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# NOTES ON SALDIDAE.

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## I. The *Saldula pallipes*-group.

The *Saldula pallipes*-group in Central Europe is represented by *S. arenicola* Sz., *S. pallipes* F. and *S. palustris* D. Sc. There are however several authors who doubt in the specific value of *S. palustris* and regard it to be only a variety or subspecies of *S. pallipes*. This opinion is supported by the fact that it often is very difficult to separate both species as well by the form of their genitals as by any other morphological characteristics. Indeed the variation of these characteristics is greater within each of the species than are the differences between the species. This be due above all to the fact that the evolution of the species took place in recent time and that therefore the characteristics are comparatively labile.

There is however a method of separating the 3 species which generally is given too little attention to, but which gives good results: We may put up a "sequence of variation" of the 3 species and will find out, that each of them has its quite characteristic manner of variation. Such sequences of variation may be called "eunomy" according VOIGT. It begins with the extreme light form (Fig. 1) and ends with the darkest extreme (5). The intermediate forms show a gradual increasing of the dark pigmentation. The transitions may always be derived from the antecedent. Another characteristic of the eunomy is, that a spot, which has become dark once, can never become light again in the course of obscuration. As with all species there are no exceptions at all from this fact, we may suppose, that its origin is due to certain genes, which are specific. So we may say that not a certain picturation is inherited but only a "track" for the devellopement of the obscuration. This "track" becomes evident when the sequence of variation is set up.

When we regard *S. arenicola* Sz. we find that the characteristics of this species are: a broad light transversal fascia at the anterior part of the hemielytra whilst the posterior part of the corium comparatively soon becomes dark with exception of a few small spots. The light extreme

(1 = f. *simulator* REUT.) is distinguished from that of the two other species by the fact, that in the exocorium there is only one dark spot which is situated nearly in its middle. With both other species there are always two. The eye-shaped spot between between the Brachial- and Cubitalvein is only little distinct as it is situated in the light transversal fascia. As the obscuration devellopes (Fig. 2+3 = var. *connectens* REUT.) the light transversal fascia is strongly marked. Thus this form may easily be distinguished from the two other species. The next degree (4 = var. *typica*) is also to be distinguished by the light transversal fascia, but with it the eye-shaped spot is stronglier marked. The extreme of obscuration (5 = var. *nigripes* E. WAGN.) still shows distinct relics of the light transversal fascia, which is missing with the two other species.

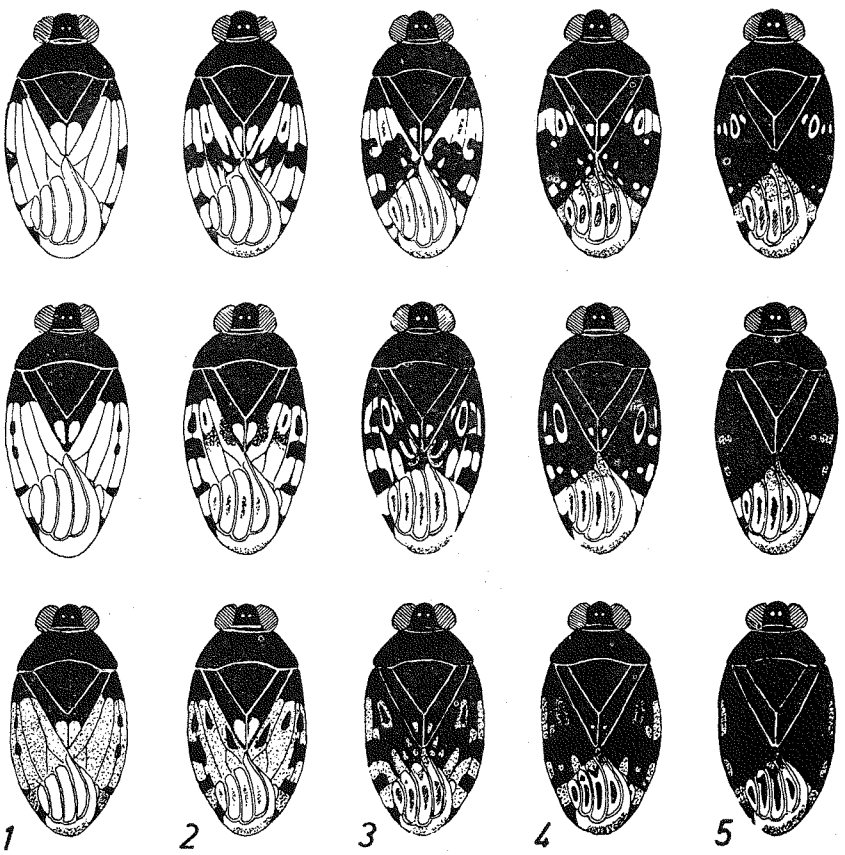


Fig. 1. *S. pallipes*-group (eunomies).

