

1900.]

COLEOPTERA AND LEPIDOPTERA AT RANNOCH.

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A visit to Rannoch, the classic Entomological station of Scotland, had for many years been one of my unfulfilled wishes; and it was therefore with no small satisfaction that I found myself *en route* for the North on July 18th, glad enough to escape from the stifling heat, dust, bustle and smells of Chatham Dockyard to the fresh breezes and delightful scenery of the Highlands.

After a seventeen miles' drive in the post-cart from the little railway station in the middle of the great Moor of Rannoch—surely one of the most forlorn and desolate looking places it has ever been my lot to see—I arrived at Kinloch soon after noon on the 19th, and found excellent quarters at that traditional resort of entomologists, the Bunrannoch Hotel, where I remained until August 9th. My first excursions not only showed me that I was much too late for many of the better insects, but that Rannoch is a really difficult district to collect over, and that every "good thing" taken had to be fairly earned by hard work. Although the whole of the ground looks most promising, and it is difficult to select any one spot as more favourable for insects than the rest, a great many species, especially in the *Lepidoptera*, are restricted to a very limited space, and unless a stranger is guided to these localities, he runs the risk of missing many of the Rannoch specialities altogether. I am therefore much indebted to Dr. H. McCallum, the resident medical man, and a keen Lepidopterist, who introduced me to the head-quarters of several interesting species; as well as to Mr. W. Reid, of Pitcaple, whose genial and instructive company I enjoyed during the first half of my stay.

Any collector visiting Rannoch will find his work greatly facilitated by the use of a bicycle, as the excellent level road extending all round the Loch gives easy access to all the points from which the most productive spots can be best reached. Not being a cyclist myself, nearly all my excursions had to be made on foot; and after rambling and scrambling about over rough country from morning till night, often climbing more than 2500 feet, and turning over several tons of stones in search of beetles, it may readily be imagined that I was not disposed to turn out for sugaring or other night work, so the *Noctuae* are practically absent from my list of captures. Rannoch had not escaped the general drought of the past summer, and only one day during my stay could be called even damp; but there was a good deal of dull grey weather with dense mist on the hill-tops, and

boisterous gales from the westward, raising quite a respectable "sea" on the Loch, and preventing anything from flying in exposed places. On several such days, indeed, it was scarcely possible to find a single insect on the move; though on fine days, of which there was a fair proportion, Rannoch fully sustained its reputation for numbers of individuals if not of species of insects. Especially this was the case with the *Diptera*, at least of the representatives of that Order, with whose company one would gladly dispense. The "midges" and *Tabanidæ* were the most ferocious I have ever encountered, and made one's life a burden when collecting in sheltered places; while the abundance and pertinacity of the *Muscidæ* in the Black Wood brought the "plague of flies" of North-West Australia vividly to my recollection.

Many of the most characteristic species of beetles had evidently been "over" for a long time. Thus, I did not see a single *Longicorn* in the open, except one *Strangalia 4-fasciata* brought in by Dr. McCallum on August 1st; there were no *Elateridæ* to be found, except *Cryptohypnus riparius* and *Athöus niger*; practically no *Telephoridæ*, no *Ips*, and no *Cryptocephali* whatever. The sweeping-net produced nothing better than odd specimens of *Malthodes* of two or three species, *Antherophagus pallens*, *Hydrocyphon*, *Anthonomus comari*, &c.; and beating the small birch and alder trees was not more productive, *Anthophagus testaceus*, *Luperus rufipes* and *flavipes*, *Coccinella 16-guttata* (not rare), *Podabrus alpinus*, *Deporäus megacephalus*, and *Polydrusus tereticollis*, being almost the only species obtained in this way. *Dorytomus costirostris* came very rarely off aspen, and *Dascillus cervinus* off the heather, rather commonly.

