

## Late Summer in Norway.

By P. A. and D. A. J. BUXTON.

### I.—LESJE.

The insects with which the first part of this paper deals were taken about the Romsdal-Gudbrandsdal watershed between July 25th and August 1st, 1913. This is really much too late in the season for collecting in Norway. The locality was also given a passing visit at the end of August. The watershed is formed, not of a ridge, but by a lake (Lesjeskogens Vand), at about 2,000ft. Pine forest rises from this level to about 2,700ft., filling the whole country below that level, except for a few hay-fields round the farms, and a number of bogs and meres, mainly consisting of sphagnum, moss and cotton-grass. The actual pine forest is not interesting, "reindeer-moss" forming almost the only undergrowth. Above the pines, birch trees (*Betula alba*) extend to 3,000ft. This zone is much more open, and there is an undergrowth of blaeberry (*Vaccinium myrtillus*) supplemented by other plants of the same genus, with *Pyrola* spp., *Trientalis europaea*, *Cornus suecica*, etc.

In damp places the birch trees and their undergrowth extend downwards as low as "lake level" (2,000ft.). Above tree-line, which is sharply defined, the birch is replaced by a creeping ally, *Betula nana*. A dwarf willow, some two inches high, is found with many Ericaceous and Vacciniaceous plants, such as are described below for the higher zones in the Surendal.

About fourteen species of butterflies were still flying at the end of July. Except where otherwise stated it is to be presumed that the species occurred near Lesjevoerk (2,000ft.). *Colias palaeno* var. *lapponica* was taken round the edges of a bog; males were fresh, females had not appeared. One stray specimen was taken above tree-line. Judging from the British Museum series, 2-3,000ft. is normal for this insect in Scandinavia. A specimen in poor condition turned up at Mølmen on August 29th. There was some variation in depth of ground colour and in amount of dark markings. *Brenthis selene* and *B. euphrosyne* were rather going over by July 25th. *B. pales* var. *arsilache* and *B. pales* were in good condition; the former from 2,000ft. to beyond tree line, the latter attaining an altitude of nearly 4,000ft. The distinctness of the two forms was not grasped at the time, but probably their ranges overlap, and some specimens can hardly be assigned to one or the other form. A form of *Argynnis niobe* var. *eris* ♂s was common enough and fairly fresh, in some hay-fields. The Norse form is small, dull, and lacking in red on the upperside, and also on the forewing underside. *A. aglaia* also occurred. *Coenonympha pamphilus* was always in poor condition. *Erebia ligea* was freshly out. It seldom reached birch-line, but was common on sunny days, flitting over dandelions and hawkweeds in glades and paths. This species, also *C. pamphilus* and *Plebeius argyrognomon*, frequently sham death on being boxed, lying motionless on their sides for many seconds. *Aglais urticae* was not rare; one *Polyommia c-album* was taken at Horgheim, in lower Romsdal, on August 28th. *Chrysophanus hippothoë* var. *stieberi*, Gerh., seemed uncommon. It was fond of basking on yellow alpine composite flowers at about 3,500ft. *Polyommatus icarus* was in poor condition.

and not common at lake level. *Plebeius argyrognomon* (= *argus*, suctt.) was abundant in both sexes at the end of July and also a month later, when the species was in poor condition. It was not by any means freshly out in July. It occurred to one of us that Norwegian lepidoptera perhaps remain longer on the wing than British ones. The suggestion is only put forward tentatively, but perhaps merits the attention of the wise and prudent. Anyhow, *P. argyrognomon* reached at least 8,500ft. It was very variable, but we are not in a position to discuss the series. *Urbicola comma*, one ♂, fresh, July 25th. In general the Norwegian form is var. *catena*, a most inconstant form, generally very dark. This particular specimen is paler than any Scandinavian specimen in the British Museum, and really looks quite British.

