

Ich war aber weder mit Fangwerkzeugen, noch mit Nadeln versehen und konnte keine zur Untersuchung einfangen.<sup>4</sup>

„5. Junius. Heut begab ich mich mit den nötigen Werkzeugen ausgerüstet wieder an die Stelle, wo ich gestern die *Apis violaceas* gesehen hatte; es war Abends zwischen 7 und 8 Uhr. Ich traf wirklich mehrere über der nämlichen Beschäftigung wie gestern an, und zwar dergestalt vertieft, dass man sie sehr leicht fangen konnte; jedoch musste man abwarten, bis sie ihre Arbeit schon begonnen hatten, wobei sie den Kopf unter den Brustschild beugen und mit dem ganzen Körper in Bewegung sind; will man früher zugreifen, so entfliehen sie, lassen sich aber bald wieder an einer entfernten Stelle nieder. Sie waren das einzige Tagsinsekt, welches noch munter und in Bewegung war; die Sonne hatte sich schon halb unter den Gesichtskreis verborgen, die Dämmerungsschmetterlinge flogen schon und sie waren noch immer vorhanden. Doch fand man sie nicht auf der ganzen Strecke des Weges, sondern nur an einer einzigen Stelle, wo das zweite Aussenwerk von Westen gegen die Stadt einen halbmondförmigen Winkel bildet, der zum Theil in einem Grasplatze besteht, zum Theil mit Klee bepflanzt ist, welchen die Bienen am Tage besuchen müssen, und wirklich fand ich den Bauch aller voll von gelbem Blütenstaube behängt. Ob übrigens alle Schriftsteller in Bestimmung dieses Insektes recht haben, getraue ich mir nicht zu behaupten, Christ bildet wirklich eine ganz andere Art unter diesem Namen ab<sup>4</sup>).

„Dass diese Art bei unserer Stadt ihre Wohnung in hohlen Bäumen habe, bezweifle ich sehr, indem in einer sehr weiten Entfernung kein erwachsener Baum anzutreffen ist, in dem sie nisten könnte, da alle während der Belagerung und öfteren Blokaden der Festung abgehauen sind.“ — Im Insektenkalender I. Mainz 1790 p. 165 im Junius führt Brahm die *Apis violacea* an: „Nicht gemein. Herr Baader fing sie einige Male auf der Bunnias orientalis in dem Kurfürstlichen Garten zu Schwetzingen.“

Wenn p. 76 (bezw. 89) W. Schuster sagt: „Während der verstorbene Schenck (nicht Schenk) für das Lahnggebiet, seinen Beobachtungsbezirk (speziell Weilburg v. Heyden) eine einfache Generation feststellt — so ist das wohl ein Versehen von Schuster, denn Schenck sagt in seinen Bienen des Herzogtums Nassau p. 66: „Fliegt im ersten Frühling und später wieder im Sommer bis in den Herbst.“

<sup>4</sup>) J. L. Christ, Pfarrer in Kronenberg am Taunus (1739—1813) bildet in seiner Naturgeschichte der Insekten vom Bienen-, Wespen- und Ameisengeschlecht 1791, Tab. IV, Fig. 5, sicher diese Art ab, ein kleineres Männchen vielleicht. Die Linnéische Beschreibung ist wörtlich übersetzt. Als Vaterland gibt Christ an das südliche Europa, auch Ungarn: Ofen. Er kannte sie nicht aus Cronberg, doch sah ich sie in diesem Sommer 1908 in der Stadt selbst fliegen. (v. Heyden.)

Auf Spekulationen, wie Wiederkehr einer neuen Tertiärzeit, verzichte ich; ich stehe auf einem anderen Standpunkt.

Übrigens hat in der neuesten No. 16 der Societas Entomologica 15. November 1908 p. 124 Otto Meissner-Potsdam die Schustersche Annahme des Herannahens einer wärmeren Klimaperiode zurückgewiesen.

57.8

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

by A. H. Swinton.

(concluded from p. 158.)

