in blossom. Since 1941 I have had a colony of *C. ranunculi* Pz. under observation at a very old cherry tree. I missed seeing the flies one year owing to bad weather. The flies have disappeared before the hawthorn is out. In 1950 frost killed the cherry blossom in one night, the second after it was properly out. The following day, biting cold and with snow on the ground, I found one solitary male *C. ranunculi* feeding ravenously on blossom of stunted sallow—the first time I had seen the species feeding on anything but cherry. It seems that in N. Staffs the early diptera are severely limited in their choice of flowers at which to feed. Another instance occurs to me—*Melangyna quadrimaculata* Verr. is only to be found at sallow and not every year either.—J. EDWARDS, 81 Hassam Parade, Newcastle, Staffs. 24.ix.56.

DIPTERA NEW TO THE STAFFORDSHIRE COUNTY LIST.—The collecting season here has been very poor and I have taken little that is noteworthy. My best capture was a pair of *Tephritis bardanae* Schrk. found on burdock in Needwood Forest, Staffs, in July—a new record for the county. *Stratiomys potamida* Mg. was taken in the same locality last year and for the first time in this county.—J. EDWARDS, 81 Hassam Parade, Newcastle, Staffs. 24.ix.56. (*In lit.*)

ON THE EGG-LAYING OF SOME SYRPHIDAE.—Last week after patiently watching our silage heap for over an hour I at last saw *Syritta pipiens* L. lay its eggs. During the three minutes that this took, a specimen of *Xylosta segnis* L. came and laid her eggs as well. All the Syrphid eggs I have examined ($\times 390$) seem to bear the same reticulations and to differ little in size. Can anyone tell me of any differences to look for and where to find them?

I have spent hours watching *Neoascia podagriva* F. females and the nearest I get to seeing them lay their eggs is seeing them disappear at the base of a tuft of grass just above the water line. (See also “*Neoascia podagriva* Fab.”, *Am. Ent. Soc. Bull.*, 15: 86.) Are the larvae like those of *Chrysogaster* in using their breathing tubes to puncture grass roots for air?—R. R. BURK, Great Hayesden, Tonbridge, Kent. 5.x.56. (*In lit.*)

A RECORD OF THE NUMBER OF EGGS LAID BY ERISTALIS ARBUSTORUM L.—On the afternoon of 1st August 1955 which was hot and sunny I watched, at 1500 hours B.S.T., a Syrphid fly (later identified as a female

Eristalis arbustorum L.) alight several times and sip water from the tiled gully of the kitchen drain of my home here at Carshalton. I tubed the insect and on looking at it again in the early evening I found that it had laid a quantity of eggs on the inside of the tube, some singly, others in clusters of three to ten. I removed the fly to another tube so that I could count the eggs which I found totalled 82. No more eggs were laid by the female that day.

This number laid by a Syrphid at any one time, or rather, in a comparatively short time does not compare so favourably with an instance recorded (see Parmenter, 1951) for *Syrphus nidicollis* Mgn., a female of which laid 346 eggs in a tube whilst in transit from Bookham Common, Surrey, to the collector's home no more than two hours' travelling time away. However, in view of the appeal (Parmenter, 1951, *ibid.*) for observations on the egg laying capacities of Syrphids I submit this note on *arbustorum* for as far as I can ascertain no record of any number has appeared in the literature for this species. Reference—Parmenter, L., 1951, The number of eggs laid by a Hover fly, *Ent. Rec.*, **63**: 255.—E. W. GROVES, 143 Carshalton Park Road, Carshalton, Surrey. 2.x.56.

Current Literature

THE CANADIAN ENTOMOLOGIST, **88**, No. 3, March 1956. G. W. Wood and W. T. A. Neilson contribute notes on *Actebia fennica* Tausch, which is a pest on blueberry. A. J. Musgrave and J. J. Miller write on microorganisms associated with *Sitophilus (Calandra) granarius* and *S. oryzae*, the two grain weevils, and there is a paper describing four new species of the genus *Psylla* (Hom.) by D. D. Jensen, illustrated by microphotograph half-tones of anatomical details of each species, together with *P. ribesiae* Crauford from which the new species have been separated.

L. G. Putnam and N. Shklov discuss the distribution of grasshopper egg pods in western Canadian stubble fields. W. W. Judd notes a case of the maggots of a Sarcophagid fly infesting the human intestine, and cites previous records of this phenomenon. C. E. Lilly and G. A. Hobbs write on the biology of *Adelphocoris superbus* Whl. (Hem. Miridae) with a half-tone plate of ova. Eugene Munroe continues his researches into the North American Pyralidae and sets up the new genus *Anageshna* to accommodate *Geshna primordialis* Dyar, of which he also describes two new sub-species, *vividior* and *pallidor*. He also sets up the genus *Aphogeshna* to accommodate the closely related *Isopteryx stenialis* Guen. There is a plate of male genitalia and $\times 2$ half-tones of the typical *primordialis* and of the two new sub-species. Spray programmes in apple orchards are discussed by F. T. Lord; T. A. Angus and A. M. Heimpel contribute a note on *Bacillus sotto* in larvae of *Bombyx mori*, and Dolichopodid flies from Nova Scotia are listed by G. C. Steyskal.

88, No. 4, April 1956, has the commencement of a paper by Stephen L. Wood describing new Scolytidae (Col.) mostly from Mexico; 6 *Hyllocuris*, 2 of the new genus *Phloecocleptus*, 4 *Micracis*, and 1 *Pseudothyssanaes*. There are two papers on *Lithocolletis salicifoliella* Cham. (Lep. Gracillariidae), the one on its bionomics by J. Lynton Martin illustrated by line drawings and half-tones, and a description of the early stages by W. Y. Watson with drawings of anatomical details and chaetotaxy, and five new species of *Carcomyia* Zett. (Dipt. Lonchaeidae)

are described by J. F. McAlpine as infesting cones of various conifers.

In **88**, No. 5, May 1956, J. Walters and L. H. McMuller give the life history of the Scolytid beetle *Pseudohylesinus nebulosus* Lecomte in British Columbia illustrated by a half-tone and charts, and W. R. Richards describes two new Canadian Aphids.

Eugene Munroe revises the Pyralid genus *Diastictis*, limiting the family to the ten truly referable species; there are six new species, *D. pseudogyralis*, *D. holguinalis*, *D. albovittalis*, *D. viridescus*, *D. robustior* and *D. sperryorum* described with ♂ and ♀ genitalia figures of all species together with a half-tone plate of the species and forms. C. J. S. Fox and C. R. MacLellan contribute a note on Carabid and Staphylinid beetles feeding on the wireworm *Agriotes sputator* L., and Stephen J. Wood continues his notes on Scolytid beetles, describing 3 new *Micracisella*, 2 *Thysanoes*, 3 *Pseudothysanoes*, 2 *Cryptocleptes* and 2 *Stenoclyptus*.

ZEITSCHRIFT DER WIENER ENTOMOLOGISCHER GESELLSCHAFT, **67**, No. 4, 15.iv.1956, begins with a paper by Emil Hoffman on *Parnassius apollo* L. and *P. phoebus* F. (*delius* Esp.). There is another paper by Charles Boursin on the Agrotidae-Trifinae, this time dealing with *Agrotis nictymera* Boisd., which he places in *Standfussiana*. There are six figures of imagines, including the type of *S. nictymera* and the original figures of *S. nictymera*, *S. dalmata* Stgr., *Euxoa decora simulatrix* Hb. and *S. lucerneae* L. together with fourteen figures of male genitalia of allied species. Franz Josef Grosz describes a new subspecies of *Caradrina aspersa* Ramb. from Mosul under the name of *buddenbrocki* ssp. nov. A note by H. Marion maintains that *Mecyna lutealis marocanensis* Amsel, described in **67**, No. 1 (1956) as a new subspecies, is synonymous with *M. joannialis* Marion, *Entomologiste*, XI, 20 (1955), and Walter Forster completes his paper on the Lycaenid genus *Agrodiaetus*.

67, No. 5, 15.v.1956, has an interesting paper by Joseph Klimesch on the *Acrolepia granitella* Tr. complex (Lep. Tineina) in which he reduces six new species. There are two excellent plates of wing patterns, and 24 text figures of genitalia details. To *A. solidaginis* Stgr. and *A. granitella*, the author adds *A. occidentella* from *Inula conyzae*, *A. pulicariae* on *Pulicaria* (*Inula*) *disenterica*, *A. orientella* (*Inula*), *A. macedonica*, *A. Wolfschlaegeri* and *A. heringi* on *Inula aschersoniana*. The remainder of this part is taken up by the commencement of a monograph of *Heliophobus texturata* Alpheraky (1892) (Lep. Noctuidae) by Wolfgang Heinicke.

67, No. 6, 15.vi.1956, opens with a note of the species of lepidoptera found in the Gloggnitz district of Lower Austria. Leo Sieder sets up a new Psychid genus, *Reisseronia* with genotype *Epichnopteryx tarnierella* Bruand, Dr. Franz Burgermeister writes on work in the Arlberg district, and Wolfgang Heinicke completes his paper on *H. texturata*.

ENTOMOLOGISCHE BERICHTEN, **16**, 6, 1.vi.1956: G. van Possen writes on insects of economic importance found in 1955; they are classified under food headings. J. van der Vecht writes on the family Agaonidae (Fig Wasps) in Java and points out that each species of *Ficus* has its own wasp species, suggesting that this fact gives an interesting opportunity for entomologists and botanists to work together on the answers

to certain common questions on the development of the species. J. B. M. van Dinther subscribes an article on insects attacking soya beans in Surinam, with half-tone figures of *Laphygma frugiperda* S. & A., *Anticarsia gemmatalis* Hb. and *Agrotis repleta* Walk., and a drawing of the beetle *Cerotoma variegata* F., and Eduard Wagner writes on the systematics of the genus *Graphosoma* Lap. (Hem. Het. Pentatomidae) with 27 text figures of anatomical details.

16, 7, 1.vii.1956, starts with an article by H. Klomp on the Chalcid *Trichogramma embryophagum* Htg. which parasitises the eggs of pine wood lepidoptera and also of the sawfly *Acantholyda nemoralis*. R. Miksic describes two new forms of Lamellicorn beetles: *Amphicomma* (*Eulasia*) *vittata* Fab. ab. *flavopilosa* and *Potosia angustata* Gem. ab. *cupricola*, from the Mediterranean area. A. G. de Wilde gives a table for the determination of the larvae of Dutch butterflies, and A. C. Nonnekens writes on beetles taken in Amsterdam. S. G. Kiriakoff describes a new Lymantriid moth, *Psalis africana* from Africa, and points out that this is the first case of a new species being differentiated on the tympanic characters which heretofore had been considered to be of use for generic and sub-generic differentiation only. Dr Hille Ris Lambers revises the Aphid genus *Cervaphis* de Groot, 1917, with two text figures of anatomical details.

16, 8, 1.viii.1956, G. Black, Jr., notes new localities for *Syngrapha interrogationis* L. and *Euphyia luctuata* Schiff. in Holland and remarks that the latter local species is clearly spreading. Count G. A. Bentinck writes on rare lepidoptera taken in 1955, and on the nomenclature of certain micro-lepidoptera. T. H. van Wisselingh also writes on the 1955 macro-lepidoptera season in Holland in 1955 and notes *Harpyia furcula* Cl. var. *aureonigra* Kennard taken in Dutch Limberg (The var. was recently described from England, *Ent. Rec.*, 68: 53). W. J. Boer Leffet contributes a note on the macro-lepidoptera of Apeldoorn. A. Diakonoff writes on the genus *Bactra* (Lep. Tortricidae) dividing the genus into two sub-genera. E. J. Nieuwenhuis mentions Indonesian lepidoptera, mostly new to science, to be described in *Tijdschrift von Entomologie*. W. H. Gravenstein writes on the species of the *Reduviolus* group of bugs (Hem. Het. Natidae) with text figures. W. J. Katn writes on diptera from Holland and Belgium while Br. Theowald deals with Tipulidae taken in 1955. R. H. Cobben describes a colony of Jassid leaf-hoppers kept under observation, and their parasites, and C. de Jong writes on cases of infestation of stored products, mentioning the grain weevils and the Chemist's beetle (*Sitodrepa panicea* L.) suggesting that a still atmosphere is of great assistance to the rapid and strong development of colonies.

16, 9, 1.ix.1956, starts with No. IV of the series by L. G. E. Kalshoven on Indonesian forest insects of minor importance. This part deals with the Buprestidae (Col.); the paper is in English. P. H. van Doelsburg, Jr., writes on a Tachinid parasite of *Bupalus piniarius* L. with three text figures. There is an interesting paper by J. Paelt discussing attacks on various metals by insects, with a long list of references; W. Nijveldt writes on an Agromyzid and an Itonidid fly in *Salix amygdalina* in Holland, with an English summary. H. G. van Galen contributes a short note on the flight of *Thera rupicaparia* Schiff. on various dates through March with weather notes. C. A. W. Jeekel

writes in English on the Generic status of *Strongylosoma luxuriosum* Silvester from New Guinea with a text figure of anatomical details, and B. J. Lempke commences a note on migratory species during 1955.

