

Die neue *alpina* scheint dagegen die südliche Art zu sein; es ist die Möglichkeit nicht ausgeschlossen, dass die von Strobl¹⁾ aus Bosnien erwähnte var. *major* der *araneoides* hier einzureihen sei. Wahrscheinlich gehören auch, wenigstens zum Teil, hierher die Funde der *araneoides*, an welche Prof. Calloni²⁾ aus vielen Gruppen der Alpen (Wildspitz - Gurglerferner, Schrankogel - Stubayerferner, Grogglockner - Ankogel) erinnert.

Das Vorkommen der Gattung *Chionea* in Nordamerika ist schon seit 1833 bekannt; die Fliegen leben dort unter ganz ähnlichen Umständen, wie in unserer alten Welt. Herr Charles W. Johnson aus Boston, Mass., hat ganz kürzlich eine interessante Arbeit³⁾ über die nordamerikanischen Arten geschrieben; er glaubt, dass in Nordamerika nur eine einzige Art vorkomme, was mir etwas unwahrscheinlich erscheint. Nach den Figuren scheint die *Ch. valga* Harr. mit unserer *alpina* am nächsten verwandt zu sein; ihre Verbreitung umfasst Hudsons Bay, Canada, New England, Massachusetts und Minnesota. Zum Schlusse gebe ich hier einen synonymischen Katalog der bis jetzt bekannt gewordenen Arten der Gattung *Chionea*.

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1. *araneoides* Dalman, K. Vet. Akad. Handl., I. 102. t. II. f. 1—2 (1816) et Anal. entom., 35. 1. (1823)⁴⁾; Macquart, Suit. à Buffon, I. 118. 1. t. III. f. 6. (1834); Meigen, S. B., VII. 37. 1. t. LXVII. f. 4. (1838); Guérin-Méneville, Icon. Règne anim., VII. 534. t. 93. f. 2. (1829—1838); E. Blanchard, Hist. nat. ins., III. 571. (1840); Zetterstedt, Dipt. Scand., XI. 4256. 1. (1852); Kertész, Kat. pal. Dipt., I. 297. (1903) et Cat. Dipt., II. 207. (1902); Lundström, Acta Soc. Faun. Fl. fenn., 29, 16. 1. t. II. f. 19—20. (1907). *Dalmani* Loew, XLI Jahrb. Gel. Ges. Krakau, 12. (1870); Mik, Wien. entom. Zeit., VI. 158. (1887); Kertész, Kat. pal. Dipt. I. 297 (1903) et Cat. Dipt., II. 207. (1902).

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2. *crassipes* Boheman, Öfv. vet. Akad. Förhandl., 179. (1846); Zetterstedt, Dipt. Scand., XI. 4257. 2. (1852); ? Loew, XLI Jahrb. Gel. Ges. Krakau, 11. (1870); Kertész, 297 et 207; Lundström, Acta Soc. Faun. Fl. fenn., 29, 17. 2. (1907).

3. *lutescens* Lundström, Acta S. fenn., 29, 18, 3. t. II f. 21 Bergroth, Wien. entom. Zeit. (1908).

araneoides Heeger, Isis, V. (1848); Brauer, Egger und Frauenh. Verh. zool. bot. Ver. Wien, IV. 609. t. I. (1854); Schiner, Fauna austr., II. 574. (1864); Girschner, Entom. Nachricht., XIII. 131. (1887); Hugenien, Fauna ins. Helv., Dipt., Tipul. 73. (1888); Thomas, Entom. Nachricht., XVI. 305. 1. (1890); Strobl, Wiss. Mittheil. Bosn. Herceg., VII. 663. [var. *major*, sine descriptione!/] (1900); Rendic. Istit. lomb. Milano, (2) XXXIII. 513. (1900).

4. *alpina* n. sp. *crassipes* Bezzi, Rendic. Istit. lomb. Milano, (2) XXXIII. 512. (1900)¹⁾.

