

ON THE SYSTEMATIC POSITION OF SCOTOMEDES (HETEROPTERA, NABIDAE)

by

H. C. BLÖTE

In the collection of the Leiden Museum there is preserved the holotype of *Scotomedes ater* Stål. I was much surprised to discover that *Velocipeda biguttula* Reut. is a synonym of it.

Distant described another *Scotomedes*-species in his "Fauna of British India" under the name: *Godefridus alienus*, bringing it to the Reduviidae, subfam. Apiomerinae. This was a reason for derision by Reuter, who cited it as an instance of Distant's less trustworthy scientific performances (Reuter, 1905).

However, though it seems to have been "bon ton" to ridicule Distant's views, we are not accustomed to neglect Stål's, and I was much interested to know why Stål had placed *Scotomedes* without hesitation into the Nabidae, as other authors have been of a so much different opinion.

The next author after Stål, studying a *Scotomedes*-species, was Bergroth, when he described *Velocipeda prisca*. He brings the species to the Saldidae, to form a separate subfamily of that group. His arguments are rather feeble, as he writes: "The nervature of the membrane, however, has no resemblance to that of a Saldid, only because of the greater part of the other characters of the anatomy, i.e. by the long legs, the large eyes, the structure of the rostrum and of the pronotum, the animal is closely related to the genus *Salda*, so that the systematic position cannot be doubtful".

I need not give instances of long legs and large eyes occurring in almost any family of the Heteroptera. A three-jointed rostrum occurs, except in the Saldidae, also in the Anthocoridae, Cimicidae, Reduviidae, and Macrocephalinae. Interesting in this connection is also Reuter's statement: "As a very instructive instance, in connection with the development of a three-jointed rostrum out of a four-jointed one the Nabid genus *Scotomedes* Stål and the Microphysid genus *Nabidomorpha* Popp. may be mentioned here, who possess an only three-jointed rostrum, though this is in all other typical Nabids and Microphysids still provided with a distinct but short basal joint". It seems that Reuter had no objection to leave a genus with a three-jointed rostrum in the Nabidae.

Less clear is, what Bergroth meant with the resemblance in the structure of the pronotum. There is no striking similarity between the pronotum of *Scotomedes* and that of the Saldidae at all; the pronotum shows rather considerable variation within the genus *Scotomedes*, and there are many Heteroptera, especially in the reduvoid range, whose pronotum is much more like that of *Scotomedes* than that of any Saldidae.

The differences between *Salda* and *Scotomedes* are also indicated by Bergroth; *Scotomedes* ("*Velocipeda*") is differing: "by the long, horizontally directed head, the longer, medially not furrowed, but anteriorly transversely keeled mesosternum, the distinct, though very small orifices, which are prolonged into a keel, the short scutellum, the broadly demarcated epipleurae, the cuneus being limited by a distinct border, the nervature of the membrane and of the wings, as well as by the abdomen, being composed of seven segments".

It is difficult to avoid the impression from Bergroth's communication, that the differences between *Salda* and *Scotomedes* are much more important than the resemblances, and that the differences are of a greater importance than would be expressed by the formation of a separate subfamily.

Kirkaldy, in his "List of the Genera of the pagiopodous Hemiptera-Heteroptera", mentions the synonymy of *Velocipeda* Bergroth with *Godefridus* Distant. It seems somewhat doubtful to me, however, if the species *V. prisca* Bergr. and *G. alienus* Dist. are identical, as there are some points, e.g., in the colour of the antennae and in the structure of the pronotum, which do not entirely agree with one another.

The pagiopody of *Scotomedes* is not very well marked. The coxae are nearly sphaeroidal at the base, showing only a longitudinal elevation at the outer side, which will not prevent them from moving outwardly to a certain degree. In many trochalopodous Hemiptera, also in certain Nabidae, coxae of the same structure are to be found.

Bredden and Reuter, describing new species, did not communicate new points of view upon the systematic position of "*Velocipeda*", and still in 1912 Reuter brings the Velocipedidae into close relation to the Saldidae. Handlirsch, however, separates the family from his superfamily Riparii—containing the Saldidae—and brings it into the superfamily Cimicoideae, containing the Anthocoridae, Cimicidae, Polycetenidae, Isometopidae and Capsidae.

Of great importance in this connection is the monograph of Hem Singh-Pruthi on the morphology of the male genitalia in Rhynchota. From his investigations resulted that there are two main types in the structure

of these organs in the Heteroptera, and that the Saldidae offer the one type, the Velocipedidae the other. Pruthi himself points to a resemblance with the Tingidae, from his descriptions and figures, however, appears a still more clear resemblance with the Nabidae, who, just as in *Velocipeda* have no diverticula at the endosoma.

Starting from the principle that *Scotomedes* is not related to the Saldidae, we are now to consider to which group it is allied. There are two groups which have important points of agreement with *Scotomedes*, i.e., the Anthocoridae and the Nabidae.

The Anthocoridae have a three-jointed rostrum and a distinct suture at the end of the embolium, so as to form a cuneus. On the other hand their meso- and metasternum is composite, and the membrane does never show more than four nerves.

The Nabidae are differing from *Scotomedes* by the quadriarticulate rostrum, by the abdomen showing seven segments and by the structure of the apical part of the hemielytra.

The first joint of the rostrum is very short in the Nabidae, and in some cases, e.g., in *Pachynomus*, almost invisible. A three-jointed rostrum occurs furthermore in the Reduviidae.

The number of segments of the abdomen is probably not of much importance, as in cases where it shows less than seven segments the first segment is not absent, but hidden in the metathorax. There are no other Heteroptera with seven visible ventral segments, which show an appreciable similarity to *Scotomedes* in other respects.

The cuneus, as it is in *Scotomedes*, is the apical portion of the coriaceous part of the hemielytra, being separated from the embolium by a transverse furrow. Inwardly it is not separated from the rest of the corium. In macropterous Nabidae we can often see that the embolium is terminated by a transverse furrow, the inner part of the corium being produced further towards the end of the elytron into a blunt corner. Only the remaining cuneiform piece is thin, of about the same structure as the membrane (e.g., *Nabis*, *Prostemma*) or very small (*Alloeorrhynchus*). In my opinion this is not of principal importance, the more so as the broad embolium of *Scotomedes* causes the whole cuneus-region to become enlarged, and the furrow between embolium and cuneus to become prolonged.

The striking resemblance with regard to the nervature of the membrane, which does not occur elsewhere in the Heteroptera, and the similar structure of the male genitalia brings *Scotomedes* near to the Nabidae, so that I propose to leave it where Stål placed it, and to regard it as a separate subfamily: Scotomedinae.

The characters of this subfamily, separating it from the rest of the Nabidae are: Rostrum three-jointed. Abdomen with seven visible ventral segments. Embolium broad, terminated at the end by a distinct furrow, separating it from a coriaceous cuneus. It contains the genus *Scotomedes* with the species: *ater* Stål (typical species of the genus), *prisca* (Bergroth), *minor* (Breddin), *alienus* (Distant).

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