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“In relation to the human mind Nature is boundless; and though nowhere inaccessible, she is everywhere unfathomable.”

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TRICHOPTERA AND NEUROPTERA OF THE UPPER ENGADINE
IN AUGUST.

BY R. McLACHLAN, F.R.S., &c.

In the "Entomologist's Annual" for 1871, pp. 15—17, I published a few notes on Swiss *Trichoptera*, some of which related to materials collected by Mr. Stainton in the Engadine in 1870. At that time the hope that I might some day go over the same ground scarcely existed with me. However, on August 6th, 1880, I left home at 8 a.m. for the Engadine, and travelling direct *viâ* Boulogne, Paris, Belfort, and Basle, arrived at Zürich at 12.30 p.m. on the 7th. Leaving Zürich on the morning of the 9th, I was at Chur in the afternoon of the same day. Having *posted* my portmanteau for Pontresina, I walked on to Churwalden in the evening, and slept there, joining the diligence party at 8.30 next morning,* for the Engadine *viâ* the Albula Pass. The burning of the old bridge over the Rhine at Reichenau, which occurred a day or two previously, probably diverted, for the moment, some of the traffic over the Julier Pass *viâ* Thusis, so that from Churwalden to Samaden (within three miles of Pontresina) the travellers formed quite a large party, accommodated in two large diligences and three "supplémentaires." The weather was tolerably fine, but cold: snow had fallen the previous night on the Albula Pass, and the mountains had a thin covering of fresh snow; large patches of unmelted old snow also lay here and there in hollows far below the road, for the summer had not been a warm one in Switzerland. At the Albula Hospice (7582 feet) the rush of shivering travellers in quest of hot coffee was almost ludicrous. Delay was occasioned in waiting for lateral posts, &c., and it was past 9 p.m. before we reached Pontresina, where the portmanteau had previously arrived by a night post. To my dismay all the hotels were crammed, and any chance of obtaining a bed in one of them was hopeless; not a pleasant prospect at that time of night, and especially as I had planned a stay of ten days. However, a room in a small house, difficult of access, and still more difficult to descend from in the morning, was procured, and here I stayed until the 20th, taking meals only in one of the hotels.†

* By this means the inconvenience of having to leave Chur at 5.30 a.m. was avoided.

† The simplicity of the Engadine is a thing of the past. "Society" has taken possession of the district, at any rate in August, and I more than once heard Pontresina, St. Moritz, and St. Moritz Bad likened to Brighton carried into the Alps. At Pontresina 800 beds are now not sufficient to accommodate the visitors in August. As a hint to future travellers who (like myself on this occasion) may be alone, it is well to say that fair sleeping accommodation may sometimes be obtained in houses belonging to a resident who lets out the rooms, and, if it be preferred, meals can be obtained in a German restaurant, thus avoiding the hotels altogether. In July the place is not so full. The Americans, so ubiquitous in the Bernese Oberland, have not yet appeared in the Engadine in force.

Pontresina itself lies at an elevation of 5915 feet, and the district explored by me occupies about ten miles in various directions therefrom, and at from 5600 ft. to 6800 ft. in elevation. The return journey was *viâ* the Julier and Schyn Passes (arrangements having been made, in the meantime, for the conveyance of passengers and their belongings on an improvised raft across the river at Reichenau), and the highest point at which any Trichopterous captures were made was at the little inn on the summit of the Julier Pass (7503 feet) during the short time the diligence stopped.

The principal hunting-grounds were the Val Roseg as far as the glacier; the Lake St. Moritz, and the Statzer-See (in the wood) which discharges into it; the Val da Fain (no doubt a paradise for a Lepidopterist, but practically useless for my purposes, owing to the utter absence of trees and the snow-fed stream); the wild rocky ground in a forest of larch and arolla (*Pinus cembra*) through which the torrent from the Piz Languard finds its way; a nearly similar locality on the right of the road to Samaden; the Val Celerina (in which are magnificent old larches); and the Val Bevers.