A plant varies with its circumstances: on red clay the flowers of the Kidney Vetch are red; on white soil, white; exposed to the sea air, crimson, purple, cream colour or white; the Sow Thistle succulent on garden mold runs into sports and becomes spiny on hard ground: the Columbine that hangs its flowers has assumed the dove-like form to allow the bumbles to get in their heads to the pollen, but the blossoms are prone to lose their convenient spurs and before this house there is a group of columbines, which must have come up from seed, that have none. The wonderful variation of roses on the parterre is due to crossing a labour elsewhere performed by the bees, hence we see the hawthorns become pink in the fields where the red kind is introduced into the gardens, the oxlip and garden polyanthus are a cross between the cowslip and primrose, and wherever the three first grow the primroses in the woods are wont to assume a candelabra form: in the spring of 1903 there were yellow violets growing here in the garden and among a bed of white violets beside the old kiln in the Dartington woods, a quarter of a mile remote, yellow violets were appearing: on the contrary owing to the same industry of the bees red primroses in the villa gardens at Guildford were wont to acquire a yellow centre, Canterbury bells to change to violet and white foxgloves to turn purple.

Insects in like manner vary with their circumstances and in warmer climates where the summer sun dries up the herbage dwarfs are the result, on the borders of the Mediterranean small Clouded Yellows and small Painted Ladies are frequently seen and dwarfing often causes the wing pattern to vary; in long ages too variety has no doubt arisen from the crossing of species for besides the well known mule between *ocellatus* and *populi* one or two other hybrids appear on the list of L. W. Newman. In Africa where mimicry and seasonable costume are prevalent interbreeding appears not uncommon several instances are cited in the Entomologist, where in the volume for

1882 we are told Colonel Bowker actually surprised the Mother of Pearl Butterfly of Natal paired with *Aphelia Apollinaris* a day flying moth: in England on the 16 of June 1886 Mr. Percy Rendal saw *Hipparchia tithonus* coupled with the Common Meadow Brown, which I can quite imagine, as on the 30 of August 1907 I noticed the same butterfly endeavouring to pair with *Pieris rapi* on a cowparsnip flower, whither she had flown with a more suitable partner secured on a neighbouring cabbage plot. Hence it is difficult to say why *Vanessa indica*, found in India and also in Madeira where its caterpillar feeds on nettle has the form and colour of *Vanessa atalanta* and the markings of *Cynthia cardui*: the red colour no doubt is the result of the food for it is certain that all red butterflies and moths the produce of dock, nettle and ragweed, the first two of which yield a red dye, have their yellow variety; many of the Common Tiger Moths with yellow underwings have been bred I am told from white dead nettle and Mr. William Smith of Birmingham who reared a yellowish Red Admiral remarked that it had a gold spotted caterpillar. Some think *Vanessa indica* the original tropical form of *atalanta* while it might be a hybrid.

Certain of the Nymphalidae emit sounds in the air. An inquirer in Science Gossip for 1878 asks. Have you observed a kind of metallic sound when *Cynthia cardui* is on the wing? and Mr. J. I. Fountain says in the Country Side for November 1906 that when missed by the stroke of the net the Painted Lady will return with a distinct click-click! Perhaps this is an incentive to the periodical migration of the Belle Dame in Europe wild fowl clangour on the wing. The parchment crackle of the Whip Butterflies, *Ageronia feronia*, ferentina and amphinone, that feed on fallen oranges and alight with expanded wings, head downward, on the trunks of the Cassia or Mimosa where they, are protected by their purple tints has been commented on by Darwin, Wallace, Van Volxen and Edwards, and compared to a watchman's rattle and to the click-click! of a toothed wheel; emitted by both sexes when they are chasing one another the crackling of *amphione* Edwards thinks is more grating, he heard a similar sound proceed from the butterflies of the genus *Prepona*, also inhabitants of Tropical America, when they took flight from the tree trunks; and Fritz Müller on the thirtieth of October 1876 saw two other butterflies chasing one another with a clicking sound and settling with their wings horizontally expanded on the bamboos at the mouth of the Rio Trombudo in Brazil, one he captured proved to be *Aenica Magarita*. It would seem that these aerial musicians produce their cries like the sedentary ones, but contrariwise the file of

the species of *Ageronia* that gives rise to it is found on the curved vein at the base of the hind wing over which the inflated median vein of the fore wing grates. Further the males of *Danais* have a singular pouch on their hind wings and the caterpillars of the Green Hair Streak Butterfly emit a chirping noise when disturbed.