There was abundance of fallen timber, logs, and stumps of Scotch fir in the Black Wood and elsewhere, as well as many decayed birch trees on the hill sides and along the glens; but nearly all of it was in the most weatherbeaten state, with the bark, when any remained, dropping off from age, and it was rarely that a tree could be found in workable condition. The celebrated saw-mill yard at Dall, in particular, looked as if no work had been done there for years, and all that could be found in it on several visits were the three local species of *Liodes*, which were plentiful in snuff-like fungus on old sawdust and stumps; *Cerylon histerooides* and *ferrugineum*, *Ernobius mollis* (very large), *Otiorrhynchus maurus*, and a few *Quedionuchus lævigatus*. This last-mentioned Staphylinid, which, with the exception of *Baptolinus alternans*, was the beetle most regularly found under loose bark, fully lived up to its reputation for activity, but in this respect it was equalled, if not excelled, by *Quedius xanthopus*. Of this species I



took a fine series under the very dry loose bark of a number of felled larch trees on the north shore of the Loch, in company with *Rhizophagus nitidulus* (rare), *Calathus micropterus* (in plenty), &c.; *Q. lateralis* was found, with some rather puzzling forms of *Q. mesomelinus*, under logs in the Black Wood, where *Rhyncolus chloropus* was common in old fir stumps, and *Cis punctulatus* in fungoid growth under fir bark. *Pytho depressus* was not observed in the perfect state, but its curious horny-looking fork-tailed larva was common enough, and I found a few pupæ, which unfortunately did not produce very satisfactory specimens. After a constant and unsuccessful search for that special Rannoch Longicorn, *Acanthocinus ædilis*, I thought myself lucky to find four specimens in a small fir log on my last visit but one to the Black Wood; but the larva, and the very curious pupa, were constantly in evidence. I brought back several of the latter, but they seemed too delicate to bear removal from their singular nidus of wood-fibre under the fir bark; and the two or three perfect insects reared happening to come out together when I was away from home promptly proceeded to devour each other. With the pupæ of *Rhagium indagator*, which were rather common, I had somewhat better success.

In a small saw-pit on the Struan road, a little more than a mile from Kinloch, was some tolerably fresh timber, and one pine log yielded me a short series of the pretty wood-borer, *Trypodendron lineatum*—not obtained without difficulty, as it drills neat round tunnels two inches and more deep, perpendicular to the surface of the wood, and sits in them hinder end outwards, ready to retreat far out of reach at the least alarm. The common *Myelophilus* and *Hylastes* were here in swarms, with a few *Tomicus acuminatus*; and under the looser bark I found *Nudobius lentus* (2), *Leptusa analis*, *Homalium pineti* (not rare) and *pusillum*, *Rhizophagus ferrugineus* and *dispar* in plenty, and one or two *Thanasimus formicarius*. Not far off were the only two recently felled fir trees I could find during the whole of my stay, and by beating the cut-off tops of these I obtained *Cryptophagus cylindrus*, *Ernobius nigrinus*, *Pissodes pini* (common) and *notatus* (rare), *Magdalis phlegmatica*, *Pityogenes bidens*, *Pityophthorus pubescens* (*micrographus*, Brit. Cat.) in plenty, &c. Several of these species, with *Salpingus castaneus* in numbers, were also beaten out of the broken-off top of a large Scotch fir in the Black Wood.

Decayed birch was less productive, but from a half-dead tree near Carie I got one of my best finds, *Epuræa silacea*, unfortunately only singly; the same tree yielded *Orchesia micans* (most of which escaped by means of their well-developed powers of jumping), *Triplax*

*russica* in fungoid growth, with numbers of its larva, &c. One *Carida flexuosa* was also found on decaying birch, also *Cis Jacquemarti*, and *Sinodendron* under the loose bark, where I saw one elytron of the rare *Athöus undulatus*.