LEPIDOPTERIST'S NEWS, 10, viii.1956, opens with notes on *Megathymus ursus* and a description of a new species, *M. violae*, by Don B. Stallings and J. R. Turner. These are giant skipper butterflies of the Southern States. Shigeru Albert Ae writes of a hybrid between *Colias eurytheme* Boisd. and *C. interior* Scudder. Harry K. Clench writes on a "misplaced" Notodontid, *Parabasis pratti* Bethune Baker, with text figures of wing neuration and anatomic details. Edward G. Voss and Warren H. Wagner note *Pieris virginiensis* Edwards and *Erora laeta* Edwards as species new to Michigan with half-tones of the species and of the locality. There is a postscript citing and earlier record of *P. virginiensis*, and the article is followed by one by Walfried J. Rosenthal on the search for this insect in Massachusetts. Cyril F. dos Passos gives a bibliography of general catalogues and check lists of Nearctic Rhopalocera. Wm. T. M. Forbes comments on the advisability of limiting the use of the appellation "subspecies". Gowan C. Clark and C. G. C. Dickson write from South Africa on the honey gland and tubercles of Lycaenid larvae with three plates giving anatomical details of the larvae of forty-five species. There are two notes on *Danaus plexippus* L. by Leonard S. Phillips and by C. W. Stafford. Variation in the Saturniid moth *Antheraea polyphemus* Hb. is discussed by Melvin Goliger, while C. A. Clarke and P. M. Sheppard write a note on hand-pairing of butterflies. Donald J. Lennox has a note on arctic collecting in New England, and a joint note by Edward J. and George T. Austin give lists of insects noted in their garden. After book reviews, there is a further list of recent literature on Lepidoptera followed by minutes of the sixth annual meeting of Lepidopterists' Society with the Presidential Address.

SMITHSON INSTITUTE separates received include 105: 3350, on Lantern flies (Issidae) from the Antilles by R. G. Femah, 3359, by C. F. W. Muesebeck and Luella M. Walkley on type species of the genera and sub-genera of parasitic wasps comprising the super-family Proctotrupoidea. 3360, by Sophy I. Parfin and Ashley B. Gurney on the Spongilla flies with special reference to those of the Western Hemisphere (Sisyridae, Neuroptera), 106, 3362, a Revision of the Millipede genus *Dixioria* (Polydesmida, Xystodesmidae) by Richard L. Hoffmann and, 3363, A Revision of the flies of the genus *Rivellia* (Dip. Otitidae) of America and North Mexico by Ryoji Namba.

S. N. A. J.

IN REPORT No. 37 of the Freshwater Research Institute, Drottningholm, published in Lund, 1956, by the Fishery Board of Sweden is a paper (in German) on the systematics of the Orthocladiinae (Diptera, Chironomidae) by L. Brundin. This group of midges has been in a taxonomic tangle for some time which this paper does much to help unravel. These midges are some of the commonest flies; some species having aquatic, and some species terrestrial, larvae. Keys are given to the genera and subgenera from North Europe and to species in some

of the genera, together with descriptions of new species. The figures are clear and the author uses some new taxonomic characters.

B. R. L.

Reviews

AN ILLUSTRATED LIST OF THE BRITISH TORTRICIDAE, PART I. TORTRICINAE AND SPARGANOTHIDAE, by J. D. Bradley and E. L. Martin, Coridon Press. 6/-. This booklet, intended to be the first of a series on the Tortricinae, should pave the way to a new understanding of this family which has long been considered one of the most unsatisfactory parts of the Microlepidoptera. Eighty-eight half-tone figures showing wing pattern of each species considerably enlarged will help identification, and a label list is included in the text and will, we understand, be available separately for cutting up for the cabinet; in this, the new synonyms are noted, and it is hoped that a step forward has been taken towards uniformity of nomenclature. The morphology of the genitalia has been used to a large extent in deciding affinities, and several surprising changes are the result. We look forward to further parts of what promises to be a most useful series.

S. N. A. J.

ADELGES INSECTS OF SILVER FIRS, by I. W. Varty, B.Sc., Ph.D., Forestry Commission Bulletin No. 26. Edinburgh: H.M. Stationery Office, 8/6. This bulletin consists of 75 pages + 70 photographic plates and deals very thoroughly with the matter in hand, in a manner mainly intended for the forestry student, although its contents should be understandable to a sufficient degree to those lacking the same degree of specialized training, and the matter is such as to be of interest to entomologists as well. The plates include micro-photographs and enlarged photographs of the insects in various stages of growth, together with the damage done, and photographs of breeding methods, and details of infested plantations. There are many instructive tables, and a bibliography giving 157 references.

S. N. A. J.

The December RECORD will contain the last instalment we shall print of Dr. Malcolm Burr's 'Memories of a Naturalist', with a recent studio portrait of the author. Other articles will include an important paper on the proboscis in Lepidoptera by Dr. J. Sneyd Taylor. There will also be interesting Notes on immigrant species observed in Norfolk and Cornwall, with an account of captures at m.v. light in the Hebrides, which includes a number of species not previously observed.



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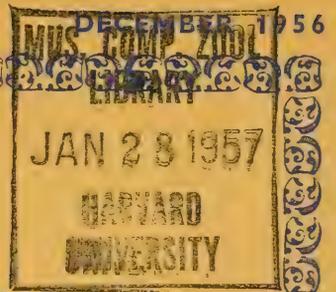
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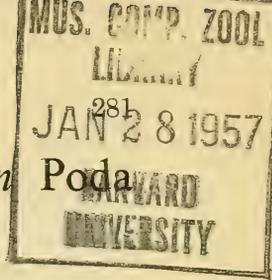
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A Successful Rearing of *Lysandra coridon* Poda ab. *syngrapha* Kef.

By Major A. E. COLLIER

At noon G.m.t. on 6th August 1954 I found a fresh specimen of *Lysandra coridon* ab. *syngrapha* on a Wiltshire down. On the off-chance that it might not already have been mated I took a few males and proceeded on my way to Surrey.

At 5.0 p.m. the same day I caged them together and, within a few minutes, a pairing took place.

Between the 8th and the 25th of August more than 70 eggs were laid, when the butterfly died, after being attacked by ants.

The eggs were kept exposed to the weather, but protected by muslin, on an open balcony. At the end of December a small number of eggs were seen to be holed and empty, but, as the foodplant was dead, no signs of larval feeding could be seen.

On 21st March 1955 one or two eggs began to hatch and 75 eggs in all were counted and placed on a pot of *Hippocrepis comosa* grown from seed sown in 1953. By 31st March 1955 most of the eggs had hatched. The larvae progressed without serious casualties and produced 50 pupae by 6th July 1955. From these there emerged 15 ♂♂ and 32 ♀♀, all apparently typical. A number of ♀♀ were caged with their brothers, some individually and some in company. By 28th July 1955 eight matings had been observed. When four ♀♀ were seen to be laying they were caged, two separately and two together.

Most unfortunately the eggs from the individual insects proved to be sterile. The two caged together produced approximately 280 eggs, most of which appeared to be fertile. These eggs were kept exposed to the weather, but in contact with living *comosa*. A small number hatched in the late summer and were feeding till the end of the year, when they settled down to hibernation. They were, however, all killed by the very severe frosts in February 1956.

During March the larvae began to emerge and 203 larvae were counted on 31st March 1956. A number of eggs failed to hatch. There was considerable mortality, particularly in the penultimate and final instars. This was probably largely due to overcrowding and the occurrence of mildew.

Ultimately 125 pupae were obtained and from these there emerged 110 imagines, consisting of 32 type ♂♂, 42 type ♀♀, and 36 ab. *syngrapha* ♀♀. The high proportion of *syngrapha* in the F2 brood is of great interest, as is also the very low proportion of ♂♂ in both broods.

The high mortality, and the fact of the brood being a mixed one, make it impossible to be dogmatic about the genetics of the *syngrapha* character, but it does at least appear to be a recessive. Further matings having been obtained it is hoped that future broods may help to clarify the position.

In the course of the above experiment I was also breeding from normal *coridon* ♀♀ in order to try out various foodstuffs. I was greatly disappointed to find that at no stage would the larvae accept *Coronilla glauca*, of which I had a large supply. In every case, and in all

instars, they preferred death by starvation. *Lotus corniculatus* was also refused, and green peas or pea pods caused sickness when eaten at all.

Serious losses in the earlier stages can be caused by slugs. On two occasions all the larvae in a sleeve disappeared, and slugs have been found buried among the roots of the *comosa*.

This summer I was pleased to get a pairing, *fowleri* ♂ × *syngrapha* ♀, from which I obtained a number of eggs, laid partly on *comosa*, dug out and potted *in situ*, and partly on the cage net. A routine inspection one day revealed that 80 eggs had disappeared from the net. The plant was examined and a thriving nest of ants, with large numbers of ant larvae, was found in the roots. Fortunately, the eggs laid on the *comosa* and the dead herbage were undisturbed. There is no doubt that the only safe food is *H. comosa* grown from seed. This produces luxuriant growth in its second year, and the pots can be kept free from slugs, ants and other predators.

About 10 per cent. of the eggs laid this year by the *syngrapha* pairs have hatched, and the larvae have been feeding freely; some have reached their second instar. I propose to give them reasonable protection from the extreme cold this winter, a condition which, in the wild state, many would find among the roots of the *comosa* under dense grass.

On Some Forms of *Aglais urticae* L.

By B. J. LEMPKE

In 1909 Raynor gave a survey of the variation of *Aglais urticae* (*Ent. Rec.*, 21: pp. 4-8). Since that year much has been published about this subject, so that a critical study of the infrasubspecific variation of the Small Tortoiseshell would certainly not be out of place. In this note I only discuss a few points which struck me when writing the text for the fourth supplement to the Catalogue of the Dutch Macrolepidoptera.

1. Form *ichnusioides* de Selys. Apart from the correct spelling of the name there has never been much discussion about this form. Everybody had a more or less clear conception of its appearance, although it was redescribed a few times under different names. In 1950, however, Verity declared (*Farf. It.*, 4: p. 366) that nobody had taken the trouble to read de Selys' original description, and that this form is in reality nothing but that which I described in 1931 as *impuncta* (*Lambillionea*, 31: p. 98) lacking the two discal spots on the upper side of the fore wings, but otherwise quite normal. Let us see what is true of this:

The form was first described by de Selys in 1837 (*Cat. Léop. Belg.*, p. 18) under the name *ichnusioides* with the following description: "This accidental very remarkable variety has once been taken at Huy. There are only four spots on its forewings as in var. *ichnusa* from Corsica, of which it imitates all the characters. It is in the collection of M. Ch. Donckier". According to this description the fore wings of *ichnusioides* have only the three costal spots and the spot at the inner margin, while the two discal spots are absent, so that at first sight one is inclined to agree with Verity. But in 1844 de Selys once more

mentioned the form (*Enumération des Insectes Lépidoptères de la Belgique*), this time under the name of *ichnusoides* (*l.c.*, p. 4), a spelling which was continued until in 1928 Derenne drew attention to its incorrectness (*Lambillionea*, **28**: p. 3). De Selys then gave the following description (*l.c.*, p. 31):

“There are only four spots on the fore wings as in var. *ichnusa* from Corsica, of which it completely reproduces the most striking character. Moreover there is a melanic suffusion over a large part of the hind wings”.

The author further adds that it was taken at Huy and formed part of the Donckier collection, so that there cannot be the slightest doubt that this description again refers to the same specimen. From this ampler description it is clear that *ichnusoides* is not the same form as *impuncta*, because in the latter the hind wings are quite normal.

The type specimen of de Selys was figured by Lambrichs in 1878 (*Ann. Soc. ent. Belg.*, **21**: pl. 1, fig. 5). It has the basal and middle costal spots of the fore wings connected with each other by a black bar along the subcostal nervure, whereas the middle and outer costal spots are connected by a strong black suffusion, so that they form in reality one black blotch. The hind wings have a broad reddish post-discal band, which is crossed by black nervures. The blue lunules along the outer border are present. An excellent figure of such a specimen is that in South's *Butterflies of the British Isles*, p. 68, fig. 22, reproduced from *The Entomologist*, **29**: p. 73, 1896, after a specimen taken at Darlington.

In my opinion the following names are synonyms of *ichnusoides*:

(A) Form *atrebatensis* Boisduval, 1873, *Revue et Magasin de Zool.*, 3e série, **1**: p. 409, pl. 17, fig. 1. Described from a specimen taken near Arras, France. The fore wings show the same characters as f. *ichnusoides*: second and third costal spot coalescing, discal spots absent. The hind wings differ in that the red postdiscal band is reduced to five small reddish spots. But all transitions exist between the two extremes figured by de Selys and Boisduval, so that it is impossible to make a sharp distinction between them. The former author wrote in 1874 (*Comptes-R. Soc. ent. Belg.*, p. XXXIX): “This figure is identical with my type (of *ichnusoides*) except that the reddish ante-terminal band of the hind wings is reduced”.

(B) Form *lucia* Derenne, *Lambillionea*, **26**: p. 82. On the fore wings the second and third costal spots are connected by a greyish suffusion, the two discal spots are absent, the hind wings are black with some feeble traces of reddish near the centre. Clearly this is the same principle of variation as in the two preceding forms.

(C) Form *semiichnusoides* Pronin, 1928, *Lep. Rundschau*, **2**: p. 179, fig. on p. 178: “I name *Vanessa urticae* ab. *ichnusoides* with blue spots on the hind wings ab. *semiichnusoides* m.” wrote the author. So the name is a pure synonym, even to the most extreme “splitter”. The figure shows an *ichnusoides* in which the extension of the red colour on the hind wings is intermediate between the two types of de Selys and Boisduval, again a proof that a real distinction between them is impossible.