Of the moths, *Anthrocera exulans* var. *vanadis* was worn by July 25th (3,500ft.). This varietal name appears to be designed for the benefit of Scandinavian specimens in worn condition. *Plusia interrogationis* and *Agroperina lateritia*, Hufn., both occurred. The latter occurred at Gaasbu (or Gautsbud) at 8,000ft. also at Lesjevoerk. It was not completely over by August 25th when some came to sugar at Lesje. *Acidalia fumata* were worn by July 25th, *Pygmaena (Fucaterva) fusca* was locally abundant just above tree-line; on July 25th, etc., the specimens were mostly fresh. The flight is "Geometrid," close to the ground and not very fast. Considering its colour the species is easily seen. *Carsia paludata* var. *imbutata* was fresh in July. The moth seemed to haunt sallow, though its food-plant is *Vaccinium*. One sunny morning we watched a ♀ settle on various blossoms without resting in any special position or attempting to orientate herself. Towards midday she took up a position on a sallow twig, moved her wings up and down a little and finally assumed the regular Deltoid posture with antennæ tucked under the forewing costa. *Coremia munitata* was taken at 8,000ft. in worn condition. *Entephria (Larentia) caesiata* was abundant in the forests, especially in the more open parts. *Cidaria truncata* (♂s) were common enough and fresh at the end of July (with this contrast *C. immanata* on the Sura in mid-August). *Cidaria testata* (♂s) was beginning to emerge at the same time. *C. populata* (♂s) was also abundant. At Lillehammer, on September 2nd, we took *Pieris napi* and *Emmelesia albulata*. The following HYMENOPTERA, which the Rev. F. D. Morice has kindly determined, were taken near Lesje:—*Rhodogaster punctulata*, *Vespa vulgaris*, *Halictus calceatus* var. *albipes*, *Odynerus trifasciatus*, *Bombus lucorum*, *B. jonellus*, and *B. agrorum*.

Mr. K. J. Morton has been good enough to name a few NEUROPTERA, etc. TRICHOPTERA, *Limnophilus vittatus*, F., *Neureclipsis bimaculata*, L., *Rhyacophila nubila*, Zett.; ODONATA, *Agrion concinnum*, JOHANSON, *Leucorrhinia rubicunda*, L.; PLECOPTERA, *Chloroperla grammatica*, Scop., *C. griseipennis*, Pict., *Isopteryx burmiesteri*, Pict., *Amphinemura cinerea*, Olivier, *A. standfussi*, Ris., *Leuctra digitata*, Kempny; EPHEMERIDAE, *Leptophlebia vespertina*, L., *Siphylurus lacustris*, Eaton, (Gaasbu).

Dr. Malcolm Burr has helped us with a few ORTHOPTERA. The most interesting species is *Podisma frigidum*, Boheman, an alpine and arctic flightless species occurring from about 8,000ft. upwards as far as the ground was suitable. The species was abundant in small

boggy hollows on the hills wherever the ground was very damp; often living on nearly naked peat sparsely clad with *Eriophorum* and *Sphagnum*. Both sexes were abundant and paired at the end of July; and the same was true at the end of August. At the latter date the country was much more dried up, and the insect was dispersed even over the driest slopes. The colours are variable and sometimes most beautiful. The insect may be washed with yellow or bright green, or the elytra and top of head and thorax may be magenta, or the whole colour dark and almost inky. *Omocestus viridulus* (♂s), *Mecostethus grossus*, L., *Gomphocerus maculatus*, Thunb., (♀), *Stauroderus bicolor*, Charp. (nymph) also occurred, and one specimen of the cockroach *Ectobia lapponica*, L., was taken at 8,000ft.

