Bischoff 1909

New Information of the Life habits of the Trigonaloidea

~~As~~ one of the most thankful tasks of the middle European insect biology, W. A. Schulty has considered to explore in his Hymenoptera Studies the lifestyle of the one and only European Trigonalide of Pseudogonalos hahni Spin. Even if I did not succeed in this, at least I'm still able to report to you about the biology of the North American species the Lycogaster pulatta Shuck., and to give you some notes about the lifestyle of P. hahni spin., which shall bring the researches away from the wrong path which has been followed up 'til now.

In those works by Schulty concerning these, one can find more information about systematic position and the other peculiarities of the Trigonaloidea. Only very little is known about their living habits about this peculiar little family is spread out all over the earth, that I want to give a short summary.

Tapinogonalos pulchella Cress., was bred from Tachinidae, Exoristen lobilea Coquillet, which had lived in a Acronycta lobeliae Guéne. Seminota mejicana Cress. leaches off Parachartergus apicalis F., and Seminota depressa Geer of the nests of the sociable Faltenwespe (Pleats wasp), Polistes canadensis L. Vespa occidentalis Cress. is known as a host of Bareogonales canadensis and ~~also of~~ Normadena cisandina Schulz. Polybia dimidiata Oliv. Up to now this is all that is known of the life habits of the Trigonaloidea.

In October of the previous year (1908), I received, at that time, from Mr. E. Müller a number of (collected) Hymenoptera and Diptera with thereto (with belonging to) containing biological material. Among these insects to my biggest surprise I discovered among them also a North American Trigonaloide which was supposed to have slipped out of Telea polyphemus Cr. As ~~we~~ determined it ~~was~~ happened to be Lycogaster pullata Shuck (Entomologist 1841); however ~~it did not~~ the descrip; the last abdominal segment did not match with my specimen. The Endosternit was wrongly described by Shuckard, as Schulz pointed out when I questioned this, because probably this part was ~~soiled~~ soiled by its ♀. The formation of that part is in reality is the same as with all other Trigonaloid females. However, the remaining description is per completely sufficient in order to describe the Species. Of this extremely rare insect, only 2 other females are known, one in the U.S. National Museum in Washington and the other in the British Museum. The male is still unknown.

As far as living habits of this insect are concerned, it was supposed to have slipped ~~from~~ out of Telea polyphemus Cr.

In order to prove this belief which to me did not seem to have much probability (Hypothesis) for its correctness, I made a lengthwise cut to its cocoon belonging to it, then I discovered in its cocoon a Hymenopter cocoon, which I owned with certainty to belong to Ophionida, Ophion macrurus L., which is a frequent parasite

of Telea polyphemus Cr.. This Ophion-species was from the same species of pupae out of which the Trigonaloide had slept, crawled out in several segments.

Now we had to examine the contents of Ophionidencocoon in which the Lycogaster pullata Sh. had lived supposedly as a parasite of 2nd degree. This cocoon was smaller than the others and because of that, proved right from the start that the Ophion larvae which has made it, ~~proved that it~~ must have been weaker than the others. In the interior of this cocoon was found a considerable part of the contents which the Trigonaloide larvae had not consumed; however, unfortunately, nothing more was found than the pupae of ~~the~~ the Lycogaster.

According to this, the larva of Lycogaster pullata Shuck does not manufacture a cocoon, which was also determined about other trigonaloids.

Based on these observations, we determine therefore, that Lycogaster pullata Shuck is a direct parasite of Ophion macrurus L. & therefore a "hyparasit" of Telea polyphemus Cr. opposed to other spinners in which lives this Ophion species.

Concerning the biology of our European Trigonaloids a lot of doubts about it have existed for a long time, until in 1905, W. A. Schulz in his "My

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(my page 2) Berl. Entom. Zeit. Bd. 54

78 (your page#)

H. Bischoff:

These specimen were given to me by Prof. Heymons for research purposes, and I was able to determine that these insects were identical with "Seminota marginata Westw." This type was supposed to have been already represented in the museum by the class synanymous to it, the "Seminota taschenbergi Schulz"; however, there exist some considerable differences, which I would like to describe here in more detail. 1)

(bottom of page:) 1) Compare "Berliner Entomologische Zeitschrift, Band 51, year 1906, Page 306

Translation continued

(Neue Beiträge zur Lebensweise der Trigonaloiden
New Information reg. the living habits of trigonaloids.) 79

According to my research, all 3 females seem to belong to the species of the true "Seminota marginata Westw." while "Seminota taschenbergi Schulz" should be considered a special form of it.