Here I may add that the blue lunules vary as much as the red hind wing colour: they may be completely present (*ichnusoides* and *atre-*

batensis), reduced in size or number (*lucia*), or absent. It goes without saying that it would be absurd to give names to all these small differences.

(D) Form *seminigra* Frohawk, 1938, *Varieties of British Butterflies*, p. 92, pl. 22, fig. 2. (No description.) The figure, drawn from a specimen in the Rothschild collection, shows all the characters of *ichnusioides*: the two outer costal spots of the fore wings coalescing, discal spots absent, hind wings with red postdiscal band crossed by black nervures.

2. The *ichnusioides* with completely black hind wings. This form is often indicated as *nigricaria* de Moffarts, 1895, *Misc. Ent.*, 3: p. 122. At the place indicated, there is actually a note by de Moffarts entitled: "Description d'une aberration de *Vanessa urticae* L.", in which he describes an aberration with velvety black hind wings, taken at Bouillon in Belgian Luxemburg. But there is not a trace of a name in the article for this form! The first author who used the name *nigricaria* is Lambillion in his book *Histoire naturelle et Moeurs de tous les Papillons de Belgique* (1902, p. 64). He attributes the name to de Moffarts and gives an ample description of the specimen in which he says: "The hind wings are completely black with the exception of three reddish spots placed on the side of the outer border". So the specimen was in fact an extreme *ichnusioides*.

The correct name for specimens with *ichnusioides*-like fore wings and completely black hind wings is *nigrita* Fickert, 1897, *Jahreshefte Ver. vaterl. Naturk.*, Württemberg, 53: p. LXVIII. By means of temperature experiments this author produced specimens with "completely brown-black hind wings" with only traces of yellowish lunules along the outer border. See also Eimer in *Ontogenese der Schmetterlinge*, p. 403, 1897, for a further description of these specimens.

In English literature especially such specimens are sometimes described as f. *nigra* Tutt. The description by Tutt reads simply (1896, *Brit. Butterflies*, p. 335): "The hind wings are sometimes entirely black". As the author does not say a word about the fore wings, and as no type specimen is known, the name must be used for the (very rare) specimens in which the fore wings are normal, but in which the hind wings are black. A specimen approaching this form is figured in *The Entomologist*, 29: p. 73 (1896), from Darlington (copied in 'South', p. 69, fig. 23). Another strong transition to this form is mentioned by Lipscomb (*Entomologist*, 68: p. 207, 1930), taken near Tidworth, Hants. It had normal fore wings, but the hind wings were purplish black, "with just the faintest tinge of the normal red band and the lunules represented by thin blue streaks".

(The form with only the fore wings of the *ichnusioides* type and with normal hind wings is also known. This is f. *leodiensis* Cabeau (1927, *Lambillionea*, 27: p. 33).

3. The *ichnusioides* with the three costal spots of the fore wings coalescing.

The oldest name for this form, which is much rarer than true *ichnusioides*, is no doubt *osborni* Donckier de Donceel (1881, *Feuille jeunes Nat.*, 11: p. 33, pl. I, fig. 4). The figure shows a specimen in which the three costal spots of the fore wings are united into one large black blotch, the two discal spots are absent, but the spot at the inner

margin is present; the hind wings are black with long brown hairs at the base and a row of blue lunules along the outer border. It was taken by Osborn in Ireland.

[Stichel (Seitz, 1: p. 204, footnote; 1908) is of opinion that *osborni* is a form of *Nymphalis polychloros* L. identical with f. *testudo* Esp., principally because of its large dimensions. He forgets, however, that no authentic records of this species are known from Ireland. The figure is doubtless an enlarged representation of a form of *Aglais urticae*.]

Another name for the form is *conjuncta* Neuburger, 1905 (*Soc. Ent.*, 19: p. 170). It is described as being identical with *atrebatensis*, but having the three costal spots of the fore wings connected with each other. One male from a number of caterpillars bred by Dannenberg. Two specimens were bred by Sutton, probably from the neighbourhood of Birmingham (*Entomologist*, 75: p. 88).

4. Forms related to f. *ichnusioides*. There are some forms which clearly belong to the same group but are sufficiently different to justify separate names.

(A) *F. selysi* Donckier de Donceel, 1881 (*Feville jeunes Nat.*, 11: p. 34, pl. I, fig. 2). The figure shows a specimen in which the two outer costal spots of the fore wings are only connected by a feeble suffusion of black scales. For the rest there is no real difference from *ichnusioides*. The red colour of the hind wings is intermediate between the two types of de Selys and Boisduval. The name can only be maintained for specimens in which the three costal spots are all unconnected, or in which the outer ones are only connected by a feeble suffusion, so that the independent character of the spots remains. The type was taken in Belgium, but the exact locality is not known.

(B) *F. dannenbergi* Neuburger, 1905 (*Soc. Ent.*, 19: p. 170) differs from *ichnusioides* in having yellow instead of blue lunules along the outer border of the upper side of fore and hind wings. This specimen was bred in a temperature of -3° C.

An interesting question is whether all these forms are environmental or hereditary ones. I am convinced that the answer is simply "both". It is well known that *ichnusioides*-like specimens can be produced by exposing the chrysalids to extreme temperatures, but it is very unlikely that the specimens caught in the wild state would be the result of such unnatural circumstances. Though it is not proved experimentally, I suspect that *ichnusioides* and the other forms related to it are recessive hereditary forms. A strong indication that such is the case is the fact that a Dutch collector caught an *ichnusioides* in his town in 1945 and again in 1947 and 1951, whilst another was taken in the neighbourhood of the town in 1941. I am convinced that the number of heterozygotes there was so large that now and then a pairing between two of them took place, which resulted in the production of a homozygote. Whether the more or less strong blackening of the hind wings is caused by environmental factors, or whether it is multifactorial or changed by modifiers are questions which can only be solved by experiment.

Amsterdam, Z2, Oude IJselstraat 12 iii. 17.x.1956.

As we go to press we learn with regret of the death of Dr. E. A. COCKAYNE, who died at Tring on 28th November. We hope to publish an obituary notice in a forthcoming issue of this magazine.

Melanism and an Answer to J. W. Heslop-Harrison.

By H. B. D. KETTLEWELL

In the July/August number of *The Entomologist's Record*, Professor J. W. Heslop-Harrison, in an article entitled "Melanism in the Lepidoptera", refers to the work recently undertaken by me. His criticisms and accusations are so numerous that it is practically impossible to answer each separately in a paper of reasonable length. To ignore it, as had been my original intention, would be wrong and, in fairness to the large number of people who are helping me in the present study of Melanism in the Lepidoptera, I will do my best to give a reasoned reply. In an attempt to give constructive answers, I have classified the various points raised under headings, but throughout his paper one cannot escape the impression that there is an underlying feeling of personal pique that his previous work has been overlooked, belittled or misinterpreted. This, of course, was not intended, and I assure Professor Heslop-Harrison that I am personally well acquainted with each and all of his papers on the subject. It was my belief, however, that his interpretation of his original work, in which he claimed that he had induced melanism by feeding larvae with certain chemicals, had been thoroughly discounted by the majority of biologists at that time and since. Because of this, I had no reason to cite his views which, due to his recent paper, I now must do, and also, though painful, those of his critics.

At the commencement, I must make it clear that for my part I have on no single occasion claimed that "my experiments were decisive" nor that the story of Industrial Melanism was completely solved. My work in this direction has so far shown, I believe with considerable evidence, that birds take cryptic moths, and that they do it *selectively*. The Professor chides me that "most definitely (birds) are not the only agents" and goes on to say that I have "paid too little attention to such additional sources of eliminatory movements". Whatever that may mean, I must state that my experiments were designed to ascertain whether birds, and birds only, played a part in selective elimination. Any unbiased person who had read these papers would, therefore, not invent hypothetical predators and accuse the worker of not having paid attention to them. Quite obviously birds have no priority rights to predate moths exclusively, but they are, without doubt, the most likely agency for the enforcement of Natural Selection. Heslop-Harrison suggests that bats are responsible for predation by vision and that "surely in the twilight of a wood, the lighter individuals would be more conspicuous and therefore the more likely to be captured". Furthermore, he quotes the authority of T. Ashton Lofthouse (giving the wrong reference: it is *Vasculum*, 17: 1931) and makes the astounding statement that "he proves that bats take moths at rest on a wall". In fact the writer, in a short note, states that he found moth wings in his porch which was about 30 yards distant from a gas lamp and "this probably attracts the moths and then the porch becomes a suitable collecting point for the bats". The article, in fact, bears no relationship to the claims of Heslop-Harrison. In my opinion, it is this kind

of loose quotation, coming from a man in his position, which is frequently responsible for entirely erroneous statements being passed on from paper to book, and book to paper. On the contrary, I believe that bats play but a small part only, if any, in taking stationary cryptic moths: nor can they contribute to the selective predation of moths on the wing unless guided by vision. If this is the case, and I doubt it, it could only apply to crepuscular fliers and the Peppered Moth is not one of these. We now know, due to the work of D. R. Griffin and R. Galambos (1941) that most bats do not rely on vision for hunting, with the possible exception of the noctule. It seems an appropriate place to point out here that the Professor does not seem to appreciate the difference between Density Dependant Factors and Selective Predation values. That bats are responsible for destroying thousands of moths cannot be denied. But if they do not take a higher proportion of one form than of the other, they contribute nothing whatever to the spread or decline of a form in a given district. Thus S. P. Hodgson (1943) records 75 species of moths under a single batroost, 45 being *Agrotids*. He did not claim that they had been taken selectively. In my own experiments, both near Birmingham and in Dean End Wood, Dorset, I was plagued with bats to such a degree that I had to take precautions against them. Male *betularia* were eaten in scores as they flew to the assembling cages, yet there was never any evidence that they took more of the lighter individuals than of the dark which, had it been so, would, of course, have been reflected in my recapture figures.

Before dealing with the main conflict of views, there are sundry other minor differences to clarify briefly. Heslop-Harrison states that recently he "tried to free typical *betularia* on to lichen-clad bark" but "except in one instance, all that happened was that the insects vibrated their wings rapidly and then flew away" (p. 176). This obviously is meant to bring discredit on my releasing technique. However, on p. 178, when wishing to show that the *carbonaria* form was conspicuous in the North Durham area, he states that he "placed specimens of *carbonaria*, allowed them to settle down, and then examined them from a distance". Surely these trivial experiments giving no numbers nor design of scoring are quite valueless. My own conclusions on the releases I undertook, and their camouflage efficiency values, were based on over 2,000 individuals, each one of which scored one of six possible marks, for successful concealment or otherwise. I have been up to Newcastle and Professor Heslop-Harrison himself took me to two of the woods he works. The oak trunks were void of all visible lichens and as black as any I have seen elsewhere. I am not prepared to accept his statement that, given a sufficient number of *carbonaria* releases, and unbiased observers, the *carbonaria* form would usually be "clearly visible from a distance of over 20 yards".

It is indeed pleasant to be able to answer a series of direct questions though, in fact, these should never have been asked if Heslop-Harrison had taken the trouble to read my proofs and papers with care. He quotes four sets of figures and points out that they do not correspond. They are unlikely to do so, in view of the fact that they represent different types of analyses of the same series of experiments. The figures he quotes are as follows:—

Reference	T.	C.	I.	Total	Recap- tures
1. <i>Moths</i> , E. B. Ford (1955)	171	416	—	587	—
2. <i>Moths</i> , E. B. Ford (1955)	—	—	(—)	584	141
3. <i>Discovery</i> , H. B. D. Kettlewell (1955)	—	—	(—)	584	141
4. <i>Heredity</i> , H. B. D. Kettlewell (1955)	137	447	(46)	630	149

1. The 587 *betularia* were made up of both males and females of the *typical* and *carbonaria* forms and were released with the object of scoring background efficiency and also, as stated by Ford, to be "watched from a distance through glasses". The figures are extracted from Table 2 (p. 327) of *Heredity*, 9: (1955), under the caption "Background Scoring", and are perfectly correct.

2. As males only in this species are capable of recapture with any ease, 3 females, which were included on one occasion for direct observation because of a shortage of males, were quite rightly excluded, giving a total of 584 males (Table 5, p. 332, *Heredity*).

3. The *Discovery* article quotes the same figures: namely that 584 males were released.

4. In previous cases, the *insularia* form, though recorded assiduously, has been left out because the numbers were too small to have significance. The total release, in fact, was 46, and is included in my main *Heredity* paper (Table 5). This gives a total *betularia* release of all three forms of 630.

Had the Professor so wished, he could easily have elucidated all these points by reading the text more carefully, which makes it abundantly clear, instead of deliberately confusing the issue.

He says (p. 176) that my paper lacks "many pertinent and essential particulars". "For instance we should know the relative numbers of oaks, birches and other trees present". This is, of course specifically given (p. 331), and again the numbers of moths released per tree species (Table 2) in the same paper. It appears to be useless to go on reiterating statements which any intelligent reader could find out for himself if he so wished.