A *Cossus*-infested birch tree in the Black Wood, kindly pointed out to me by Mr. W. Reid, proved a great attraction for *Cetonia floricola*, of which only a single specimen was taken elsewhere on bracken. On one occasion I saw at least twenty of the *Cetonia* busily imbibing the flowing sap, in a space which could be covered by one hand. *Soronia punctatissima*, larger and darker than southern examples, was very abundant in this tree, with a few *S. grisea*, *Thamiaræa cinnamomea* and *hospita*; and in the "frass" at its foot two or three examples of the dark type-form of *Xantholinus tricolor*, so different from the large light coloured variety I have been accustomed to take at the seaside in the south, were met with.

I should have been greatly disappointed to miss *Trichius fasciatus*, as well as *Acanthocinus ædilis*, and was just not too late for the former species, of which three specimens were seen and two taken flying over heather bloom in the Carie glen on July 29th; the resemblance of this pretty insect on the wing to a small humble-bee was very striking at first sight.

The summit of Meall-a-Phuill or Gharbhavel ("Grayvel")—the traditional locality for the great Coleopterous prize of Rannoch, *Amara alpina*—was too far from Kinloch to admit of my reaching it and returning the same day, and a projected ascent from Camghouran fell through; but I worked hard, without result as far as this beetle is concerned, on all the hills nearer to my head-quarters, including "Beinn-a-Chuillaich" (2925 feet), "Carn Mearg" (3419 feet), and the "Big Ben" of the district, Schiehallion (3547 feet), all considerably higher than "Grayvel." The famous view from the summit of Schiehallion was limited by the mist on the day of my ascent to about five yards, and the top of the mountain being scarcely more than a pile of loose frost-riven rocks, very little life, either animal or vegetable, was present; but about halfway down I found a single specimen (unfortunately not quite perfect) of the very rare *Oxypoda longipes*, Muls., under a stone in a damp grassy place. The usual hill *Carabidæ*, etc., were apparently much more plentiful on steep well-drained slopes at about 2000 to 2500 feet elevation than on the actual summits, where the black mountain form of *Carabus catenulatus*, and (rarely) *Patrobis septentrionis* were almost the only species met with. At the more moderate heights I found *Nebria Gyllenhalii*, *Calathus melanocephalus*



var. *nubigena* (with the type form), *Bradycellus collaris* and *placidus*, and *Patrobis assimilis*, all fairly common, and more rarely *Cychrus rostratus*, *Pterostichus æthiops* (locally not scarce on the heights above the Allt Druithe burn) and *vitreus*, *Miscodera arctica* (one only), *Cymindis vaporariorum*, *Calodera æthiops*, *Homalota tibialis*, *Ocypus brunripes*, *Arpedium brachypterum*, *Otiorrhynchus maurus* (nearly over) and *rugifrons* (on Schiehallion), &c. *O. blandus* sometimes occurred on the highest summits, but was much more abundant under small stones on the Loch side within five minutes' walk of the hotel, with *O. muscorum*, rarely. Here, too, *Staphylinus stercorarius* asserted its claims to be regarded as a Myrmecophilous beetle by being found on several occasions in a small nest of *Myrmica ruginodis* under a stone, the ants resenting my intrusion by stinging with a degree of virulence worthy of their tropical relatives.

On the way to the Black Wood, *Serica brunnea* was often very common on the road, with occasional examples of *Carabus glabratus*, *Calathus piceus*, *Amara bifrons*, *Taphria nivalis*, *Geotrupes sylvaticus*, *Adimonia tanaceti*, &c. One or two late specimens of *Cicindela campestris* were observed, and by dint of a good deal of "log rolling" in the Dall sawpit I got a small series of *Trechus rubens* in its old station, in company with *Clivina collaris*. Nothing better than *Bledius subterraneus*, and one or two *Bembidium tibiale*, was to be found in sandy places on the shore of the Loch.