7. According to Dr. Chapman the caterpillars of the blunt-winged Tortricina that roll up the hedge-row leaves into cigarette cases, and which Ovid saw destroying the vineyards in Italy, have a resemblance to those of the Goat Moth and Swifts, that of *Tortrix viridana* which confers the aspect of winter on our oak woods in the spring is familiar, and the little grey *Paecilochroma corticana* proved to be so abundant in Devonshire in 1881 that according to Mr. Robert South it descended in a shower when an oak trunk was jarred; like many of the group the male of this moth has thickened hind legs and hair tufts are attached to these which are stained with a secretion. *Cymatophora duplaris* elsewhere placed appears to be a veritable Tortrix.

8. The poet Pope derived from the old chroniclers, who devoutly told their rosaries, the idea of 'beings endless chain' connecting bird, beast and insect; a celestial harmony that has been running up the scales although the octaves alone are heard: before the time of Sir Charles Lyell the successive generations of life and consequent imperfection of the geological record was not much regarded, it was supposed, as suggested in Genesis, that the simpler forms appeared before the more complex; according to Hugh Miller it was Lindley who first arranged the vegetable kingdom as Thallogens, Acrogens, Gymnogens, Monocotyledons and Dicotyledons; and Cuvier was the first who marshalled the animal as Radiata, Articulata, Mollusca, Fishes, Reptiles, Birds, Mammalia and Man: an order intended to show their complexity and indicate their appearance in succession on our planet: here connecting links are hardly absent, the first two groups are more or less jointed, the first three shelly, Cephalopods, Fish Lizards, Flying Lizards, Whales and Monkeys, show a former gradation to the other forms. The caddis-flies that glitter in the nuptial dance over the Thames and Ornamental Waters of the London Parks, where their wings gleam with the loveliness of the ruby, the emerald and the sapphire; differ from the Tineina in being hairy, and yet the lancet-winged, purple-dyed *Adela*, with hair-like antennae, that on the sidelong beauty-dance in the silent sunshine of the ferny glade and the yellow *Nemphora* that resume the woodland frolic at dusk, are both hairy and scaly, as are also the minuter, buttercup frequenting *Micropteryx* that prolong the sport. To these according to Mr. A. G. Butler are related the widely

distributed Swift Moths whose somewhat similarly veined wings like those of the *Uranidae*, *Cossidae* and some of the *Bombycina*, do not hook but act independently like the wings of mayflies, dragon-flies, bugs and beetles; which confers an air of antiquity. When the cows are driven home to the milk pail over a Scotch moor, the male of *Hepialus Heetus* may be often seen in the northern twilight executing a Highland fling over the fern clump beside the stone wall or volcanic dyke; in England it is more sociable. Chancing on the eighth of July 1886 to pass along a foot-way in the Chantry Woods near Guildford as the sun sank low, I saw in the glints a number of the males of the Golden Swift on the swing in little elfish companies among the brambles, and their females who were reposing on the grass stems or hanging by their fore legs on the under side of the nut leaves, flew up from time to time to find a partner among the dancers; when there came a pause in the frolic a couple would often sustain the animation, and when the dizzy whirl recommenced, the males disclosed from the pouches on their stumpy hind legs devoid of tibiae two puff ball hair fans that spread into a star as they went anew like incense pots on the swing. According to Mr. Barrett who captured a number of newly emerged choral dancers it was a scent of tansy that cloyed the air and according to Mr. W. Farren it was a delicious aroma of pine apple. In the dark night, when the startling white male of *Hepialus humuli* is swaying pendulum-like over the fragrant hay or leaping spectre-like in the churchyard, it too spreads the tansy scented fans that depend like mops on its hind legs into the form of a composite flower with rays, and then as it moves and glitters like a silver bait its delighted female bounds to meet it on the wing. But it is the scent that is the delight for the attraction lasts when the costume is changed: on the chalk downs near Guildford the Golden Swift is sometimes nearly white, *Polyommatus corydon* on the limestone plateau at Valladolid in Spain for a similar reason I once mistook for a white butterfly; in Shetland where the northern twilight does not favour a dance in satin sheen Mr. Meek found the male ghost moth had often the dappled orange wings of the female. Mr. E. K. Robinson has seen the males of *Hepialus sylvanus* which differ from their females in possessing combed antennae organize a dance, the males of *Hepialus* vellela fly swiftly and dance over the tops of the ferns at dusk, when on the Moor of Rannoch I have met with the brown variety *carnus*. Mr. Edwards in *Insect Life* mentions his having heard *Heacesia fenestrata*, an orange and black *Zygaenidae* with a transparent patch on its wings emitting a whizzing sound as it swayed in company through the air on the Plenty Ranges near Melbourne.