I now want to come straight to the crux and kernel of Heslop-Harrison's views and compare these with my own. The Professor raises his own word smog; what matters it whether we talk of "melanism" or "nigrism"? Or again, he has invented a new word "melanogen". When translated this can only mean that he believes that recurrent mutation, brought about by the ingestion in the larval stage of chemical (or chemicals) present in air pollution, is responsible for industrial melanics. Throughout his papers he makes this abundantly clear and even extends his theory to the effects of chemical differences between various species of willow on the egg-laying instincts of the Sawfly, *Pontania salicis* Christ. "In other words", he states, "we see the evolution of species taking place, not on the basis of the older theories, but in an entirely new principle". This, of course, is pure Lamarckism (or more strictly, Buffonism).

In early June this year, I received a letter from Heslop-Harrison, part of which I now quote "Your *Discovery* article contains an account of my 1926 Royal Society paper in which the first statement about the induction of melanism was made. Your paper has an entirely fancified account about its being concerned with Lamarckism and provoking

Lamarckian controversies. Where you have got this idea I do not know". In a few moments I shall be able to enlighten him. But, continuing with his letter, he says "I really think that somehow or somewhere you should correct this extraordinary series of statements". But how could I? Throughout his papers, there are constant references to Lamarck. Referring to the incidence of Industrial Melanism and it being "bound up with industrialization", he says "Of course, admitting as it does, the possibility of the Lamarckian factor in evolution, this connection is minimized by those rejecting Lamarckian views, but every worker who approaches the problem in the field ends by emphasizing it" (Harrison, J. W. H. and Garrett, F. C., 1926, p. 242). Yet in his recent paper, again referring to induced mutation, he says "Moreover, in another work it will be seen that I stated equivocally 'no claims are made here, or elsewhere, that we are concerned with a Lamarckian effect' ". How then comes this final paragraph in a paper referring to induced mutations "Add to this the fact that a direct demonstration of a genuine Lamarckian effect has been made and one is forced to admit that Lamarckism itself has received very powerful support, both directly and indirectly, from the work described above"! (Harrison, 1927, p. 125). Professor Heslop-Harrison refers to my "remarkable mental gymnastics" but I have to admit second place after this! It would appear to me that in many of his papers the Professor has armed himself with suitable escape clauses so that thereafter he can quote in either direction. The indisputable fact is that he believes that environment (food or chemicals) affects the "soma" which in its turn changes the "germplasm", and that this is then inherited according to Mendel's Laws. Furthermore, it would appear that he envisages the recurrent mutations as taking place at a prodigious rate sufficient to be, in part, responsible for the origin and spread of Industrial Melanism.

Having resurrected this corpse which died a natural death many years ago, it is as well for us now to examine the verdict on this short-lived child, and many well-known biologists gave their evidence at the inquest. Heslop-Harrison claimed that he produced melanics in broods of *Selenia bilunaria* Esper., and also *Tephrosia bistortata* by feeding the larvae on manganous sulphate and lead nitrate, and his figures show a high frequency of these forms in most of his treated stock. The work has been repeated by competent workers using the same techniques and on a large scale. Never have they been able to claim similar results. A. W. McKenny Hughes (1932) bred six generations of *Selenia bilunaria* comprising 3,265 individuals, and concluded "No melanic individuals have appeared either in the treated or the controlled broods".

Amongst the Continental workers, whom Heslop-Harrison knows so well, he no doubt will remember the experiments of Math Thomsen and Henning Lemche (1933). 1,920 *bilunaria* were bred, 735 treated with salts and 1,185 controls. No melanic moths appeared in either stock. They state "The question which we originally posed whether the methods used by Harrison could be explained as mutations with any degree of certainty must therefore be answered in the negative" (translation). More recently, I understand, the work has been repeated in Denmark, again giving no confirmatory results (verbal communication).

Heslop-Harrison made a point of the fact that his original melanic *bilunaria* appeared in a non-Mendelian ratio; that there were fewer than expectation and that therefore they were primary mutations. E. B. Ford was quick to point out that the melanic was a recessive and therefore had no bearing on Industrial Melanism in which it is, in practically every case, dominant. Furthermore, he called attention to the fact that Heslop-Harrison had already admitted that his melanic forms were less viable, and that this could account for their occurrence in a non-Mendelian ratio.

Sir Ronald Fisher (1932-33) showed that Heslop-Harrison's figures gave a mutation rate of 8% and stated that "Of known physiological agencies, the most effective in inducing mutation, namely, irradiation with X-rays, seldom causes a rate of more than one in several thousands at a particular locus". J. B. S. Haldane (1935), drawing attention to mutation rate in populations, showed that the disease Haemophilia in the human has one of the highest known, approximately 1 in 50,000, yet Heslop-Harrison claims 8 in 100! If this were true, it would indeed be a very potent cause of both the origin and spread of Industrial Melanism!

In a further paper, I hope to show that Industrial Melanism can be accounted for in a very different way, invoking no new law of Nature.

In the meanwhile, I would like to ask Professor Heslop-Harrison if he would be so good as to answer clearly the following two questions:—

- (i) Does he or does he not still believe that "induced melanism" contributes to the origin or spread of Industrial Melanism?
- (ii) Having played down the part undertaken by birds, does he still believe that Natural Selection, working on the black and light forms of moths (quite apart from physiological differences), is an important factor in Industrial Melanism?

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Comments On The Distribution of Lepidoptera

By H. N. MICHAELIS

From perusal of recent books and papers on Lepidoptera, some containing distribution maps, it is clear that the distribution of several species is imperfectly known and this is most noticeable in regard to Wales and the northern counties of England. While my comments are

concerned mainly with Lancashire and Cheshire, a few observations regarding adjoining counties, Wales and Scotland are included. There may have been a possible northward spread of some species in recent years, but records show that others have been established for a considerable time.

Though my remarks are concerned mainly with micro-lepidoptera, a few comments are made on the larger species. Four of the maps in *Moths* by E. B. Ford were discussed by E. C. Pelham-Clinton in *The Entomologist's Record*, vol. 67, p. 135, and further information may be added in the following cases:—

Entephria caesiata Schiff. Is found on gritstone moors along the Lancashire and Yorkshire border southwards into Derbyshire, east Cheshire and north Staffordshire.

Ortholitha bipunctaria Schiff. The most northerly point shown on the map is roughly on a line from Ely to Rugby and Derbyshire limestone should be added to Mr. Pelham-Clinton's increased distribution of North Wales, Yorkshire, Durham and Northumberland.

Drepana binaria Hufn. On the map, distribution is shown to be south of a line running westward from Kings Lynn through Derby. In Cheshire, this species is fairly common at mercury vapour lamps in suitable localities; from there it is found northwards through Lancashire, being fairly common in the southern part of the Lake District, and Westmorland to Cumberland. Also there are several records from the Welsh counties of Flint, Denbigh, Caernarvon and Montgomery. Possibly Yorkshire collectors can supply information of distribution east of the Pennines.

Strymonidea w-album Knoch. The map in *Butterflies* by E. B. Ford could now be amended to show the distribution of this species as far north as Cheshire and then westward into Flint, Denbigh, Caernarvon, Merioneth and Montgomery. The butterfly has been known in Cheshire for many years and several strong colonies exist in the north and south of the county.

Turning to the smaller moths, information can be added to the remarks on distribution in that excellent series of papers on the *Tinaeoidae* published in the *Proc. S. Lond. ent. nat. Hist. Soc.*, 1944-54:—

Glyphipterygidae: *Anthophila pariana* Cl. Described as "rather local in Britain to the Clyde", the late Wm. Mansbridge found this moth locally common near Aviemore, Inverness-shire.

Genus *Mompha* Hübn.: *M. raschkiella* Zell. Prior to 1940, was considered scarce in Lancashire and Cheshire and is now plentiful in most places where *Epilobium angustifolium* grows; *M. conturbatella* Hübn. Only occasional records existed prior to 1950, since then it has been found in increasing numbers and localities in Cheshire and south and west Lancashire. These species are considered to have increased in numbers following the rapid spread of *E. angustifolium* during the past 40 years.

Caloptilia betulicola Hering. Described as "abundant in Inverness-shire and found in New Forest, West Hants., and East Dorset". I have bred imagines and observed larval cones of a *Caloptilia* on birch from several places in Lancashire and Cheshire which I presume are this species.

Genus *Lithocolletis* Hübn.: *L. cavella* Zell. Described "as local

through southern England to the Midlands'', this species is common on birch on the Lancashire and Cheshire mosses and woods and extends to south Westmorland.

L. anderidae Fletcher. Shown as "locally recorded from Kent, Sussex and Dorset'', the mines are plentiful in the leaves of small birches on mossland in Shropshire, Flintshire, Cheshire and Lancashire and occasionally in south Westmorland. Though first observed in Cheshire only ten years ago, the mines are so plentiful and widely distributed there and in adjacent counties that it cannot be regarded as a newcomer. Though easily bred, the imago is rarely seen even where it is known to be plentiful and this may account for the species being overlooked by the local collectors of the nineteenth century. I found a few mines near Aviemore which I suspect were this species, but unfortunately, for proof, the imagines were not bred.

L. geniculella Rag. Described as "at present confined to the southern half of England but . . . will probably be discovered more widely''. First found in Cheshire about ten years ago, it is widely distributed, sometimes common, throughout Lancashire and Cheshire to south Westmorland and occasional mines are found at Malham, Yorkshire. Occasional specimens have been seen in Denbighshire and Caernarvonshire. A series in the collection of the late J. Hignett from Shrewsbury and Oswestry labelled *L. sylvella* Haw., proved to be this species.

Oecophoridae: Borkhausenia subaquilea Stt. The imago is common on walls on gritstone moorlands in Cheshire and Derbyshire and is found mainly above 1,000 ft.

Depressaria costosa Haw. Also fairly common further north in Inverness-shire.

D. cnicella Treits. Described as "on south coast from Hampshire and on east coast to Suffolk'', an extension northwards is Spurn in Yorkshire.

D. astrantiae Hine. In addition to "the southern half of England'', several were taken by the late B. B. Snell in Denbighshire and a further specimen was found by me in a series of *D. ocellana* Fabr. from north-west Yorkshire. In both instances, the specimens were from limestone area and the reported foodplant, *Sanicula europaea*, was present.

In the opening paragraph, it was remarked that distribution of certain species in northern counties was not well known and a list of publications containing information relating to Lancashire, Cheshire and north Wales is given below:—

(i) 'Lepidopterous Fauna of Lancashire and Cheshire' by J. W. Ellis revised by Wm. Mansbridge. Originally published serially in the Reports and Proceedings of the Lancashire and Cheshire Entomological Society, 1912-40, a few bound reprinted copies are in existence.

(ii) The Reports of the Recorders of the Lancashire and Cheshire Fauna Committee, 1921-54. These contain new and unusual occurrences in the two counties. If these publications are used in conjunction with that previously mentioned, a fair appraisal of occurrence and distribution may be obtained.

(iii) Cheshire and North Wales Natural History, vols. 1-5. These contain a recent compilation of Lepidoptera including Pyraloidea and Tortricoidea found in Cheshire and the northern half of Wales.

Testing a Theory

By RAYMOND F. HAYNES

For the past two years or so I have been vainly endeavouring to rediscover the whereabouts of *Erebia epiphron* Knoch in Ireland. Not having had any success in either 1954 and 1955, I decided that as it was possible this year again to have my annual holiday during the first two weeks of July, I might as well make another attempt rather than give up trying.

Accordingly, early in the year I reserved accommodation at the same place where I stayed last year, namely at Burrishoole, about two miles beyond Newport in Co. Mayo on the road to Mulranny and Achill Island. This year, after overcoming several snags, I managed to take with me my Lambretta motor scooter, which proved an invaluable aid for collecting and enabled me to cover a far greater area than if I had relied merely on a pedal cycle.

On Saturday, 30th June, I enjoyed a calm crossing to Dun Laoghaire from Holyhead, but it was manifest from the moment I landed that the weather was going to be far from settled and so it proved to be. Having arrived at Newport, I experienced most unsuitable climatic conditions from a lepidopterist's point of view. The days were cool and evenings extremely chilly, so very different from the lovely weather I had enjoyed twelve months earlier at the very same place. Those in charge of the guest house tried to provide for the comfort of the guests by having blazing turf fires in the lounge during the evenings and thoughtfully placed hot-water bottles in the beds at night. Altogether, things didn't seem at all like July. Most days there was plenty of cloud with heavy rain at times, and the temperature well below the seasonal level.

On Tuesday, 3rd July, although the early morning was very cloudy, yet I thought there was a slight chance of the sun putting in an appearance later; so I decided that I ought to seize the opportunity to climb a mountain which years ago Kane (the eminent Irish entomologist) thought might conceivably yield *Erebia epiphron*. In my earlier articles on this subject I had mentioned the possibility that the butterfly might be found on a mountain known as Nephin Beg, 2,065 feet above sea level. A study of the ordnance survey map showed that, unlike the other mountains in the district on which the insect used to be caught (Nephin and Croagh Patrick), the ascent of Nephin Beg would be no easy task. At the foot of both Nephin and Croagh Patrick are good motor roads, but in the case of Nephin Beg the mountain is isolated and it would be necessary to cover a large tract of boggy country before even beginning the climb.