5. *valga* T. W. Harris, Cat. Ins. Mass. in Hitchcocks Rep. Geol., 1 edit., 593. [sine nomine] (1833), 2 edit., 575. (1835), Report ins. Mass. injur. veget., 1 edit., 404. (1841), 2 edit., 482. (1852), 3 edit., 601. fig. 260 (1862); Osten-Sacken, Monogr. Dipt. N. Amer., IV. 169. 1. (1869) et Cat. N. A. Dipt., 1 edit., 9. (1858), 2 edit., 29. (1878); Luggler, 2 Rep. Ent. Minn., 230. t. XVI. (1896); Bezzi, Rendic. Istit. lomb. Milano, (2) XXXIII. 519. (1900); Kertész, Cat. Dipt., II. 207. (1902); Washburn, 10 Ann. Rep. ent. Minn., 30. fig. (1905); Aldrich, Cat. N. A. Dipt., 87. (1905); Johnson, Psyche, 41. figg. (1907).

araneoides Gosse, The Canad. Naturalist, p. ? (1840).

aspera Walker, List Dipt. brit. Mus., I. 82. (1848).

aspera Aldrich 1905 und Johnson 1907.

6. *scita* Walker, List Dipt. brit. Mus., I. 82. (1848).

Diese Art kann nicht mit *valga* identisch sein. Walker unterscheidet ganz gut beide Arten: *aspera* ist kleiner, dunkel braungelb gefärbt und dicht behaart; *scita* ist grösser, hellgelb gefärbt und minder behaart.

7. *nivicola* Doane, Journ. N. Y. Entom. Soc., VIII. 188. (1900).

Diese Art kann möglicherweise mit *valga* identisch sein. (45. 2, 4, 494)

57.8

The Family Tree of Moths and Butterflies traced in their Organs of Sense

by A. H. Swinton.

If it be permissible to recall an idea of venerable antiquity we read in the Book of Wis-

¹⁾ Die Varietät ist nur benannt, nicht beschrieben; sie dürfte 6 mm gross sein. Ein Exemplar ist in einer Höhle bei Tarcu gesammelt; die *Chionea* ist daher unter den höhlenbewohnenden Dipteren zu erinnern, was ich in meinem Verzeichnisse von 1907 zu tun vergessen habe (Atti Soc. it. Sci. nat., XLVI, p. 184).

²⁾ S. Calloni. La fauna nivale, Pavia 1889; S. p. 238—239. ³⁾ The Snow Fly, *Chionea valga* Harris. Psyche, April 1907, p. 41—43, figg.

⁴⁾ Dalman a. d. a. O., p. 36, erinnert, dass, nach einer Notiz in Isis 1821. 190., eine *Chionea* in den Jura-Gebirgen gefunden sei.

¹⁾ Siehe auch Osten-Sacken, Berlin. entom. Zeitschr., XXXI. 196. (1887).

dom, 'For the elements were changed by a kind of harmony; earthly things were turned into watery and things that before swam in the water went on dry ground', neither did it escape the notice of the Rev. William Kirby that it is said in the Authorised version of Genesis, 'Let the waters bring forth abundantly the creeping creature that hath life and let the fowl fly above the earth', implying a conviction more definitely enunciated by the translators, that the fowls came out of the water, whence arose a quaint notion of barnacles being changed into geese.

According to Fritz Müller water-inhabiting and water-breathing crustacea were the original stem from which the generations of myriapods, scorpions, shepherd spiders, spiders and insects, branched off in succession; and if this were so, those prototypes of the King Crabs the woodlouse-like Trilobites, the Perichthys, Pterygotus and Stylonuri, with faceted eyes, cephalothorax, ringed hind-bodies and ovipositors; that crawled or swam over the surface of our planet in the Silurian and Devonian days, have the appearance of being the effigies of knights errant whence the orders of insects are descended: one small Trilobite found in shoals in the fogs of Forfarshire has been named Kampecaris from its resemblance to a caterpillar, insects of all orders revert to the water as their nursery, and the caterpillar when it becomes cataleptic and changes into a chrysalis, in which we may perhaps see the result of winter frosts, resumes the appearance of a Trilobite. Insects moreover acquire their organs progressively as the shrimp-like zoea undergoes its metamorphosis into crab or as a lobster reproduces its claw; and when the air veins, that were once branchiae such as the larvae of May Flies wade at their spiracles, inflate when the insect emerges into wings, we seem to contemplate their past history: and when we see the Fairy Ants *Polynemia natans* found in pond water in Staffordshire and near London like diving birds employing them to swim we seem to behold their earliest use. Turning our attention to dry ground, the grasshoppers that expand their wings as aerial planes have the appearance of learning to fly, and some of the same sort indeed seem more skilful than the others, for the *Locusta viridissima* that in England confines its attention to the potato plot and hedgerow elm I have seen in a Swiss valley at Göschenen flying high overhead. That grasshoppers had an aquatic ancestry is suggested by the species that inhabit the marshland, one little Tettix I found nimbly leaping about on the surface of the water in a pond at Jaffa.