## II.—SURENDAL.

From August 5th to August 26th we were in Surendal, about ten miles from the fjord. The flat bottom of the valley is here sometimes as much as a mile broad, and mostly under cultivation. A poor crop of hay is taken off most of this, but there are generally a few patches of potatoes and a good deal of bearded wheat. The valley is well sprinkled with farms and cottages, but these have no gardens. The river is largely fringed with alders, and these and birches grow here and there in patches among the fields. The sides of the valley are quite steep for the first few hundred feet. Alders soon give way to pines: these go over the first crest of the higher ground, and cover the country rather less thickly as the slope becomes more moderate. There are still some at 1,500 ft., but they no longer form a wood after about 700 ft. in most places. Alders grow at a height of several hundred feet in sheltered places.

Above the pines, and sometimes among them, there are often groups of birches. The ground under the pines and birches is covered with such plants as one would find in similar places in Scotland. *Vaccinium myrtillus* completely covers large areas; *V. uliginosum* is less common. There is also a good deal of *Arctostaphylos* and *Cornus suecica*, and in the more exposed places, *Erica tetralix*, and *Calluna vulgaris*, while *Andromeda*, *Linnaea*, *Trientalis*, *Pyrola*, *Polypodium*, etc., grow in suitable corners.

There are damp spots on most of the hills, where the usual bog-plants grow, e.g., several species of *Drosera*, *Pinguicula vulgaris*, and a great deal of *Narthecium ossifragum*. However, as a whole the hills were surprisingly dry. *Betula alba* is succeeded on higher ground by *B. nana*, and this grows to the top of most of the hills in the immediate neighbourhood of Moen, the place at which we stayed. It does not reach to the top of Hönstadknyken, which rises to 8,600ft. on the south side of the valley. On the north side the hills do not rise above 1,800ft. *Loiseleuria procumbens*, *Menziesia caerulea* and *Veronica alpina*, and similar Alpine plants grow right to the tops. There were small patches of snow still lying in sheltered places on the higher hills. The weather during the first week was cold and very wet. During June and July it had been exceptionally dry and hot. The second and third weeks were much warmer, and it seldom rained. When the sun was out it was almost unpleasantly hot.

We sugared only in the valley, and there not very frequently. Alders by the side of the rivers, and pines and birches half-a-mile

away, where the ground began to rise and the undergrowth was composed of bilberries, seemed to produce the same species. *Aplecta occulta* was fairly abundant, but none of the specimens were in good condition. The same applies to *Agrotis augur* on August 12th. Perhaps they had emerged before the wet weather, during which we did not sugar. One *A. candelarum* came to sugar on the 16th (we caught another at light on the 11th). *Dyschoricta (Orthosia) suspecta* var. *grisea* and var. *nigrescens* occurred on August 12th: also *Xanthia fulvago* var. *flavescens*, and var. *cerago* on August 16th. *Noctua baja* was one of the commonest moths, some clay-coloured, others rufous, others dark red. *Amphipyra tragopogonis* and *Xylophasia monoglypha* also occurred sparingly in typical forms. *Hydroecia micacea* occurred at sugar and also at light on August 20th; *Xanthia lutea (flavago)*, *Agroperina lateritia*, Hufn., and one *Calocampa solidaginis* came to sugar on August 20th, and one *Charaxes graminis* to light on August 16th. (For *Hydroecia crinanensis*, vide *Ent. Rec.*, vol. xxv., p. 283.)

Butterflies were not common in the valley. One *Erebia ligea*, one *Argynnis aglaia* (♀, worn to shreds, August 22nd) a few *Aglais urticae* (not var. *polaris*) and *Pieris brassicae* (♀, August 23rd) were all that we saw. We also took the following moths at rest, *Xanthia lutea (flavago)*, *Cabera pusaria* (one ♂), *Melenydris (Larentia) didymata* (one ♂) on August 16th, *Mesoleuca (Melantheria) bicolorata* (one) on August 5th, and *Epione apiciaria* on August 19th.