The map revealed a somewhat minor road which diverged northwards from the Newport-Mulranny main road about two miles west of Newport. This road skirted the eastern shores of two lakes known as Lough Furnace and Lough Feeagh, both noted for the salmon fisheries. After some seven miles there appeared to be an abrupt end at a solitary house marked Srahmore Lodge; but I was informed beforehand that the Forestry Commissioners had in fact extended the road somewhat, to some new plantations. This minor road proved

very stony in places but sufficed to permit me to proceed on my scooter (using great caution) as far as Srahmore Lodge. This turned out to be an old, rather tumbledown structure which seemed to have seen better days. A good-natured lodge-keeper allowed me to leave the scooter at the lodge and I then lost no time in setting out for Nephin Beg. Although a bridle path was shown on the map which appeared to run north-west roughly in the right direction of the mountain, yet in actual fact finding this path proved impossible, so I was forced to proceed as best I could over extremely rough, mostly boggy, water-logged ground. I wore a pair of small rubber shoes, but even these were insufficient to exclude the damp.

The weather had improved somewhat by now, but although the sun shone fitfully the summit of Nephin Beg was still surrounded in mist. The boggy ground did not seem to support much insect life. I caught a solitary male *Coenonympha tullia* Müll. not in very good condition and saw several *Diacrisia sannio* Linn. both males and females on the wing; also a few *C. pamphilus* Linn. On the way back I also saw some *Parasemia plantaginis* Linn. but regret that I was unable to get near enough to make a swoop with the net. After slogging over this watery terrain for some miles, I crossed a little stream and then was obliged to make my way over a hill some 1,356 feet high, which lay directly in front of Nephin Beg. Having overcome this last obstacle I found myself on a narrow col and from this the ascent up the mountain was not too difficult.

By this time, most of the low clouds had disappeared, and as I climbed nearer the summit the sun shone and I had hopes that perhaps my theory that the little Satyrid butterfly inhabited Nephin Beg might be proved. Alas! Although I remained aloft for well over two hours in bright sunshine and made a thorough investigation of all likely places (especially grassy hollows) very few insects were to be found at all; certainly there was no sign of the elusive *epiphron*. The surface of the mountain consists of stretches of heather interspersed with muddy bog pools and little hollows where grass flourishes. Some micros were flying and I saw a few *Entephria caesiata* Schiff. on the wing. I found a solitary *Eumichtis adusta* Esp. at rest. Although unsuccessful, I did at least have the satisfaction of knowing that I had made a serious attempt and, to the best of my belief, Nephin Beg has not previously been tried.

Later in the week I made attempts on both Croagh Patrick and Nephin, but saw no sign of the butterfly. Whether I shall eventually strike the right spot time alone will prove. Towards the end of the week a slightly warmer evening tempted me out with a net and lamp. Little was flying; apart from common species I took a few specimens of the following: *Tethea duplaris* Linn., *Nudaria mundana* Linn., *Plusia bractea* Fabr., *Pelurga comitata* Linn., and *Cleora lichenaria* Hufn.

From Newport I made my way south to Killarney for the second week of my holiday. The weather remained rather wet and unsettled but much warmer than in Mayo. From the collecting point of view I was rather disappointed as I did not take back anything outstanding but had to be content with filling up gaps in my collection with mostly fairly common species. In a few places, especially on boggy ground

near the Hill of Beanaunmore overlooking Lough Guittane, I caught some *C. tullia* and these specimens proved to be in much better condition than those I had taken the previous week in the northern locality. *Aphantopus hyperanthus* Linn. was very abundant.

Turning to moths, I searched aspen bushes growing alongside the Kenmare road overlooking the Upper Lake. Both eggs and larvae of *Tethea* or Fabr. were in great profusion as also were larvae of *Lathoe populi* Linn. and *Cerura vinula* Linn. None of these species are anything like as common in Ireland as in Great Britain. On rough water-logged ground not far from Tower Lodge I was delighted to find a colony of *Eustrotia olivana* Schiff.; this little moth had so far eluded me. I tried searching for newly-emerged specimens of *Aegeria scoliaeformis* Borkh. and had the mortification of finding three empty pupa cases protruding from one tree. Judging from their condition, I imagined that the moths had not long emerged. Mothing by night near Torc Wood did not produce anything rare. I secured a freshly-emerged var. *pallida* Tutt of *Polia nebulosa* Hufn. and a reddish form of *Apamea crenata* Hufn. Geometrid moths were very plentiful and I took home specimens of the following:—*Hipparchus papilionaria* Linn., *Lygris populata* Linn., *Abraxas sylvata* Scop., confined to a very restricted area near Torc Waterfall; *Ellopija fasciaria* Linn. and *Cleora repandata* Linn. Some extraordinary varied forms of this Boarmid moth occur at Killarney and I was fortunate enough to take var. *consortaria*.

So ends another year's reminiscence of a pleasant Irish holiday; I still hope one season to become the proud possessor of a genuine Irish *Erebia epiphron*.

Isle of Canna Collecting Notes Summer and Autumn 1956

By J. L. CAMPBELL

Contrary to what seems to have been the case in most parts of the British Isles, the summer in the Hebrides was not at all a bad one, apart from several violent gales, of which the worst occurred on the 13th August. Indeed, so far as moths were concerned the summer and autumn were outstanding. The total catch in the moth trap for 1956 was 7,940, nearly twice the 1955 catch of 4,245, which itself was the highest number hitherto.

Butterflies, however, seemed to suffer considerably from the summer gales, and were well below normal numbers. No specimens whatever of *Vanessa cardui* or *V. atalanta* were observed, and only one *V. io*, on 9th October, the first peacock I have seen for a long time. Very few *Pieris brassicae* were noticed, though there were some caterpillars on the cabbages in August. The gales of 29th July and 13th August decimated the butterflies, except for *Satyrus semele* and *Pieris napi* and, to a lesser extent, *Aglais urticae*.

With regard to moths it was different. Numbers in May (a month of poor weather) and June were well below normal, but for the rest of the season a very large number of moths was about, indeed never before have large catches in the m.v. trap been sustained right through September into October. For instance, *Triphaena pronuba*, of which

396 specimens were taken in August 1955, 24 in September and one in October of that year, was taken this year in the following numbers:—August 567, September 1,381, October 73. Indeed, the very large number of moths about this autumn was noticed even by non-entomologists. This extended to the number of different species taken in the trap, 144, which was 24 more than in 1955.

Fourteen new species were added to the Canna collection during the season. The first of these was *Celama (Nola) confusalis* HS. taken in the trap on the 27th of May. Then came a specimen of *Rhyacia simulans* found indoors on the 1st July. On 11th-12th July came the first of a week of fine warm calm dark nights that rivalled August 1955. During this week over 1,700 moths were taken in the trap, of which *Axylia putris*, *Agrotis vestigialis*, *Leucania pallens* (which I had previously taken on Barra) and *Entephria caesiata* were additions to the collection. *Cucullia umbratica*, the first taken in the trap here (previously found at rocket blossoms), *Polia nebulosa* and *Petilampa arcuosa (minima)* for only the second time (the latter previously found at Heiskeir lighthouse). *Plusia gamma* occurred on the 16th and 19th July, and a specimen of the sawfly *Sirex gigas* was found on the 13th. *Anaplectoides prasina* was taken in the trap on the 16th July, being the first taken here since 1939; another was in the trap on 22nd July. On 20th July, Mr. J. D. Bradley, who was here collecting micros, and I went to Sgoir Reidh, Isle of Rum, by fishing boat. It was a perfect day, and *Zygaena purpuralis* was found abundantly with some *Z. filipendulae*. Also noticed were *Argynnis aglaia*, *S. semele*, *Maniola jurtina*, *Coenonympha pamphilus* and *Polyommatus icarus*; *semele* was abundant. The heat on the cliffs of Rum was tremendous and the cleggs were very troublesome.

Broken weather followed during the last week of July, but there were 355 moths, 36 different species, in the trap on the 7th August. On the 9th there were 430 moths with *Cosmia trapezina* a newcomer, and on the 10th 254 moths with another new species, *Carsia paludata*. There followed a tremendous gale, the worst summer gale I can remember, on 13th August, the day of the Queen's visit to Oban; yet on the 16th there were 226 moths in the trap including a very fine specimen of *Triphaena comes* var. *curtisii*. Broken weather followed for much of the rest of the month, but at the end of August and beginning of September came a great surge in the numbers caught in the trap, 524 on 28th August, 438 on 2nd September, 573 (a record total) on the 7th, and 421 on the 9th. More than half these moths were *T. pronuba*. Associated with this influx was the capture of two specimens of *Acherontia atropos*, in good condition, in my house on the 9th and 11th September. They may have been attracted into its vicinity by the light of the trap; at any rate I could find no trace of larval attacks upon the foliage of our potatoes. Catches fell off somewhat after this, until the 20th September, when 493 moths were found in the trap, including the first *Agrochola lota* for the Canna collection, though I had found this moth commonly on Barra in 1936.

I was away for the last week of September, but good catches were taken in the trap on the 7th, 8th and 10th October, and four more new species were added to the collection—*Agrochola macilenta*, *Eupsilia satellitia (transversa)*, *Chloroclysta miata*, and *Coenocalpe lapidata*,

the last in good condition. *Nomophila noctuella* was taken on the 8th October as well as the ichneumon *C. melanocephalus*, which I had not seen before. *Agrochola circellaris* and *Phlogophora meticulosa* were plentiful in the autumn, in very fine condition; two specimens of *Dasypolia templi* were taken in the trap in October also.

A feature of this year was the very long period of emergence of some species. *T. pronuba* extended from 11th June to 16th October; *Arctia caja*, which was plentiful, from 17th June to 20th September—the last a single specimen over a month later than any of his fellows. *Hadena caesia*, of which a fine series was taken, extended from 17th June to 9th September. Nineteen specimens of this moth were taken in the trap and another at a lighted window. Previously, five specimens had been taken in 1952 and one in 1953 and 1955. *Notodonta dromedarius* was taken in the trap for the first time on 17th July, and *Diacrisia sanio* for only the second time on 8th July. No Lasiocampids were taken in the trap this year, nor was *Saturnia pavonia*.

Thus 1956 provided the most interesting year I can remember, so far as moths were concerned. This was partly due to the fact that the trap is operating more efficiently now that we have a diesel lighting plant; but it was also due to the presence (or invasion) of an unusually large number of moths and the occurrence of an unusual number of calm dark mild nights. For 1956, April, July, August, September and October produced results much above the normal, and only May and June disappointed.

After closing my account of the season, a specimen of *Eupithecia virgaureata* has been identified by Mr. Fletcher amongst a number of 'pugs' caught in my moth trap this summer.

Isle of Canna. 27.x.1956.

Notes on Rearing *Eumichtis lichenea* Hub.

By H. SYMES

Among a host of *Aporophylla australis* Boisd. and *Leucochlaena hispida* Geyer, and a lesser number of *Leucania l-album* L. and *Omphaloscelis lunosa* Haw. that came to Mr. A. C. R. Redgrave's m.v. light at Portland on 24th September 1955 was a solitary specimen of *Eumichtis lichenea* Hb. It arrived rather late in the evening, not long before 11.30 p.m. B.s.t., when we packed up. I did not identify it until next morning. Fortunately I had brought it home alive, as it proved to be a female and laid 135 eggs in its box. These, when first laid, were pale creamy yellow, and kept this colour for a week, when they turned pink and remained like that for a fortnight. Then their colour changed to purple, and four days later, on 20th October, the first egg hatched. The remainder hatched during the next two days.

The young larvae, which did not eat their eggshells, at first were of a pale glassy green colour, rather shiny and transparent, and their heads were light brown. I offered them chickweed, groundsel and ragwort to eat; they showed a marked preference for chickweed and rather avoided ragwort. They were exactly the same colour as the chickweed stems on which they rested, and were extremely hard to see in this position, but when disturbed, they sat with raised head and arched back, like a Spingid larva. They were quiet and well-behaved in their boxes:

they did not rush around or spin threads in which they might entangle themselves, possibly with fatal results. I have found this to be a bad habit of young larvae of *Pheosia gnoma* Fab.

They fed only at night. The first instar lasted for just over a fortnight, and the first moult took place on 4th November and the following days. The second instar was of shorter duration: one larva had its second moult on 12th November, and the rest followed suit in the next day or two. The third moult started on 25th November.

During the first three instars, the larvae retained their pale green colour, but after the third moult it was succeeded by a deeper, olive green, and the larvae had rather a dingy, muddy-looking appearance. After the fourth moult, which took place mostly between 8th and 11th December (one larva changed on 5th Dec.), the ground colour became light brown, with irregular markings in darker brown, that seemed to vary in individuals: one pattern took the form of a succession of V's, with the point directed towards the larva's tail.

During the first four instars, chickweed, with a few blades of grass thrown in for variety, was almost their sole food, but after the fourth moult groundsel was added to their diet, and in the sixth and last instar groundsel was eaten exclusively. The first larva to reach this stage did so on 24th December, most of them following suit between 27th and 29th December. One larva did not have its last moult until 9th January, the date on which the first larva went down. In their final stage, the ground colour of most of the larvae was light greyish brown, and the darker markings became more distinct. But there were a few that did not conform to this pattern, and one was decidedly pink in colour. During the daytime they concealed themselves in corners of the breeding cage, sometimes packed on top of one another, but soon after dark every evening they could be seen swarming over the groundsel and feeding steadily.