In my "Revision and Synopsis of the *Trichoptera* of the European Fauna," Appendix, p. xciv, I pointed out the deterrent effects of the vicinity of glaciers on aquatic insect-life. Those remarks came before me very vividly on this excursion. The stream at Pontresina, termed the Flatzbach, is utterly devoid of Trichopterous life, being poisoned by the Roseg and Morteratsch glaciers, but above the latter it is productive. A glacier-fed stream is turbid and milky; a snow-fed stream is usually clear and blue after the spring and early summer meltings are over, but even such a stream as this is seldom very productive, unless it is also largely fed by lateral rivulets from land springs, and these latter are the best of all. Naturally, in such a district these are not abundant, and long distances must be travelled over for their discovery *

The results of my excursion were about 450 specimens, represented by the species enumerated below. Rather to my disappointment, no species that can absolutely be identified as new was discovered; but some purely alpine forms were abundant; still, however, not so great a number of species were taken as I had anticipated finding. There was a marked absence of those small forms usually so abundant in lower districts where the water is warmer. The

* Geological conditions also influence aquatic insect-life. Limestone districts are probably the best. Schist is fatal: perhaps the most remarkable instance of this is to be seen at Thusis, where, in consequence of schist, the Nolla, at its junction with the Rhine, is of inky blackness, and useless for entomological purposes.

Trichoptera are chiefly represented by alpine *Limnophilidæ* and *Rhyacophilæ*. Perhaps the most remarkable of all is *Limnophilus subjectus*, about the last species I expected to find: originally recorded from Arctic America (and extending to Maine in the United States), it has lately been found commonly in Finland and Scandinavia, but its most southerly known distribution in Europe was the south shore of the Baltic; essentially a boreal species and an inhabitant of districts of little elevation in the north, we find it again in the high Alps at about 6000 feet, a striking instance of the affinity that exists between the insects of the north and those of the high Alps very much further south, and under differing physical conditions, excepting the one point of probably equal mean temperature.

For greater abundance, both in forms and individuals, a lower elevation, warmer water, and richer shelter, are necessary. Very few of the species found by Professor Zeller at Bergün (about 4550 ft., on the other side of the Albula Pass) were seen, and many of my captures were not represented amongst his. Difference of season may partially account for this, but the main reason is difference of altitude. On my journey from Churwalden I took mental notes on the probable capability of the localities, and the most likely of these appeared to be between the village of Filisur and Bergün, a mile or two from the former.

The Upper Engadine captures were as follows:—

TRICHOPTERA.*

PHRYGANEIDÆ.

Phryganea obsoleta (Hag.), McLach.—Not uncommon at the Statzer-See; it had been only recorded as Swiss from a specimen caught by Mr. Stainton at Maria in 1870, but at Zürich I found that it occurs near that city, and probably in other localities, the Swiss Entomologists having confounded it with *Ph. varia*.

LIMNOPHILIDÆ.

Limnophilus rhombicus, L.—One ♀ at the streamlet between the Statzer-See and Lake St. Moritz. Certainly an unusual altitude for this insect: the example is very typical in size and colours, but the appendages (known to vary) are much more linear (less dilated at the base) than is usual.—*L. despectus*, Walk.—Two ♀; Statzer-See and Val Bevers, beaten from *Pinus cembra* (*vide supra*).

Acrophylax zerberus, Brauer.—One ♀ at a torrent between Pontresina and Samaden; as yet this is a scarce insect.

Asynarchus cœnosus, Curt.—The large alpine form was generally distributed and common; especially so between Pontresina and Samaden, where it was sitting on the "stone posts" mentioned in my notes in Ent. Ann., 1871, p. 15. I suspect the larvæ do not affect torrents, but live in shallow, almost standing water, such as is often found by the roadsides.

* The nomenclature used here is the same as in the Systematic Catalogue in my "Revision and Synopses."

Stenophylax picicornis, Pict.—The ♂ common at a lateral streamlet in the Val Roseg, but only one ♀; one ♀ near the Statzer-See.—*S. latipennis*, Curt.—Val Celerina, two very dark ♀.