Certainly the faculty of swimming is given to some exotic Orthoptera of the genera *Xya* and *Tettix*, Captain Boys has described a species of the latter found abundantly near the waterfalls at Mhow and Malwa which frequenting the sedges

on the banks will dive and swim rapidly with strokes of the foliaceous appendages on its hind legs, and in 1886 Mr. Eland Shaw exhibited at the February meeting of the London Entomological Society specimens of the aquatic *Tettix australis* from the Nepean River.

It was the similarity of form, parts and organization that induced Linnaeus and Charles de Geer to classify the crabs and lobsters with the insects which according to M. Odier have exchanged their heavy submarine carapace of carbonate of lime for a light subaerial armour of the phosphates; and yet some are remarkably hard, horny and boat-shaped, adapted to a life in fresh or brackish water and even as the water bug, *Halobates Streatfieldiana*, exploring the surface of the Indian Ocean. The idea of the crustacean to employ its jointed limbs to bring food to its mouth finds substantiation in the raptorial legs with which the Squilla mantis and *desmaresti* go groping among the rocks and seaweeds of Cornwall and the Channel Islands in search of their prey, and these sugar-tong seizers we see reproduced in the species of Mantis, Water Scorpion and Snake Fly, that cement the heterometabolic orders of Orthoptera, Hemiptera and Neuroptera; while long-antennated and prickly beetles, prickly crickets and grasshoppers, pinching stag-beetles and knotty bugs, such as the Rev. J. G. Wood has depicted in his *Insects Abroad*, are wont to recall in a day dream ancestral crabs and lobsters; the Water Boatmen that skim the dimpling pool seem at times a reminiscence of the Perichthys and scorpion-like Pterygotus, and the plant beetles that glitter like gems on the herbage present a provokingly Trilobite appearance. So in their generation the shepherd spiders that crawl on the garden gate retain the form and ruthless nature of spider crabs and scorpions that of the lobster; they are of lineage old for scorpions are found in the coal measures and a cast of *Eophrynus Prestievii* preserved in a Dudley clay-nodule which was given me by Dr. Henry Woodward, I often think the memento of a gigantic, ancestral, shepherd spider. An ancient homogeneity of the insect orders appears also to be extant in connecting links, the aquatic larvae of the dragon-flies and water beetles have a similar configuration and it is strange to see weevil beetles bestuck with butter-scales; the clear-winged Sphinx Moths resemble the hook-winged saw-flies in appearance and metamorphosis, hover-flies are garbed like bees and their oar shaped halteres seem to say that formerly like them they were proud of four wings.

Mr. Mc. Lachlan and Mr. Dunning once upon a time disputed whether *Acentropus niveus* was to be considered a member of the Neuroptera or Lepidoptera and the difference between the caddis flies and *Tineina* is infinitesimal. I recall January