These larvae were a very healthy brood. I kept three dozen for myself, and at the beginning of December these were reduced to 31, two having died and three having been killed by accident. Most of them went down during the last week in January, and only one was not full-fed when the very cold spell set in on 1st February. This one eventually died a fortnight later. I had kept them indoors in an unheated room where the temperature ranged from 54° F. to 42° F. The Rev. F. M. B. Carr and Mr. A. C. R. Redgrave, to whom I gave some small larvae, kept theirs in much warmer rooms where the temperature did not fall below 60° F. and all their larvae fed up quickly and went down before Christmas. This difference in treatment had a marked effect on the dates when the imagines emerged. Mr. Carr bred 16 moths, which emerged between 7th and 19th June, and Mr. Redgrave's ten moths appeared even earlier, between 16th and 25th May. My first imago did not emerge until 9th September, and the last came out as late as 21st October: there were seven of each sex.

Nearly all my moths emerged in the afternoon, between 3.30 and 5.30 G.m.t. Mr. Carr told me that two or three of his emerged during the night, and this was the case with two males of mine, which I found damaged in the morning. If they emerge early enough, they should be killed the same evening, but the females may be safely left alive for the night.

Finally, it is essential that the cage in which the larvae are to go down into earth is thoroughly larva-tight. They are adepts, when searching for a pupating site, at squeezing through the smallest chinks. When I came to unearth my pupae I found that several larvae must have escaped from a cage in which they had been safely housed while still feeding. One pupa was found by my wife at the bottom of a linen cupboard, and one morning she found a fine female moth in her shopping bag. It was still in good condition and had probably emerged on the previous day somewhere in the house. Mr. Redgrave informed me that a few of his larvae had also vanished unaccountably, and when I examined the peat compost in the cage in which the late Dr. H. King had kept more than a dozen larvae of the same stock, there was not a single pupa to be found.

Beetles at Hell Coppice

By A. A. ALLEN

This remarkable Buckinghamshire locality, now evidently doomed (how much longer, one wonders, is the sickening story of progressive destruction of our countryside to continue?), has figured several times in recent numbers of the *Record* in connection with Lepidoptera; and one writer, I think, made a passing allusion to its Coleoptera. It is indeed—or, rather, *was*—the home of several and probably many choice insects of that order and, though apparently not or little known to the earlier generation of Oxford coleopterists, it later acquired a reputation as the local stronghold of at least two rarities: the longicorn *Agapanthia villosoviridescens* Deg. and the weevil *Rhynchites pauxillus* Germ.

My experience of the Coppice amounts to a single afternoon's collecting (15.vi.52) in company with Mr. R. W. Lloyd and Dr. B. M. Hobby, but the result of even so brief a visit was far from negligible. After a flying trip to Bagley Wood (Berks.) in search of *Callidium violaceum* L., of which beautiful Cerambycid a solitary example turned up—it had been plentiful earlier on the spruce timbers of an outhouse—my host instructed his chauffeur to go to Hell, and on arrival at our infernal (or paradisial?) destination we set to work at once to hunt up *Agapanthia*. Dr. Hobby having showed me its favourite spots, the procuring of a fine series was only a matter of perseverance.

Every specimen seen was on thistle (whose species I regrettably omitted to ascertain, but it was not, I think, a *Carduus*), many of the plants still young and half-hidden in the long grass. One might expect these beetles to be conspicuous enough *in situ*, but quite the reverse was the case; they had to be carefully looked for, and on the stem or under a leaf—a favourite resting-place—would doubtless often have been passed over but for the long antennae extended sideways; they were wary and fairly active, usually dropping if alarmed. During the short bursts of hot sunshine a few were found perched on the thistle-tops and one or two noted in flight. It was seldom that any plant yielded more than one specimen. The variation in size is much more marked than in its near relative *Saperda populnea* L., to which it bears a strong general resemblance. *A. villosoviridescens*, though no doubt always quite local, cannot now be considered very uncommon in the East Midlands, where the records indicate a compact range stretching from

Lincoln to north Herts. and mid Bucks.; outside this area it appears very rare, though common in certain places within it. Whether it occurs south of the Thames to-day is very dubious.

Whilst beating hawthorn for *Rh. pauxillus* (which however was not forthcoming) I secured what turned out later to be the prize capture of the occasion, a single *Anthonomus chevrolati* Desbr.; this rare weevil was new to the Oxford district (so well worked by the late J. J. Walker and others, and within which the present locality falls) and also seemingly to the Buckinghamshire fauna. See *Ent. mon. Mag.*, 1952, 88: 225. The British records of this species are not at all numerous. Another notable denizen of Hell Coppice is the Buprestid *Trachys minuta* L., of which I beat a few off sallows; it has, I was told, sometimes been quite common there. Elsewhere I have met with it but once, in Northants., and believe it must be a good deal more scarce than formerly—at any rate near London. A specimen of *Psylliodes luteola* Müll., an extremely local flea-beetle, was detected on a leaf of its foodplant, *Solanum dulcamara*, but was so disoblising as to elude capture in the manner characteristic of its tribe. Two examples of a yellow *Anaspis* beaten from flowering dogwood in the hedge across the road from the Coppice proved to be *A. latipalpis* Schil., which, to me at least, is immensely less common than *A. lurida* Steph. with which it was earlier confused in Britain; this species was another addition to the Oxford list. Finally may be mentioned a specimen of *Elater elongatulus* F., by no means a common insect, taken by Mr Lloyd in the boundary hedge. A number of other beetles were of course collected, all more or less familiar and widespread species; but there can be no doubt that systematic work in the locality before it began to be ruined would have brought to light many more interesting ones.

63 Blackheath Park, S.E.3.

Memories of a Naturalist VIII.

By MALCOLM BURR, D.Sc.

In 1912 the Second International Congress of Entomology was held, this time in Oxford. On this occasion I accepted the duties of General Secretary of the Permanent Executive Committee. It was a very special pleasure to welcome so many foreign entomologists in my old Varsity city. We were favoured by excellent weather and the Congress was an unqualified success. The brothers Rothschild, Walter—afterwards Lord Rothschild—and Charles, invited the whole Congress to see their wonderful museum at Tring, where they entertained over three hundred of us to luncheon.

Both the brothers were keen zoologists, who did serious work, and good friends of mine. Charles, the younger, was not only an excellent lepidopterist but the recognised authority upon the Fleas. Walter was a good all-round zoologist, with a queer bent that wealth was able to gratify. He specialised in the biggest specimens of everything and prided himself on owning the record in as many ways as possible and of having in his museum the latest discoveries or queerest creatures. He had a great Salamander, a thing like a newt but a good yard or more long, which lived in a tank for something like twenty years. He had the finest collection of *Ornithoptera* in the world, those huge



DR. MALCOLM BURR, D.Sc. Oxon.
From a studio portrait by Howard Coster.

oriental butterflies which are, perhaps, the most beautiful living things in existence. When A. R. Wallace first saw one alive, on the island of Batchian, so intense was his emotion at the sight of such beauty, he wrote, that he nearly fainted. High above a doorway there were displayed two specimens of that extraordinary creature the Ribbon Fish, or Oar Fish, *Regalecus glesne*, which is only four or five inches high, much compressed, but attains a length of twenty feet or more, grey in colour, with a long bright pink fin all along the back and a great tufted pink crest on his head like that of a cockatoo. These queer fishes are very rare and but little is known of their habits. The Rothschilds were proud possessors of two, one from New Zealand and one from off the Northumbrian coast. He also had a stuffed gerenuk, from Abyssinia, a kind of antelope with a long giraffe-like neck, that was in those days a very great rarity. He had the longest python, the biggest crocodile, in fact a whole mass of oddities, each included in its proper place in the zoological collection. He had a magnificent collection of butterflies of the whole world and his collection of bird skins was considered the finest in existence.

The members of the Congress were entertained splendidly, and thoroughly enjoyed looking through these grand collections and chatting as they strolled about the beautiful gardens. The collections were in the hands of Dr. Hartert, the ornithologist, and Dr. Karl Jordan, the entomologist. I took the opportunity of suggesting to Charles that he should come with me on a visit to the Caucasus that I was planning, but he told me that, on sentimental grounds, no Jew would ever go to Russia, where their people were so ill-treated. Errera had told me the same thing.

Walter, the elder brother, who later succeeded to the title, made a little speech at the close of lunch, wherein he welcomed all his guests and told them how he had drawn his inspiration and love of Zoology from Dr. Albert Gunther of the British Museum and fulfilled his ambition in building and completing his own museum. He was rather a strange personality and very likeable. A big loosely framed man, he was stout, with a high, domed, bald head and a wispy sandy beard. In his hesitating delivery he spoke first in English, then he gave us a translation in German and finally in French, at which he was not quite so good. If there was a smile on the faces of some of the guests, it was a friendly smile of sympathy and gratitude for a splendid and most unusual entertainment.

I had a photograph of Walter Rothschild which I treasured for years. Dressed in a black frock coat with very pale trousers, in the fashion of the 'nineties, and wearing a topper, he was sitting astride a giant tortoise, excitedly waving an umbrella, his face beaming with delight.

One morning in the summer of 1912 the postman had brought me a letter from Andrei Petrovich Semenov-Tian-Shanski conveying an invitation to spend a few months with a friend of his in the Caucasus. The Caucasus! What an exotic world it seemed! Ever since in a school atlas I had looked at a picture of some wild horsemen, with high caps and rifles over their shoulders, fording a torrent in a forbidding-looking gorge between black, lofty mountains, with the legend

"The Gorge of Darial", I had retained the impression in my mind, never even daring to wonder if I should ever go there myself.

Before leaving I took my wife to Spa for a course of baths. Behind the little town the Ardennes rise to a moorland called La Fagne which, although of no great altitude is the highest ground for several hundred miles around and consequently exposed to all the winds of heaven. To this bleak spot Walter Winans, a famous American sportsman and millionaire, had attempted to naturalise grouse; but the experiment was not successful. He had also introduced a pack of hounds, but that too had a short life as he found no supporters and it depended upon his personality and pocket. I paid one short visit to La Fagne, where the only interesting thing I found was a Planarian worm that can live only in very cold waters, and so is confined as a rule to alpine streams, and then a frontier post with the "verboten's" in the old Gothic character.

The Prince Consort of the Netherlands paid a visit to the hotel while we were there, but although the crowd waited outside in the hope of a glance of royalty, he shut himself in with his companions and so nobody had a chance of verifying whether his face was as unsympathetic in real life as it appeared in portraits.

It seemed a pity to stay in such a famous spa, which has given its name as an addition to our dictionary, and not sample the waters, so I took a bath. The water looked like champagne, straw-coloured and bubbly, so that it tickled the skin gently, an agreeable sensation. The attendant, a man of about fifty, hoped that I would come and take some more. I replied that I could not, as I was leaving the next day.

"For London, I suppose", asked he, making conversation.

"No, for Moscow", I answered.

"Moscow! My father went to Moscow".

"With Napoleon, I suppose?" I asked facetiously.

"Yes", replied he to my astonishment, for that year was the centenary of the battle of Borodino.

He told me that his father, a native of Paris, had marched with Napoleon's army on the Moscow campaign as a boy of seventeen, and came home alive. At the age of sixty he had moved to Brussels, where he had married a second time, and my bath attendant was the youngest child of the second marriage. This was a remarkable link with the past. His father must have been born in 1795. In that year my grandfather, my mother's father, was one year old.

A few days later, after taking my wife home, I caught the Nord Express. It had been raining for several days before I left England and the rain followed the express right across Europe to Muscovy. The adjoining compartment was occupied by an officer who, the ticket collector told me with bated breath, was no less a personage than the Governor General of Warsaw himself. The correct title for a man of such exalted rank was *Vashe Vysokoprevoshoditelstvo*, that is, Your Exalted Excellency—he was a super-excellency, in fact. As I sat alone I practised pronouncing this enormous mouthful till I could utter it with something approaching fluency, in case I should have occasion to use it; but His Exalted Excellency did not have the tact to give me the opportunity.

When I walked out of the station at Moscow it was still raining. I had been primed with the name of a decent hotel and I had learnt in St. Petersburg the correct phraseology for addressing a cabby. I asked the first one on the rank how much he wanted to the *Nationalnaya*. He glanced at me, saw that I was a callow foreigner, and answered in a casual way "Three roubles".

I had no idea how much was the correct fare, so replied with the appropriate oath and abuse of his mother.

"To Hell! I'll give thee one".

The man sprang to attention. "Certainly, Your Excellency", he replied, which set me wondering at such a strange qualification for excellency

In Moscow I stayed but a day, enough to see the great walls of the Kremlin, of Kitaigorod, and gaze at the fantastic temple of St. Vassili the Blessed. It was built, I believe, by an Italian architect in the employment of Ivan the Terrible, who must have inspired some of his own madness into the foreigner, for it is as bizarre as everything else in Muscovy. It has a profusion of those onion-shaped bulbous domes characteristic of churches in Holy Russia, but each of a different ornamentation and colour. I have read somewhere that the design was introduced by the Tartars, originally by Tamerlan, who copied it from a building in Damascus, that was destroyed shortly afterwards.

It was pleasant ambling across the rolling steppes of Southern Russia. The journey was restful, as the train was never in a hurry and the gauge was so much broader than standard that the movement was smooth. There was only one other first class passenger, a judge returning to the Caucasus from leave. He was an interesting man and told me many tales of life in that romantic land.

Suddenly he said: "Let's have a roasted partridge".

"A very good idea", I answered; "but how?"