Halesus digitatus, Schrk.—One ♂ between Pontresina and Samaden (probably early), darker than examples from flat districts.—*H. ruficollis*, Pict.—More than twenty examples; especially frequent at a torrent between Pontresina and Samaden (I now suspect that *H. mæstus*, McLach., is not distinct).—*H. hilaris*, McLach.—One ♀ at the torrent above-mentioned (probably early).—*H. auricollis*, Pict.—Scarce (probably early). Two ♂ between Pontresina and Samaden, one ♀ on the summit of the Julier Pass.

Metanæa flavipennis, Pict.—Generally distributed; very common in the Val Celerina; varying greatly in size.

Drusus discolor, Rbr.—Generally distributed and common; about fifty examples, varying much in size and in the comparative duskieness or brightness of the wings.—*D. chrysotus*, Rbr.—Rare. One ♂ and one ♀ in the Val Roseg near the glacier, one ♀ in the Val da Fain.—*D. trifidus*, McLach.—Streamlets supplying the Statzer-See; more common at small streamlets between Pontresina and Samaden. The examples are remarkably small.

Cryptothrix nebulicola (Hag.), McLach.—Abundant at the torrent in the Val Languard, and also at another between Pontresina and Samaden; those from the latter locality are very large.

Potamorites biguttatus, Pict.—Three very dark ♂ at a streamlet in the wood opposite Pontresina, but no ♀; thirteen ♀ along the stream in Val Bevers, but no ♂ (almost the only species found along this snow-fed stream). I am at a loss for a reason to account for this unequal distribution of the sexes. The ♀ shows great variability in the length of the discoidal cell, as already remarked.

LEPTOCERIDÆ.

Beræa pullata, Curt.—Two ♂ at boggy ground in Val Bevers.

Odontocerum albicorne, Scop.—Very common at the Lake St. Moritz; also along the Inn between Celerina and Samaden.

Mystacides nigra, L.—Lake St. Moritz.

HYDROPSYCHIDÆ.

Dolophilus copiosus, McLach.—One ♂ in the Val Celerina.

Wormaldia occipitalis, Pict.—One ♂ between Pontresina and St. Moritz.

Plectrocnemia conspersa, Curt.—One ♂ at the stream between the Statzer-See and Lake St. Moritz.

Holocentropus dubius, Rbr.—One ♂ at the Statzer-See.

RHYACOPHILIDÆ.

Rhyacophila persimilis, McLach.—A few examples at the falls of the Inn at St. Moritz. A few others from the stream between the Statzer-See and Lake St. Moritz show a distinct difference, although the localities are so near each other. They have the dorsal process shorter and broader, and the dilatations of the penis more acute, thus showing a tendency towards *Rh. acutidens*, McLach., without, however, being sufficiently pronounced to be identified therewith.—*Rh. vulgaris*, Pict.—Decidedly scarce; taken singly above the Morteratsch glacier, and between

Pontresina and Samaden.—*Rh. proxima*, McLach.—Nearly fifty examples of what I am bound to consider *proxima* were taken at various torrents in the district (also one ♀ on the summit of the Julier Pass). In examining this long series, a good deal of variation is evident (independent of locality) in the form of the dorsal lobe and in that of the penis, which latter not infrequently has the angles distinctly (though but slightly) produced, and in this case difficult to separate from *intermedia* (*contracta* and *fraudulenta* I take to be sufficiently marked, according to present evidence). The examples are mostly very large (one ♀ expanding to 37 mm.). The variation in the horny anal parts is of somewhat serious interest; in one ♂ the dorsal lobe forms an elongate triangle, and had it not occurred with more ordinary conditions, this example must have been considered specifically distinct.—*Rh. glareosa*, McLach.—At the torrent in the Val Languard, and at another between Pontresina and Samaden, also at a waterfall in the Val Bevers; tolerably common.—*Rh. stigmatica*, Kol.—In company with the last at the torrents mentioned, and more common than it.

PLANIPENNIA.

SIALIDÆ.

Sialis lutaria, L.—Lake St. Moritz; of ordinary size and colour; very late for this species.

CHRYSOPIDÆ.