In sheep- and deer-dung were found the usual *Aphodii*, viz., *lapponum* in great plenty, often nearly or quite black, and occurring up to the highest elevations; *fetidus* and *putridus*, both common; *depressus* and *sordidus*; also *Tachinus proximus*, *pallipes* and *flavipes*. Carrion was not often met with, and produced only a few common *Histers* and *Cholevas* (including what is probably *C. coracina*), *Necrophorus ruspator*, also taken flying in the Black Wood, *Philonthus proximus*, *carbonarius* and *puella*. I could not muster up sufficient resolution to attack any of the numerous and thriving nests of *Formica rufa* in the Black Wood and elsewhere, but once found *Myrmedonia humeralis* accompanying the ants which were busy about a dead rabbit.

The water-net was occasionally used, but produced no single species worthy of mention, and very few of even the commoner forms of water-beetles; and a similar want of success attended the examination of *Sphagnum* and other mosses at various elevations.

Turning now to the *Lepidoptera*, eleven species of butterflies were observed during my stay, of which *Pieris brassicæ* and *napi* call for no special remark, except that the ground colour of the females of

*P. napi* was rather more creamy in tone than in southern examples. To one who in all his wanderings had never yet seen a true *Erebia* on the wing, the first sight of *E. epiphron* on July 26th, flitting in a stray gleam of sunshine over the grass and heather on the slopes above the Allt Druithe Burn, was indeed a pleasure. Very few specimens were seen on this occasion, but on the 31st I met with it again a long way up the Innerhadden Burn, this time in fair numbers, but usually worn to a mere shadow, though improving perceptibly in condition as one ascended higher up the hillside. The nature of the ground it frequents, joined to a habit it has of flying uphill when pursued, makes the capture of *E. epiphron* not always an easy matter on a hot day. Its congener, *E. æthiops*, was out locally in great abundance and superb condition, among the long grass and bog-myrtle by the roadside, on the north shore of the Loch on August 2nd, when Dr. McCallum and I each took a long series. I found it in equal numbers, but showing evident signs of wear in the males at least, in the better known locality near Camghouran a few days later. *Cænonympha Typhon* was widely distributed in wet heathy places at moderate elevations, but was evidently long past its prime, though enough fresh specimens were taken to furnish a nice series; and *C. Pamphilus*, which was common, attracted attention from its much clearer and yellower tone of colour than that of southern examples. *Vanessa urticae*, too, was noticeably larger and brighter than in the south, and was common enough along the roads; and *Argynnis Selene* still lingered, in passable condition, on the heaths. *A. Aglaia* was first seen on July 26th, and soon became common, though its active habits, and the rough winds which prevailed just as it was coming out, did not permit it to remain in good condition for many days. The specimens taken were altogether larger, darker, and richer in appearance than those from the Kentish chalk hills, the females especially so. I noticed one or two *A. Aglaia* flying vigorously at a height of nearly 3000 feet. But the most interesting butterfly was without doubt *Lycæna Icarus*. Even on the wing the superior size and brightness of the males, as compared with southern examples, at once caught the eye, and the females were truly magnificent, some of them half as large again as average Kentish examples, and in nearly all cases strongly suffused with bright shining blue, the dark ground colour often reduced to a narrow well-defined border, and the orange marginal spots unusually conspicuous. In many of the females, too, the discoidal spots were plainly marked on the upper-side, and conspicuously margined with white; while quite ten per cent. of both sexes were to be referred to the var. *icarinus*, Scriba, in which the



basal ocelli of the fore-wing beneath are obsolete. A beautiful selected series, chiefly taken in the evening and on dull days at rest on rushes, &c., in a boggy place on the bank of the river Tummel close to Kinloch, was secured; and in the same spot *L. Artaxerxes* was met with sparingly, and was also found flying with *Erebia athiops*.