It was about five o'clock, though that was no obstacle to eating a partridge; but I did not take him seriously. He was, however, in earnest. We walked through to the dining-car where we ordered a roast partridge as casually as one would call for a cup of tea, and obtained it just as easily. We opened, of course, with vodka, and washed it all down with an excellent bottle of Russian wine.

Early in the afternoon I reached Vladikavkaz, the Ruler of the Caucasus, as the Russians proudly called it, a fortress guarding the Georgian military road across the crest, Russia's Khyber Pass. The heat was shimmering and everyone was engaged upon the siesta, but I was too excited to yield to that southern weakness. I hired a cab instead, a droshka, and drove to the edge of the great mountain mass, which rises abruptly like a curtain, straight out of the plain. I drove in a little way, as far as Balta, the first Cossack *stantsia*, in the cleft of the mountains, where I did some collecting. Balta is well named. The word in Tartar means axe, and the place looks as though it had been cleft with an axe in the mountain wall. It was the first spot in Asia that I had visited, and the first station on the Georgian military road.

I sat upon a rock and meditated. I thought of Lermontoff, the Russian poet of Scottish descent, as his name shews, whose splendid, precocious genius was cut off in his early twenties in a duel, provoked by

the arrows of his tongue. *Kak Terek shumit!* How the Terek sounds! he wrote. The turbulent stream is here so violent that even trout cannot live in it, though there are plenty lower down. Presently, my cabby came out of the primitive pub, mopped his moustache with the back of his hand and wiped his nose in the primitive way.

"*Barin*, have you a *lover*?" he asked, pointing to a party of horsemen with high caps and rifles across their shoulders, fording the stream.

I was transfixed as I saw my childhood's dream brought to life before my eyes.

But the cabby was not romantic. "Let us be going quickly, *Barin*", he said. "Those Ingushi are fearful thieves". I knew that no one had a good word for those wild tribesmen.

As we drove back, the cabby became chatty. Was the *Barin* going to drive over the pass to Tiflis? Had the *Barin* ever seen a mountain? I nodded.

"When you come to it and look up at it. . . Height! Mother, what height! And when you are up there and look down, Mother, what depth!"

I chuckled. To a plainsman like a Russian, Kazbek must certainly come with rather a shock. It is half as high again as Mt. Blanc and far more impressive, for it stands out head and shoulders above the main mountain mass, a tapering snowy cone, as Lermontoff put it, like a diamond in the sky.

It was quite dark when we pulled up, at the cabby's suggestion, at the Second Redoubt, at a cottage perched on a little cliff between the road and the river, a wayside inn, where I had a truly Caucasian meal:

Hors d'Oeuvres

Caviare Herbes du pays

Potage

Borch vert à la smetane

Poisson

Petites Truites du Terek

Entrée

Shashlyk à la Caucasiennne

Dessert

Raisins. Fromage du pays. Café à l'orientale

Vins

Vodka russe Vins rouge et blanc de Kakheti

Seldom have I enjoyed a meal more. I made the cabby sit down with me, and he enjoyed it, too. I drank my vodka in the usual Russian way, to the cabby's health, to the health of the Ingushi, to the health of the black-eyed Georgian who waited on us. A handsome race, the Georgian, black but comely, which shared with the Circassian the honour of the harems of imperial Turkey and of Egypt for many a century until economic pressure squeezed that much abused system out of existence. There is many an eastern woman to-day, I feel certain, who finds emancipation and domestic drudgery in a village or townlet not all beer and skittles and looks back wistfully to the sheltered comfort,

if somewhat boring luxury, of life in the harem of a well-to-do Mahometan.

It was a wonderful drive over that romantic, historic road. We shot past Balta in a flash, right into the Gorge of Darial itself. It is a wild spot. The limestones give way to crumbled and contorted shales, the vertical joints protruding like fangs against the sky, while fluted columns of basalt intrusions stand out in relief against the ramparts, which rise sheer, without trees, almost without scrub, while the Terek boils and smashes down the middle. The sky is visible as a blue rift overhead and there is barely room for the road, which crosses and recrosses the torrent. Presently, when we had climbed a good height, the gorge widened a little and we reached the village that clustered round the *stantsia* of Kazbek on the shoulder of the mountain. I gazed at that beautiful peak and felt glad that, though many others had tried, it was three Englishmen, Douglas Freshfield, Tucker and Moore, who were the first to reach the peak. That was on 12th July 1868. Freshfield was a member of the United University Club, and when the news of his death at the age of 93 was published I was astonished to learn that we had overlapped for so many years and that he had actually lunched in the club only a short time before his end.

On, out on to lofty rolling downlands, passing villages with look-out towers of mediaeval aspect, over the top of the pass at 7,500 feet, then down a crazy-looking zigzag road into the impossible gorge of the Aragva; out to the broken but more smiling country of Dusheti; then to the banks of the Kura at the ancient city of Mtskheti, bowling along the flat briskly into Tiflis.

In the ancient Georgian capital I was welcomed by Philip Adamovich Zaitsev, an entomologist whom I had met in St. Petersburg and afterwards in Brussels. He was working in the Botanic Gardens. With him was Dr. Richard Schmidt, a German, Assistant to Colonel Kaznakov, who was Director of the Tiflis Museum. I was sorry to miss the Colonel, who was away, as he had the reputation of being a highly cultured and very entertaining man, and also a good sportsman. I wanted to hear his own account of the tiger he had shot in the forest of Talysh near Lenkoran on the Caspian, the most westerly tiger ever shot.

Dr. Schmidt was an original character. He was a dwarf, hardly more than table high, yet perfectly proportioned, a miniature man in fact, with an excellent knowledge of Zoology and of the natural history of the Caucasus. There were several anecdotes about him, rather pathetic. Once a visitor from Germany called at his flat. Schmidt himself opened the door. The visitor glanced at him, and asked: "Is Herr Papa at home?"

The little man drew himself up to all his inches with injured dignity and protested: "I am Dr. Richard Schmidt".

Tiflis is an ancient city, but it was so often destroyed by Mongols, Persians, Arabs and Turks that it does not produce the impression of antiquity. Nor, in spite of the splendid Circassian costumes generally worn through the Caucasus, and the old bazaar, has it an oriental aspect. For exotic atmosphere it cannot compare with Shkodra.

I was in a hurry to reach my destination and glad when, on the eighth day from Dover, the train drew up at the station of Evlakh, on the steppe half-way between Tiflis and Baku. The country is flat

and marshy, saturated with malaria. To escape the mosquitoes the natives build high towers near their homes, to sleep above the level of height of their flight. As I alighted from the train I was greeted by a swarthy, cheerful man who was expectantly looking out and we accosted each other at once.

"Alexander Borisovich?"

"Malkom Arturovich?"

we exclaimed simultaneously. We took to each other at once. He was an Armenian, son of one of the most efficient generals of the Russo-Turkish war of 1878. He had been educated in the Corps of Pages and served as a young officer in the Artillery of the Imperial Guard, but he had resigned at an early age in order to devote himself to his property, Geok Tapa, that is Green Hill in Tartar, where he cultivated grapes and natural history. About thirty versts north of the railway, near the stantsia of Khaldan, on the edge of the desert Boz (grey) he had an oasis, a valuable estate, with forty *dessiatin*, which is about ninety acres, under vineyards, a big area. From these he produced an excellent white wine, the sale of which was his principal source of income. He lived in a roomy, comfortable wooden house with a delightful garden, with shrubberies and ornamental timber. In this exotic but agreeable spot he spent the life of a country gentleman. He was not interested in sport, although there were plenty of hare and francolin, and perhaps some gazelle, on the surrounding steppe, but devoted himself to making as complete a collection as possible of the plants of his district, which he intended to bequeath to the Caucasus Museum in Tiflis. The doors of his hospitable home were always open to naturalists and there was usually one or more specialists stopping with him, to help in working out the local fauna.

I loved to wander about the desert, a type of country I had not previously seen. The soil consisted of a fine grey clay, once the bed of a more extensive Caspian Sea, probably fertile enough if irrigation were available. Where there was, oases grew up, such as my friend's place. The change of climate on passing from the desert to the sown was surprising and abrupt. On the burning desert my skin was dry, but directly I jumped the *aryk*, or little canal, into the oasis, I burst into perspiration. In the desert there were few plants, at wide intervals. The camel grass, *Alhagi camelorum*, with very deep roots, gave green spots and here I found small Mantids. There was the sprawling caper plant, *Capparis spinosa*, whose buds we eat with boiled mutton, and straggling *Prosopis stephaniana*, with pretty mauve flowers, prone and sprawling too. The dominant plants were the Soapworts, *Salsola*, storing up moisture in their succulent stems, so rich in alkaline salts that they are called *S. soda* and *S. kali*. Hiding in the shade of these, clinging to the stems, I found an interesting kind of grasshopper that I had known only in museums, a thing that gives a special delight to field work in an unfamiliar country.

A few miles across the desert there was a row of hills, low and arid, cut by little ravines and gulches, an alpine range in miniature. Here my host Alexander Borisovich organised a picnic and a wonderful affair it was. We drove across the flat in a *furogn*, a heavy, four-wheeled farm waggon hauled by a couple of buffalo. It was filled with armfuls of juicy grass and huge baskets of food. The party consisted of my host,

his son and daughter, a doctor who was staying with him, a couple of men and a black lamb. The sweet creature, fated to play an important part in the picnic, was confiding and cuddled up with us on the grass, which it nibbled contentedly as I scratched the back of its head. Arrived at a suitable spot, we outspanned and I strolled round to inspect the place, while the servants felled a small pistachio tree for fuel. On the glowing ashes they grilled brinjolls, peppers, tomatoes and also *shashlyk*. The *shashlyk*, the Caucasian equivalent of the Turkish *shish kebab*, consists of small pieces of meat from between the ribs, threaded on a skewer, interlarded with tomatoes and peppers and grilled over charcoal. That *shashlyk* had but an hour previously been inside the black lamb and I felt a positive cannibal as I relished the tender meat. Strictly speaking, the *shashlyk* should have been soaked for two weeks in white wine, but that is the very acme of specialisation. Most people are satisfied with twenty-four hours, but in the open air on such a picnic the fresh meat of the little creature was a dainty fit to be set before a king. I consoled my conscience by remembering that the little dear had no fore-knowledge of its fate and so was spared the apprehension we humans undergo while waiting for the anaesthetic on the operating table. Our sweet consisted of jam made from the scarlet berry of *Cornus mas* which, being exceedingly bitter, requires a great deal of sugar. This makes it cloy rapidly, but it has a peculiar, meretricious flavour that is attractive for a few minutes. The meal was washed down with unlimited quantities of our home-made wine and afterwards coffee *à la turka*, for here we were outside the tea culture of Russia.

The flora was very limited. A few pistachio bushes, and some pomegranate, which I had not before seen growing wild. The flowers are wonderfully decorative, of a brilliant scarlet, and when the star of the petals falls off, the waxy calyx retains the blaze of colour. The animals were of the steppe country; great *Agama* lizards, whose heads turn bright blue when they are excited, were basking in the sun. There is one venomous snake, *Vipera lebetina*, but I did not see one. It is a great viper, but so thick and sluggish that it is seldom dangerous to man, though a scourge to beasts, for grazing cattle are often bitten on the muzzle, when they suffer terribly. The Tartars slash the wound and apply a cup, a very sensible treatment. Birds were not numerous. There is *Aedon familiaris*, the grey-backed warbler, a typical eastern bird, and I saw a snake-eating eagle fly over. As I walked up one little gulch I saw a wonderful sight: a group of vultures sitting at the escarped edge of a low cliff. I counted thirty of the great birds, of three different kinds, the griffon, the black and the Egyptian, the latter with the colour scheme of a stork. Hideous as they are at close quarters, they are such splendid performers on the wing that it is worth a long walk to meet them close to.

During my visit there was a *bayram* or holiday, when Alexander Borisovich drove me round to call upon his neighbours. These were all Tartars, for my host was the only Christian landowner in the district, perhaps in the whole of Russian Azerbaidjan. They received us politely and entertained us with mutton, pies, grapes, white cheese and, as a sop to Christianity, one had a bottle of brandy on the table. Their houses were all simple, of wood, with no wall decoration other than the distemper with a coloured line across. We sat and smoked on the

verandahs, listening to the hum of the wasps which swarmed in the thatch above, neither molesting man nor molested by him, while A.B. chatted with our hosts in Tartar. It was an altogether Asiatic picture and the racial animosity between Tartar and Armenian seemed dead. But it was only dormant.

At home, owing to the midday heat we had lunch indoors. Every evening about six a strong breeze sprang up which lasted for twenty minutes with unflinching regularity, dropping as abruptly as it began. Then we dined on the broad verandah. Here A.B. had fixed an arc lamp, to which the insects came in myriads. This gave us good collecting, bringing many species that would be difficult to find by other methods. Most prominent was a handsome pink hawkmoth, *Sphinx alecto*, typical of the steppe and desert. There were several kinds of grasshoppers and cricket that flew to light, ant-lions and, above all, millions of a small water bug, *Corixa*. These were in such quantities that we used a mug for scooping them up by the mass from the white sheet which we stretched out to attract our visitors. I have noticed in many countries that water-loving and marsh-loving insects seem so specially addicted to flying to light.