9. Our ancestors who fancied all created beings entered an ark, such as is now-a-days constructed at the asphalt springs on the Euphrates, to be stranded upon the snowy top of Ararat were necessarily benighted, they made butterflies into picture patterns and any one who recognised law and order was an atheist; it was then the fashion to believe in a mechanical creations of species which when they varied became monstrosities doomed to destruction. Now the sequence of lepidoptera in the cabinet is often so complete and the gradation so insensible that the extreme forms placed side by side would be called distinct species, it is an external change certainly, but the internal anatomy is very similar in the moths and butterflies. They all claim the same descent from the neuroptera of the coal shales. *Psyche nigricans* that crawls over the furze of the New Forest ensconced in a case of heath stems and the allied species in Europe, Asia and North America, where they are known as Bag Worms, according to Ochsenheimer connect the case-making Caddis Flies with the *Tineina* and *Bombycina*. The wingless female of these hairy and scaleless moths sits on her cocoon until she is visited by the males as do the apterous females of the Vapourers, whose caterpillars are tufted like a blacking brush and a male ziz-zaging in the air, is a familiar sight in London and the towns of the American States; *Orgyia antiqua* is found it is said in the old and new world and if so is well named as the probable ancestral form. A lady once noticed the little Hook Tips looked very Indian and possibly these moths had larger falcate winged relatives more suggestive of the east in the days when *Pterodactyles* flew about the cycad scrub of Portland. The typical male of our large *Bombycina* has a combed antennae and goes in quest of its female, in the New Forest *Lasiocampa rubi* goes hurry-skurry over the swampy heath when the lungwort flowers in May and in July *Lasiocampa quereus* tares distractedly up and down over the ferns in the midday sunshine; those who are so fortunate as to have bred a female by taking her to the hunting ground of the other sex may speedily obtain as many specimens as they require. I recall when I was located among the plane tree avenues of Turin in the summer of 1878 I bred some of the white females of *Hypogynna dispar* and in the course of the afternoon when the sun shone hot I was accustomed to see dusky male Gipsies with pectinated antennae hastening in at the window showing they were guided by scent and not fascinated by primrose tinted muslin. I have two specimens of this moth said to be English which are smaller than those I have seen in France and Italy. Mr. E. K. Robinson has noticed that the female of *Arctia villica* that passes its life in the hayfield attracts its

cream spotted males around it when the dusk of evening gathers: it is noticeable when *Arctia caja* and *Callimorpha hera* are held in the hand two buttery drops like those that come from the joints of the Oil Beetle exude from the thorax, and I have imagined this might be the attractive ointment of the Tiger Moths. The antennae of the male of *Pygaera bucephala* is crenulated rather than combed but its sense of smell is no less wonderful. On the nineteenth of June 1906 when a spell of warm weather returned I chanced to sleep at the top of this house in the suburbs of Totnes with an open window and a female Buff Tip having emerged at an early hour I was awakened at daylight by four males flying in hot haste about my room and on arising I found two Buffs paired on my pillow case; another, that fell tragically on the bed and lay like a piece of rotten wood silvered over with lichen, allowed itself to be picked up and rolled about in a box without moving.

Several of the Bombycina have bladders under their wings resembling more or less the drums of the cicadae and it is said they elicit sounds by rubbing these with their hind legs. De Villiers compares the sound of *Euprepia pudica*, the pale rosy Tiger Moth of the Riviera, which is heard when it flies at dusk, to the tick-tack! of knitting stockings; and similar bladders are possessed by the male of the very similar *Euprepia ortzeni* found at Beirout and Jerusalem. The males of the very unlike little orange moths of the genus *Sentina*, found in Switzerland and Germany, have these same kettle drum organs that shine like spectacle glasses and when Guenée held *Sentina ramosa* in his fingers he heard, he says, a sound like the ticking of a watch or the beating of the death-watch beetle: the musical bladder that seems to indicate the relationship of the *Chelonidae* and *Lithosidae* in our British species is most distinctly visible in the males of *Hyperampa dominula* and *Gnophria rubricollis*.