Chrysopa vulgaris, Schnd.—One example between Pontresina and St. Moritz; the only species seen.

HEMEROBIIDÆ.

Hemerobius nervosus, F. ?—A few ♀ from Val Roseg, Val Bevers, and between Pontresina and Samaden; beaten from larches (I am by no means certain that these are true *nervosus*, the ♀ having a short upturned ovipositor).—*H. fasciatus*, Göszy.—A few examples with the last.

CONIOPTERYGIDÆ.

Coniopteryx psociformis, Curt.—One example near the Morteratsch Glacier.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

Elipsocus unipunctatus, Müll.—One example in the Val Roseg.

PERLIDÆ.*

Dictyopteryx alpina, Pict.—On the Flatzbach and between Pontresina and Samaden; taken singly. This is one of the few insects that can exist in glacier-fed streams. Along the Flatzbach the nymph-skins were numerous, sticking on stones, &c. In the Val Roseg I found three ♀ (under stones) of what must be a micropterous form, in which the wings are not longer than the abdomen when in a fresh state; they agree with the long-winged form in all other respects. It is probable that this form was considered by Pictet as the ♂ (*cf.* "Perlides," p. 162, pl. viii, fig. 7); the examples before me appears to be certainly ♀. In a series of nearly 20 examples of *D. alpina* I find only two or three that seem to be ♂, and in those the wings are not abbreviated.

* The nomenclature in Lists of *Perlidae* must be considered as approximate only; there are few Families of insects that so greatly need thorough revision, and in which the difficulties are so many.

Chloroperla rivulorum, Pict.—Generally distributed along the torrents. All the specimens collected appear to pertain to this species.

Isopteryx torrentium, Pict.—Generally, but sparsely, distributed. The examples appear to belong here rather than to *tripunctata*, Scop. (*flava*, Pict.).

Leuctra cylindrica, Pict.—Here and there; a few examples. (It is scarcely probable that this is the *cylindrica* of De Geer).—*L. nigra*, Pict.—One example from near the Statzer-See should probably be referred here.

Tæniopteryx prætextata, Burm.?—Val Roseg.—In the same locality was found another species of the genus, which I cannot identify.

Nemoura inconspicua, Pict.—Val Roseg.

EPHEMERIDÆ.

The few materials for this Family are in Mr. Eaton's hands, and have not yet been fully determined. A large *Heptagenia* allied to *longicauda*, Steph., was very common at the Lake St. Moritz; another species of the same genus, allied to *semicolorata*, Curt., occurred sparingly in other localities. A *Baëtis* was found at the Statzer-See.

ODONATA.

Sympetrum striolatum, Chp., and *S. scoticum*, Donov.—Statzer-See.—*S. meridionale*, Selys.—Sparingly, usually along the road-sides far from water; infested with the red *Acari* to the attacks of which this species seems so particularly liable.

Cordulia metallica, V. d. L., *C. alpestris*, Selys, and *C. arctica*, Zett.—Statzer-See (*vide ante*, p. 141).

Æschna juncea, L., and *Æ. borealis*, Zett.—Statzer-See (*vide ante* p. 141).

Three or four other species of *Odonata* were seen at the Statzer-See, but could not be caught on account of the boggy nature of the ground; amongst them was one of the *Agrionidæ* (probably *Enallagma cyathigerum*, Chp.).

Lewisham, London: December, 1880.

NOTES ON EXOTIC RHYNCHOTA.

BY W. L. DISTANT.

HETEROPTERA.

Fam. *REDUVIIDÆ*.

APIOMERUS OBERTHURI, *n. sp.*

Black; apical half of membrane creamy-white, under-side of body dull luteous, disc of abdomen pitchy, coxæ, trochanters, and femora sanguineous, eyes luteous.

Length, 20 mm.

Hab.: Teffé (Ega), Amazons (*de Mathan*). Coll.: Oberthür.

Allied to *A. apicalis*, Burm.; but differs in the colour of the legs and the narrower pronotum, with the central longitudinal incision to posterior lobe narrower, but more sharply defined.