On the *Vaccinium* under the pines up the sides of the valley were quantities of larvæ of *Orgyia antiqua*. Some had already pupated, while others were still quite small. Females emerged at the end of August, males were on the wing a week or two earlier. As was to be expected, they were somewhat darker than examples from the south of England, especially a small one that emerged on September 1st. We found two larvæ about 1,000ft up, but they were far commoner much lower. *Cidaria immanata* rested in large numbers on the pine trunks in these lower woods. There were still some specimens in fine condition on August 23rd, but most were worn by then. *Entephria (Larentia) caesiata* was also very abundant. On the whole it was over earlier than *C. immanata*. *Lygris (Cidaria) populata* was perhaps commoner than either of these, resting in the *Vaccinium* during the day. Females were very scarce till the third week in August, and even then not as common as the males had been. In most cases the ground colour was pale straw-colour, with the darker markings sometimes very much reduced, sometimes covering the forewings almost entirely. A few, mostly ♂s, were suffused all over with a vinous or reddish-grey tint, which greatly obscured the usual markings and left the wings nearly unicolorous (ab. *musauaria*). One specimen is almost the form Linné described as *dotata* (L. B. Prout in litt.). *L. (C.) testata* was much less common; two ♂s appeared on August 11th. None of the forms of *C. immanata* were at all striking, though there was a great deal of variation along the usual lines. *C. miata*, one ♂ on August 20th. *Mesoleuca (Melantheria) bicolorata* also occurred in the woods, where alders grew, perhaps up to 1,000ft. The specimens varied but little. Most belonged to ab. *parrula* (= *rubiginata*); a few had no traces of the central band on the inner margin of the forewings; none had this band complete and none approached var. *fumosa*. *Hydriomena*

*furcata* was fairly common, generally in poor condition. One specimen seemed to be fairly typical, but most were very dark, one wholly so (var. *infuscata*.) *Eupithecia sobrinata* occurred very locally, perhaps because junipers were rather scarce. It was exceedingly abundant, but rather worn, in one small glen on the south side of the valley on August 21st. Most of the specimens were rather dark.

*Erebia ligea* occurred up to about 1,000 feet, in openings where the trees became scattered and the undergrowth Ericaceous. In the latter spots *Plebeius argyrognomon* was sometimes exceedingly common. Both sexes could be picked off rushes, etc., if the weather were dull. The females appear to be more noticeably suffused with blue of various shades than those taken at Lesje, in July.

A ♀ *Polyommatus icarus* of normal size, taken on August 16th, was dull brown above without any blue scaling; the orange crescents were reduced on the hindwing, absent on the forewing. On the underside the hindwing was normal with four basal spots. The forewing had no basal spots, while the post-median row was complete (seven spots). It was, however, remarkable in that the anterior five spots of the row were displaced inwards, and so arranged as to form a segment of a circle around the discal spot. The other two spots of the post-median row were normally placed, though one was most accurately set over the other, thus making a colon mark such as is often seen in *Aricia medon* (*astrarche*). The displacement of the five anterior spots rather recalls *Agriades thetis*. We can find no similar specimen in the late Dr. Gerald Hodgson's collection at Cambridge. There is a slight blue scaling beneath on the bases of all four wings, otherwise the specimen might almost be taken for *A. medon* (*astrarche*). *Argynnis aglaia* was apparently local. It was getting worn by August 11th and 15th. We failed to distinguish *Brenthis pales* and var. *arsilache* till we returned, but probably the former occurred only above tree-line; neither seemed to occur below 700 or 800 feet. We obtained one specimen of *Polygonia c-album*, about 2,000ft. up.