Of the three new "Trigonaloide" females, the largest with 15mm body length - it's to my knowledge the biggest "Trigonaloide" of all - stems from Villa Mora (caught on Nov. 9, 1905), the two smaller ones with 10.5 mm length each (caught on Febr. 4, 1906) originated in C. Laureles. Compared to the species "Seminota taschenbergi Schulz", which is lying in front of me, they differ from it in the following main points:

The antennae of the large females consist of 24 sections (counting the shaft as one); the second specimen has 22 sections, just like "S. taschenbergi Schulz"; with the third specimen the number of joint sections cannot be determined, since both feelers are defective. From this we have to conclude, that the number of antenna-sections fluctuates with the individual, and therefore can only be taken into consideration with great caution in the determination of a new species. Similarily, the vein pattern of the wings of the trigonaloids has been proven to be an incomplete character differentiation mark, since it also can differ considerably among individuals of the same species. That's how Schrottky foolishly was lead to founding a new trigonaloide genus "Bertonia", which is identical to the species "Seminota", and which differs from it merely by the coincidentally symmetrical lack (or omittance) of one vein each of the anterior wings (2. cubital-cross-vein). Also unsymmetrical formations of this kind appear frequently. And so it just happens, that with the largest "Seminota" female, a short branch of the brachial vein of the right anterior wing, happens to be curving downward. It's immediately obvious, that such formations are without any importance for the systematology. With all three specimen, besides, the grooves and furrows of the dorsulum are much more distinct than with "Seminota taschenbergi Schulz". Also the "Scutellum" is more notably indented; only with the big one it is shaped like a flat bowl.

Otherwise, these three trigonaloids differ from "Sem. taschenbergi Sch." through coloring and shading of wings. With the three specimen from Paraguay, the middle segment as well as the legs are almost black, while those of "Seminota taschenb" are brown; only the tarses and the feeler-tips are lighter. The black-brown shading of the wings is further spread out and embraces the following cells: medial & submedial cell, up to the lower exterior corner of the latter, the first and second cubitalcell completely, the third and the fourth cubital cells in the upper half, the first diskoidal cell with the exception of its lower rim and then still the entire radial cell. The posterior wings have a brown hint on the anterior half. For the remainder the wings are "hyalin". This species can easily be distinguished from "Seminota depressa" to which it appears very much a "look-alike". The head is more dome-shaped, the middle segment is delicately dotted, the dorsulum drops off to the front less abruptly and the coloring is different of the hair and the first segment of the posterior abdomen. If you compare the three specimen with the descriptions of the "seminota marginata Westw." and those types considered synonymous to it: Trigonalis simoni Buyss., Seminota depressa Enderl. ♂ = S. taschenbergi Schulz ♀ and Bertonia nigra Schrottki, then you will discover, that the description of Seminota taschenbergi Schulz deviates the most, namely when it comes to the shading of the wings. With such considerable variations of this kind, one can probably find also the crossovers to the type "Seminota marginata taschenbergi, when more extensive material would be available on "Seminota marginata Westw."

Concerning the living habits and respectively the host of "Seminota marginata Westw.", there are no assured biological observations in existence, however, some well-founded assumptions can be made. Professor Anisits told me that enormous quantities of "Polistes canadensis L., crinitus Sm. " and "versicolor Oliv." could be found at the two locations where he had caught the trigonaloids- Villa Mora and C. Laurels are close together - the aforementioned had settled in old, abandoned houses. Since the closest related trigonaloid species, "Seminota depressa Geer" is known to be a parasite of "Polistes canadensis L.", we can conclude very likely, that "Seminota marginata Westw." also lives off "polistes" types. However, only further observations will teach us which one of the three types mentioned above could be considered to be the host insect in this case.