1867 commenced in Hampshire with snow and frost and that February began mild and muggy, or even warm; but on the twenty-sixth the wind blew cold, and then the twelfth of march brought a heavy snowfall that whitened the ground like twelfth cake until the close of the month, when in the gleams of the morning sunshine a small moth, *Solenobia conspurcatella*, was flitting about the vine trellis and myrtles of Warsash House where I was an inmate. Its filmy, thin scaled, caddis-fly appearance, at once struck me, I imagined it to be a foreign importation, and appearing on the wing after dark chaotic weather, when the tame birds had been fed on bread crumbs it possessed all the charm of some new creation. The cases of the caterpillars of this pretty little lace-patterned moth I discovered as I imagined on the orchard wall, a figure of it appeared in the Entomologist's Annual. Dr. Newman, struck as might seem with the same idea, in the fourth volume of the Entomological Magazine gives a circular arrangement of the insect orders grouped around the aquatic Neuroptera; and in order to understand the relationship of the Lepidoptera it seems essential to mentally depict a similar Family Tree which seen from above would present to view a circular arrangement of its branches, a ripple or eddy on the stream of time, the Tineina relatives of the caddis flies occupying the centre of distribution.



- I. Scent fans on abdomen of male.
- II. Scent fans on body, legs, or wings, of male.
- III. Female attracts male.

1. It would seem the wing impressions on the coal shales are mainly those of Neuroptera and Orthoptera and some examples reproduced in photography by Charles Brogniart suggest gigantic may-flies, cockroaches and leaf-crickets, populated the ferny swamps where gigantic horse-tails grew; later, on the slabs of the oolite there seems to be an impression of a Sphinx Moth, *Sphinx Snelleni*, Weyenburg has ventured to call it; there were then some flowers to be seen among the cycads, fan palms, and large leaved

aspens and maples, for they have left the imprint of their calyces. These long-tongued posers over tubular blossoms claim former relationship with the portly, lethargic and often apterous *Bombycina*, for the Chinese silkworm moth, *Bombyx mori*, is the produce of a similarly horned caterpillar.

(Fortsetzung folgt.)

57.65 Elateridae (6)

Neue Elateriden aus Afrika und Madagaskar.

Von Otto Schwarz.

(Fortsetzung.)

8. *Centrostethus testaceus*.

Rufö-testaceus, nitidus, dense subtilissime helvolo-squamulosus; fronte subimpressa, confertissime punctata, antice truncata; prothorace latitudine longiore, postice apiceque angustato, dense subtiliter dupliciter punctato, canaliculato, angulis anticis acutis, porrectis, posticis brevibus, subdivaricatis, obtusis, haud carinatis; elytris prothoracelatoribus, postice rotundatim attenuatis, apice divaricatis et breviter acutis, punctato-substriatis; corpore subtus pedibusque obscuris, sulcis tarsorum nullis. Long. 11 mill., lat. 3 mill.

Madagascar, Antananarivo.

Hell rötlich braun, glänzend, dicht und sehr fein blassgelb beschuppt. Die Stirn ist sehr schwach eingedrückt, fein und sehr dicht punktiert, vorn gerade abgestutzt. Das Halsschild ist länger als breit, nach hinten etwas mehr als im vorderen Drittel verengt, vor der Mitte am breitesten, fein und mässig dicht punktiert, die Zwischenräume dieser Punkte dicht und äusserst fein punktiert, bei starker Vergrösserung also doppelt punktiert, längs der Mitte gefurcht; die Vorderecken sind vorragend und zugespitzt, die Hinterecken kurz, fast nicht divergierend und ziemlich stumpf, nicht gekielt. Die Flügeldecken sind wenig breiter als das Halsschild, im letzten Drittel gerundet verengt, die äusserste Spitze divergierend und kurz zugespitzt, von oben gesehen, winklig ausgerandet; die wenig eingedrückten Streifen sind dicht und ziemlich stark punktiert. Unterseite und Beine sind dunkelbraun.

Unterscheidet sich von allen bekannten Arten dieser Gattung besonders durch den Bau des Prothorax, der vor der Mitte am breitesten ist; die Vorderecken sind weniger stark vorgezogen, auf der Scheibe sind zwei kleine, glänzende Punktmakeln angedeutet. Die Oberseite ist einfarbig und einfach beschuppt.

9. *Alaus pectinicornis*.

Niger, squamulis minutissimis flavo-griseis dense vestitus, alteris albo-griseis vage maculatis; fronte anticis impressa et declivi; antennis

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