Among the *Bombyces*, belated and probably ichneumonid larvæ of *Orgyia fascelina* were now and then seen on the heather, and those of *Lasiocampa rubi* (young), *quercus* var. *callunæ* (full grown), and *Saturnia carpini*, were fairly plentiful. On the last day of my stay, while I was beating alder for *Melanthia rubiginata* var. *plumbata*, something fell with quite a startling thump on the grass, and proved to be the first larva of *Endromis versicolor* which I had ever seen; it was full-fed, survived the journey to Sheerness, and is now safely in the pupa state. Very small larvæ of *Notodonta dromedarius* were often beaten from the same tree, and those of *Cymatophora* or from aspen, while on birch I found one or two larvæ of *Acronycta leporina*. *Agrotis strigula* (*porphyrea*) flew commonly over the heather, but was invariably too much worn to be worth taking; a few fine examples of *Stilbia anomala* were disturbed during the day in rocky places at Carie and elsewhere, *Plusia chrysitis* turned up in the hotel, and *P. interrogationis* was frequently seen on the moors, usually going like the wind over the roughest places, and only one specimen in tolerable condition was caught.

Of the Geometers, *Ellopiæ fasciaria* and *Boarmia repandata* were met with in the Black Wood, but in every instance in the last stage of dilapidation. *Dasydia obfuscata* was widely distributed, and in good condition when found, but was decidedly scarce; the first specimen seen being fished out of a pool of water into which it had just fallen, very little to its detriment. Of *Geometra papilionaria* I saw two fine examples, taken by two collectors from Yorkshire who were on a flying visit to Kinloch. *Acidalia fumata* was nearly over, and hard to obtain in good order, but on my arrival the very local *Fidonia pinetaria* was just in its prime in its head-quarters at the Black Wood, but it did not remain long in good condition. The males flew briskly, even on dull days, over the great clumps of its food-plant, the red whortleberry, *Vaccinium vitis-idaea*, from which the more sedentary female might be disturbed. The genus *Larentia* was much in evidence, and included *L. cæsiata*, very plentiful at all elevations except the highest, and very variable in colour and marking; *ruficinctata*, to whose locality I was kindly introduced by Mr. Reid, occurred sparingly on an outcrop of metamorphic limestone on the flanks of Schiehallion,

where the pretty little fern, *Asplenium viride*, grew in plenty in the crevices in which *L. ruficinctata* delighted to ensconce itself; *salicata* was represented by one worn specimen, *olivata* was fairly common, as well as *pectinataria*, and *didymata* was a perfect nuisance everywhere. *Emmelesia blandiata* was quite worn out, but *ericetata* was in good condition and common, but rather local in heathy places. Among some alders about a mile from Kinloch, *Melanthia rubiginata* was abundant and fine, the interesting var. *plumbata* occurring in fair numbers with the ordinary form; and the only *Melanippe fluctuata* which I took was a fine example of the dark var. *neapolisata*, Mill., which is apparently not rare at Rannoch. *Coremia munitata* was fairly common on Schiehallion and elsewhere, chiefly along the course of the burns; *Camptogramma bilineata*, *Cidaria russata* and *immanata* were all plentiful, and presented no striking variety, but some exceedingly fine dark and intermediate forms of *C. populata* were taken in the Black Wood and by the Innerhadden Burn, among *Vaccinium*. Dark and finely marked specimens of *Eubolia palumbaria*, *E. limitata* (*mensuraria*) and *Anaitis plagiata* were secured, and on August 7th the pretty *Carsia paludata* (*imbutata*) was first seen on the hills behind Carie, apparently just coming out, in rough places where the *Vaccinium vitis-idaea* grew in stunted patches among the heather, and was common enough the next day, although not very easy to catch. *Scopula alpinalis* was not rare rather higher up, especially at Innerhadden, and *Crambus margaritellus* and *dumetellus* were obtained, the former chiefly in the Black Wood; and a large *Scoparia*, apparently to be referred to *S. scotica*, B. White, taken at an elevation of 2500 feet on Schiehallion, concludes my list of captures at Rannoch.

23, Ranelagh Road, Sheerness :

October 7th, 1899.