With *S. pallipes* F. the obscuration devellopes in quite another way: The anterior part of the hemielytra is obscurated much sooner than the posterior part, so that there exists a more or less distinct transversal fascia in the posterior part. But this fascia too vanishes with the dark extreme nearly entirely. On the other hand the eye-shaped spot in the

corium will always be distinct with the transitional forms. The light spot in the Exocorium which is in the same level becomes soon smaller and especially with darker specimen it will be at some distance from the margin. The extremely light form (1 = var. *dimidiata* CURT.) shows always two dark spots at the limit between Exocorium and Endocorium, the black spot at the end of the Exocorium is bigger and the light spot at the apex of clavus is smaller. As the dark spots increase (2+3 = var. *confluens* REUT.), there become visible a broad light transversal fascia at the posterior part of the corium and a less distinct one at the anterior part, where we always may distinguish the eye-shaped spot. The next degree of obscuration (4 = var. *typica*) shows relics of both fasciae and the exterior margin is always slenderly black. The dark extreme (5 = var. *luctuosa* WESTH.) is nearly entirely black and shows only near the exterior margin 2—3 short light spots, which however are not white, but more or less yellowish-brown.

Also the third species, *S. palustris* D. SC. has an eunomy which is characteristic for it. With the light forms the light spots are always yellowish-brown and therefore seem to be much darker than with *S. pallipes*. The expansion of the dark coloration takes place in a similar way as with *S. pallipes* but the fasciae are less distinct. The eye-shaped spot appears in a similar manner. The anterior light spot in the Exocorium however is much longer and nearer to the margin; its size decreases only little, so that it is to be seen easily with the dark extreme. This is the best characteristic for the separation of the two species. The dark spots in the membrane-cells are bigger and those of the cells 2+3 are proximally enlarged. The light extreme (1 = var. *sordidipennis* REUT.) is distinguished from *S. pallipes* only by darker brownish coloration of the light parts and therefore it is not easy to separate it from this species. The next form (2+3 = var. *apicalis* REUT.) however shows distinctly the long anterior spot in exocorium, which is placed immediately at the margin. The next degree (4 = var. *typica*) also may be distinguished by this spot and the eye-shaped spot being already very indistinct. The dark extreme (5 = var. *browni* nov. var.) is nearly uniformely black, only in the exocorium there are 1—2 brownish spots, that which is characteristic for the species is maintained the longest time.

*S. palustris* D. SC. hence shows a great resemblance with *S. pallipes* F., but doubtlessly is a good species. It is distinguished not only by the above mentioned eunomy but also by its shorter, broader form, which even with macropterous specimens differs distinctly from *S. pallipes*, and by its way of living. It occurs only in salt-marshes and lives especially at the coast of the North-Sea, as well in England as in Germany. It is never found in districts which are free of salt. *S. pallipes* on the other hand also occurs in inland regions in districts which are free of salt, though it is sometimes found at the coast together with *S. palustris* D. SC.

### *S. palustris* D. Sc. var. *browni* nov. var.

Nearly unicolor black. Head, pronotum, scutellum and clavus without any light picturation. Corium only at the exterior margin with 1—2 brownish longitudinal spots, the anterior of which is longer and al-

ways clearly to be seen. Cells of the membrane with dark central spot, the spots of the 2nd and 3rd cell reaching the base of the cells, enlarging proximally. Proximal part and exterior margin of membrane strongly obscured.

I dedicate this variety to Dr. E. S. Brown, Hertford, England, who informed me of valuable observations from England.

## II. A remarkable form of *Salda litoralis* F.

Among a series of *S. litoralis* F., which I captured in Oldesloe (Holsatia) in a salt-marsh I found 2 ♀♀, which have 5 membrane-cells (Fig. 2B). The 5th cell came to existance when the 4th cell formed a transversal

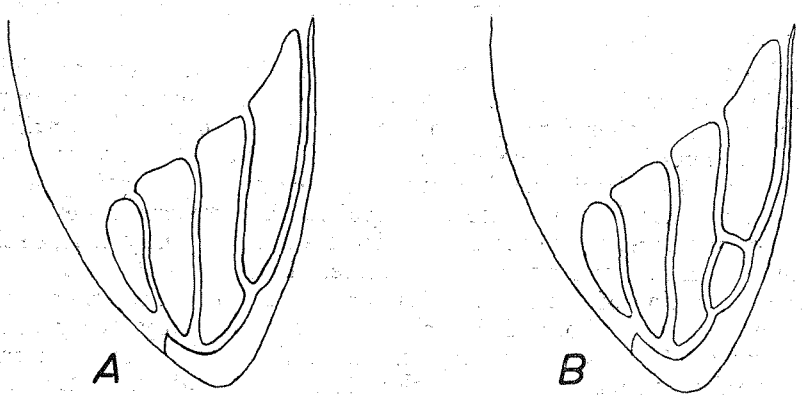


Fig. 2. Membrane of *S. litoralis* F. A = Normal form; B = aberrative form.

costa shortly before its apex. Thus the cell is parted into a greater proximal and a smaller distal one. Both specimen showed the same alteration on both hemielytra. This case shows how labile often essential characteristics of the Saldidae may be; as the formation of the cells of the membrane is regarded hithertoo as a generic feature.

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