Besides these butterflies on the moors above the woods, there are still the Geometers that were common lower down; e.g., *Entephria* (*Larentia*) *caesiata*, resting on the rocks (mostly over by August 25th, but we got a dark one in good condition on that date). *Hydriomena furcata* (a ♀, at 2,000 feet, August 25th). *Carsia paludata* and *Thamnonoma brunneata* were restricted to this ground. The former, in spite of our high latitude, was still var. *imbutata*. Females were still out on August 25th, but no longer fresh. It was not a scarce species, and easily dislodged from its resting places. *T. brunneata* was already going over when we first met with it on August 11th. However, it was still about on August 26th. *Saturnia pavonia* we only obtained once, on August 8th (two larvæ, one of which has since emerged and is a typical ♀). On August 9th we found a larva of *Callophrys rubi* on *Vaccinium uliginosum*; it pupated on August 17th and emerged this spring. A larva of *Spilosoma lubricipeda* (August 18th) and larvæ of small Geometers on scabious have pupated, but not yet emerged. The larvæ of *Iodis putata* (*lactearia*) were abundant on *Vaccinium* (especially *V. uliginosum*); several emerged this spring. Two *Pygaera pigra* have also emerged from larvæ collected on willow; also one specimen of *Mamestra thalassina*, and one specimen of *Eupithecia satyrata* (larva on *Leontodon*). We must thank the Rev. G.

Wheeler and Mr. L. B. Prout for giving us assistance with various determinations.

Very few insects of other orders were collected. The ruby-wasp, *Chrysis ignita* (♀s) was not rare. The following Ants were taken: *Myrmica ruginodis*, *M. scabrinodis*, *Lasius niger*, *Formica rufibarbis*, *F. pratensis*, and *Camponotus herculeanus*.

The grasshopper *Podisma frigidum* occurred sparingly. Miles of suitable ground were explored, but the species was rare in contrast to its abundance above Lesje. *Omocestus viridulus*, *Mecostethus grossus*, *Gomphoceros maculatus*, and *Stauroderus bicolor* (♂, ♀, and nymph), were also taken. We took the following Caddis-flies: *Limnophilus stigma*, Curt., *L. auricula*, Curt., *Halesus radiatus*, Curt., *Rhyacophila nubila*, Zett., and *Philopotamus montanus*, Donovan. Also, among the Odonata: *Aeschna coerulea*, Ström. (common), and *A. juncea*, L. Among the PERLIDÆ: *Leuctra digitata*, Kempny; and among the May-flies: *Cloëon simile*, Eaton.

### ***Erebia manto* var. *gavarniensis*.**

By T. A. CHAPMAN, M.D.

One or two correspondents seem to think I ought to make some reply to Mr. Warren's paper on p. 109 of this volume; though for my own part, having nothing to alter in what I have already said (p. 85), I hardly see the necessity.

Mr. Warren notes that I deal with *manto* and *caecilia* of nearly equal sizes; this ought to have prevented his point (3) in which he apparently accuses me of the error that he thinks I had imputed to him. This I certainly did not do, as I supposed his observations were properly made and accurately recorded. As regards (5) angulation of cell in hindwing, I think the figures on Pl. III. fully justify my saying there is no such difference. (6) Here again Mr. Warren forgets that I was comparing specimens of almost identical size. (7) Falls under the same remark.

Now I do not for one moment suppose that Mr. Warren does not report precisely the facts that his specimens show, but I should like him to admit that I do the same.

I think our divergence arises from Mr. Warren making his observations on *manto* from an area in Switzerland, where practically all the races are small. I have *manto* of larger size than average *caecilia*; several of my specimens of the latter expand 44mm. only (I have no very small ones), whilst my *manto* average little less than this; I have a good many of 44mm. and several up to 46mm. in expanse, and have one specimen as small as 34mm. My largest specimens are from Innsbruck, St. Anton, and Chamonix. I also saw a large form near Cogné.

Now there was one point as to which my facts were not impartially gathered. In order to easier comparison, I selected specimens for examination of the neuration as nearly of the same size in the two forms as might be. In doing so I had no other intention than easy comparability, but I think the result, as far as the questions of neuration go, is to show that in comparing *manto* and *caecilia*, Mr. Warren was comparing small *manto* with larger, and, as it happens, found a fair average difference, I was comparing large *manto* with

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