Time sped by all too quickly and I wanted to see some other aspects of the Caucasus. I squeezed in a couple of days at Borjom, a famous health resort in the pine forests, in complete contrast to the steppe. Thence I went to Batum, one of the wettest places in the temperate zone, with a climate so moist and hot that plants grow normally to double their usual size. I called on a man to whom Alexander Borisovich had given me an introduction, an engineer and contractor. He and his wife were very civil, inviting me to tea at their house, prettily situated in a big garden on the Black Sea coast a mile or so outside the town.

Then I started home by boat to Odessa. The first morning I was on deck early to get out of the stuffy cabin which I shared with four other passengers, and my eyes were gladdened by the wondrous sight of Mt. Elbruz, glistening in the morning sun, an unblemished snowfield over 19,000 feet high. The boat passed the dull wind-racked port of Novorossiisk, notorious for its *nordost*, the searing gale that sweeps down from the plains of Siberia, and later famous as the great evacuation port for Russians escaping from the Bolsheviks, mainly with the help of the British fleet. Then past Yalta, the gem of the Crimean riviera, nestling under lofty cliffs and, after a call at Sevastopol, at the end of a long and narrow inlet, to Odessa, whence by train to Warsaw, where I was hospitably entertained by a family whose acquaintance we had made at Spa, and so to Berlin.

In the train a fellow-passenger chanced to remark that he had made up his mind to go to Berlin only a short time before the departure of the train. I asked him how he had managed to secure his exit visa so quickly.

"Perfectly easy", he said. "I simply put a five rouble note inside my passport. The policeman who comes round the train to collect passports, looks inside, and if he finds the money in it he puts the stamp on himself without showing it to the official".

It is so simple . . . when you know how!

Notes and Observations

LITHOSIA QUADRA L. IN DORSET.—I understand that the Four-spotted Footman, *Lithosia quadra* L., is not often taken in Dorset, so I think it might be of interest to give details of the 26 taken this year at a m.v. lamp in my garden in Upway:—31st July, 5 ♂♂; 3rd August, 4 ♂♂, 1 ♀; 5th August, 7 ♂♂; 10th August, 1 ♂, 1 ♀; 13th August, 5 ♂♂, 1 ♀; 21st August, 1 ♂. All specimens were in excellent condition and one of the males had the outer fourth of the fore wings yellowish in place of the customary grey. July 31st was the first night in July when the m.v. lamp was used.—Brig. H. E. WARRY, Eastbrook House, Upway, Dorset.

HERSE CONVULVULI L. IN CORNWALL.—May I please add a postscript to my previous letter (*Ent. Rec.*, 68: 269) and report one further *H. convulvuli* which came to tobacco plants on the night of 23rd September, making the total eight? This specimen was a male, and I had no idea that there was such a marked difference between the sexes, all the previous moths having been females. It seems possible that the tobacco plants were largely responsible and that the first five went on to the light after a square meal! Mr. Davidson's letter in the October *Record* (*ante*, p. 247) about Mr. Baker's wonderful hat-trick with *Acherontia atropos* L. suggests also that it is possible to enhance the attraction of a mercury vapour lamp. Bearing in mind South's (vol. I, *Daphnis nerii* L.) "young gentleman at school" I am seriously considering planting two or three beds of Passion-flowers in readiness for next year.—Dr. F. H. N. SMITH, Perranporth, Cornwall. 17.x.1956.

AGLAIS URTICAE L. AB. NIGRA.—The experiences of Brigadier Lipscomb in Wiltshire reminded me of an occasion when I had the good fortune to capture two of these extreme variations on the same day.

On 11th July 1954 I was taken to a wood in West Sussex by a non-entomological friend who was keen to go on a "butterfly hunt". Although sunny, few butterflies were about, but my friend was well satisfied with the sight of two *Limenitis camilla* L. and a single *Argynnis paphia* L. At the end of a small ride a single *A. urticae* flew by and almost immediately another was seen basking on the path in front of us. It was a lovely var. *nigra*! Although it rose immediately, the capture was made when the insect settled on the bare ground some twenty yards further on. Only two more normal examples were seen in this area and we moved on.

I explained to my friend that this was a very rare occurrence, but he was quite certain that more could be found. Eventually, he persuaded me to go back and in almost exactly the same spot another var. *nigra* was seen basking on the path. After this, nothing would have surprised me, but the sun went in, and only three more normal examples were seen. On three days during the next week rain prevented further visits to this interesting locality.

It was remarkable that out of only seven *A. urticae* seen two were extreme variations. All were confined to about thirty yards of a small ride, devoid of flowers, yet nearby rides and clearings, with plenty of flowering brambles, were apparently ignored. No nettles were found

in this restricted area or indeed anywhere within several hundred yards.—H. C. DUNK, 24 Abbots View, Abbots Rise, Kings Langley, Herts. 18.x.56.

A VARIETY OF *APAMEA OPHIOGRAMMA* ESPER.—This species has become well established in Kendal gardens in the last ten or fifteen years and each year I take a fair number of specimens in my trap here. Usually there is nothing of note in respect of variation but on 17th July this year I took a fine dark-coloured female. In this specimen all the normally light ground colour is dark slaty and the normal wing pattern shows through this all-pervading darkness rather faintly. It would seem that as a general rule the species is not given to much variation. Even the variety-conscious Tutt could find little to say about this species in his work on varieties (Vol. I, p. 87). Barrett (*Lep. Brit. Is.*, IV, 399) states: "Usually not very variable, but in a remarkably fine series bred by Mr. F. J. Hanbury are specimens having the ground colour slate grey, dark slate and smoky slate, with intermediates and more normal specimens". The late H. J. Turner in his *Supplement to Tutt's British Noctuae and their Varieties* on p. 215 (published in 1932 in *Ent. Record*) describes under Staudinger's name *moerans* the forms having 'Ground colour blackish; forewings with grey area suffused with fuscous'. It would seem that my dark female is of this form.—Dr. NEVILLE L. BIRKETT, 3 Thorny Hills, Kendal. 11.xi.1956.

AN 'OVERLOOKED' FOODPLANT OF *EXAPATE CONGELATELLA* CLERCK.—In a recent letter to me Canon G. A. K. Hervey of Great Salkeld reported that he had seen and taken considerable numbers of *E. congelatella* flying high up on Skiddaw (one of the higher of the Lakeland mountains). In view of the total absence in the immediate neighbourhood of the recorded foodplants he questioned the possible pabulum. L. T. Ford in his useful "Guide to the Smaller British Lepidoptera" notes Privet, *Rhamnus* and Hawthorn as the foods of this species. A rapid review of local lists for this part of the country has, I think, probably solved the problem. Ellis in his 'List of the Lepidoptera of Lancashire and Cheshire' notes the species as 'Abundant on the moors of E. Lancs., scarce elsewhere'. This seemed to be getting warmer so I turned to George T. Porritt's 'List of Yorks. Lepidoptera' and under the old name of *Exapate gelatella* L. we read: 'Bred freely from larvae found in profusion on Bilberry at Dunford Bridge in 1887 (J.H.)'. ('J.H.' are the initials of J. Harrison of Barnsley.) I may add that I have specimens taken in Kendal and also some from Mr. W. Reid taken by him in Sheffield. The Sheffield area whence these came is also of a moorland type.—Dr. N. L. BIRKETT, 3 Thorny Hills, Kendal. 11.xi.1956.

DIPTERA

PREDATORY HABIT OF THE EMPIDIDAE.—The predatory habit of the Empididae and its use in their matings has interested many dipterists, often encouraging them to study the habits of flies. In *Systematic Zoology*, 4: 97-104 (1955), E. L. Kessel, Professor of Biology, University

of San Francisco, gives an historic account of the study of the balloon-making and related habits of *Hilara*, *Rhamphomyia*, *Empis*, etc., commencing with Baron Osten-Sacken's original observation. The various stages in the probable evolution of the habit of the placing of prey in a bag of silk by the male and transfer to the female when mating, is given. Some doubt is thrown on Eltringham's theory that secretions from the glands on the fore-tarsi are responsible. Professor Kessel is convinced that the silk comes from anal glands. The paper is illustrated with three photographs and concludes with a short list of references.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, Surrey.

LAPHRIA FLAVA L. AND L. GILVA L. (ASILIDAE) IN AUSTRIA.—*L. flava* was common in 1956 at Zell am See at about 2,800 feet. One specimen was seen in the village at rather below that altitude. Above that height there were 'belts' where it was common, and it seemed to prefer to fly in fairly open situations—such as around the margins of fields or it would patrol a stretch between two or more telegraph poles, always resting more or less head upwards. This fondness for alighting on telegraph poles was also noticed in Sellraintal near Innsbruck and a Finnish friend of mine has noticed this in Finland. *L. flava* was not seen below about 3,000 feet in Sellraintal and not on the Patscherkofel, about 8,000 feet, above Innsbruck. At Zell am See there was a flat marshy area between the pine clad mountains on either side of the lake. In this region *flava* was absent but two other species—one of which was *marginata* were seen. *L. flava* was only in the region of the pine forests, mainly on the fringes.

L. gilva was not seen at all at Zell and only twice at Grier in Sellrain. It apparently occurs at a higher average altitude than *flava* and possibly is more strictly a denizen of pine forests even than *flava*. A male, 15 mm. long, was taken from a telegraph pole actually within a stand of very old pines.

L. flava male 20 mm. and female 23 mm. taken at Grier in Sellrain are decidedly large specimens though I have seen a larger female.—P. SKIDMORE, Roses, Grains Road, Shaw, Lancs.

COLEOPTERA

CETONIA AURATA L.—With reference to Mr. L. Parmenter's enquiry about the flowers visited by this species (*Ent. Rec.*, 68: 244), some years ago in a garden at Brockenhurst, I saw two or three of these beetles feeding vigorously on the white flowers of *Spiraea aruncus*. I have also seen them on the flowers of *Eupatorium cannabinum* in my garden here. This year, I have not seen *C. aurata* at all.—H. SYMES, 52 Lowther Road, Bournemouth. 30.x.1956.

COLEOPTERA AT M.V. LIGHT AND SUGAR.—On 25th September, when I was with Mr. A. C. R. Redgrave and his m.v. light in Holt Forest, Dorset, two or three specimens of *Aphodius* sp. (probably *A. rufipes*) were attracted to the light. On 13th October, at the same locality, a large female *Dytiscus marginalis* landed on the sheet, possibly mistaking it for the surface of a pool of water. I have heard of them striking the glass roof of a greenhouse under the same impression. On 18th October, when we were sugaring at Hurn, we found a *Sylpha rugosa*

on one of the treacle patches—rather a change from its normal diet.

Since writing the above notes, I have been looking through some former "Records" and came across a note by Mr. H. C. Huggins (*Ent. Rec.*, 64: 228), in which he states that when half a dozen *Hydrophilus piceus* L. were attracted to Mr. D. More's m.v. light near Southend in May 1952, there was not a single *D. marginalis*, the commoner of the two species. This seems to support my suggestion that our *D. marginalis* mistook the sheet for a pool, especially as it landed on the extreme edge of the sheet and made no attempt to move towards the light.—H. SYMES, 52 Lowther Road, Bournemouth, Hants. 30.x.1956.

NOTES ON SOME COLEOPTERA FROM PEMBROKESHIRE.—Amongst seven species of beetles collected on the Pembrokeshire mainland and on Skomer Island by Dr. Lewis Lloyd-Evans in 1956 are five that do not appear to have been previously recorded from that county. That is to say, they are not recorded from Pembrokeshire in the excellent card index of Welsh *Coleoptera* which is kept at the National Museum of Wales in Cardiff. I am indebted to Mr. Colin Matheson for checking the list given below with the card index. The new county records are indicated by an asterisk.

DYTISCIDAE

Rhantus grapi Gyll.—One found dead on a road by a pond near Marloes, St. Brides Peninsula, on 12.viii.56.

CISTELIDAE

Cteniopus sulphureus L.—Swarming on the cliff tops on Skomer Island and frequently blown on to the sands, on 9.viii.56.

CARABIDAE

**Pterostichus strenuus* Pz. and **Agonum mulleri* Hbst.—Found under stones on the summit of Foelgergr (1,535 ft.) on the Prescelly Mountains on 2.viii.56.

CERAMBYCIDAE

**Strangalia quadrifasciata* (L.).—Taken on *Umbelliferae* on the Western Cleddau, near Letterston, on 27.vii.56. According to R. R. U. Kaufmann (*Ent. mon. Mag.*, 84: 76) this species has only been recorded from the Welsh counties of Glamorganshire and Merionethshire.

CHRYSOMELIDAE

**Plateumaris discolor* Pz.—Taken on sphagnum bog on Dowrog Moor, near St. David's, on 4.viii.56.

**Donacia impressa* Pk.—A specimen taken by the main pond on Skomer Island on 9.viii.56, probably on *Eleocharis palustris* which was plentiful.—BRYAN L. SAGE, F.R.E.S.

We have notice of an evening course of ten lectures on "THE NATURAL HISTORY OF INSECTS" under the Department of Extra-Mural Studies, University of London, W.C.1, from which tickets, 15s. each, may be obtained. The lectures cover all aspects of the subject and are delivered by Professor O. W. Richards, Dr. T. R. E. Southwood, and Dr. P. T. Haskell, and commence on 14th January 1957 at the Rooms of the Linnean Society, Burlington House, Piccadilly, W.1.

E. D. E 61.43

The Entomologist's Record and Journal of Variation

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