57.83 (47.4)

## Einige lepidopterologische Notizen über die Sammelsaison 1908

von B. Slevogt-Bathen.

### 1. *Larentia variata* Schiff. ab. *obeliscata* Hb.

Trotzdem am 4. (17) April 1908 in der Umgegend Bathens (Kurland) noch fusshoher Schnee lag, fand mein ältester Sohn auf einer, der Sonne ausgesetzten Föhre (*Pinus silvestris*) meines Gartens eine überwinterte, halberwachsene Spannerraupe, die, ins Zimmer gebracht, ungeachtet des plötzlichen Temperaturwechsels von + 5 auf + 14° R., eifrig fressend, ohne Schaden weiter wuchs, sich den 30. April (13. Mai) verpuppte und am 15.

(28.) Mai ein tadelloses ab. *obeliscata* Hb. ♂ lieferte. Bei dieser Aufzucht habe ich verschiedene Beobachtungen gemacht, die von den in Hofmanns Raupenwerke befindlichen Angaben abweichen. Von einer braunen, oder auch rothbraunen, heiderseits weiss gesäumten Rückenlinie, wie solches auf Seite 234 zu lesen ist, war bei dem kurländischen Exemplar nichts zu sehen. Diese Linie ist bei hiesigen Stücken einfach breit weiss. Die sonstigen Bestimmungen auf Nebenrückennlinien, Stigmenlinien, Bauch, Kopf usw. decken sich mit meinen Wahrnehmungen. Die *obeliscata*-Raupe ist übrigens durch ihre Farbe derartig der Umgebung angepasst, dass, wenn sie, eng angeschmiegt, an einer Nadel sitzt, es schwer fällt, sie zu finden. Zur Verwandlung geht sie bei Zimmerzucht nicht in die Erde, sondern verpuppt sich frei am Ast, wo sie zwischen zusammengepressten Nadeln wie auf einer Hängematte ruht.

### 2. *Thecla pruni* L.

Mitte Juni 1908 erlangte ich an einer Ulme des Bathenschen Pastoratsparkes eine *Lycaena*-Raupe, über deren Hingehörigkeit ich anfangs nicht ganz ins reine kommen konnte, da keine der Hofmannschen Beschreibungen völlig auf sie passte. In ein hohes Glas gesetzt, kroch sie bis zu dem dasselbe bedeckenden Papier empor und sass dort, ohne zu fressen, etwa vier Tage bis zur Verpuppung. Jetzt erst wusste ich, dass es sich um *pruni* handelte: Ulme, als Futterpflanze hatte mich irreführt, da nach den Fachwerken diese Art an Schlehenn und Pflaumen leben soll und ich sie auch bisher nur an solchen gefunden hatte. Ausserdem stimmte die bei Hofmann auf Seite 6 gegebene Diagnose nicht. Die vier Paar kurze, fleischige, fein rotbraune, punktierte Erhöhungen auf dem Rücken vom vierten bis siebenten Ringe fehlten, dagegen traten an Stelle derselben gelblich grüne, dunkel umrandete Ringe, vermutlich, weil die Raupe, als ich sie fand, bereits in der Verwandlung begriffen war. Am 13. Tage schlüpfte mir ein reines ♀, das aber keinen rotgelben Querwisch vor dem Saume der Vorderflügel, oben, sondern vier getrennte, quadratförmige senfgelbe Flecke vor dem Gesamtsume besass. Nicht umhin kann ich zu bemerken, dass die kurländischen ♂♂ und auch manche ♀♀ einfach braune Vorderflügel ohne irgend welche Zeichnung haben.

### 3. *Pyrameis atalanta* L.

Während infolge des ungünstigen Lenzes 1908 manche *Vanessa*-Arten ganz fehlten, und andere nur wenige Vertreter schickten, trat dagegen *atalanta* von Ende Juli (Anfang August) ab nicht selten auf. Eigentümlich war diesmal die Schrägbinde der Vorderflügel in vielen Fällen gestaltet. Bei einzelnen Faltern hatte das Vorherrschen der Grundfarbe die Binde in der Mitte stark ein-

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