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On segmentation in the mites

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tasteful retreat was thus obtained at the only really available spot in the vicinity of the snare.

7. When the furrow-spider weaves her orb upon the exposed surfaces of human habitations, as the cornices of porches, outhouses, &c., her nest takes a form quite different from any of the above. A tube of stiff silken fibre) is spun against the surface, to which it is lashed at all sides. This cylinder is about an inch long and half an inch thick, and, at the end towards the orb, has a circular opening about a quarter of an inch in diameter. The stiff texture of the nest appears to be necessary to make the walls self-supporting, inasmuch as there are no supporters like the twigs and leaves found at hand in arboreal sites. Moreover the open position of the domicile exposes the spider very freely to the assaults of the mud-daubers who frequent such localities, to birds, and other enemies; so that a canvas is needed of tougher texture than that required in sheltered sites. It may be remarked that in old buildings, which present cracks and crannies convenient for nesting, woven nests of this sort will rarely be found.

It is thus seen that while there is a general regard to protection of the spider's person, there is a modification over a quite wide degree of variation in the form of the protective nest; further, that this modification appears to be regulated, more or less, by the accidental environment of the domicile, and in such wise as to show no small degree of intelligence in adapting the ordinary spinning habit to various circumstances, and to economizing labour and material.—*Proc. Acad. Nat. Sci. Philad.* March 21, 1882, p. 97.

On Segmentation in the Mites. By P. KRAMER.

After referring to some previous publications of his own and of other writers on this subject, the author describes, as follows, the segmentation of a minute mite found by him on the ground in a fir-plantation in the Thüringer Wald, and which he identifies with *Alycus roseus* of Koch. He says:—

"The dorsal aspect shows a very distinct segmental line between thorax and abdomen. The shoulders of the latter project rather convexly; and between them the segmental line is slightly sinuated posteriorly. The abdomen shows nine distinct segments, which follow one another exactly as we see them in the little *Poduræ*. The segmental grooves between the first three abdominal segments are broad, and present, to a certain extent, the appearance of double lines, of which the anterior cut off the preceding segment, and the posterior commence the succeeding one. The lateral margin of the abdomen shows distinctly the convexities and constrictions which correspond to the middles and the boundaries of the segments. The setation throughout follows the segmental conditions; there are rows of setæ upon the surfaces of the segments, only running parallel to the boundary-lines of the segments. The hindmost segment bears the perfectly terminal anal aperture, half of which is seen in the dorsal view, while the other half is seen in the ventral aspect.

"On the thorax there is a distinct pair of eyes, furnished with

very convex lenses, just as in *Rhyncholophus*. It further bears several long setæ, of which the pair situated between the eyes is distinctly fringed. This special pair of setæ on the thorax when seen under a low power, especially as it is placed near the black eyespots, leads one to suppose that we have here a respiratory organ, similar to the stigma of the Oribatidæ; but a higher magnifying-power shows distinctly that this pair of setæ is nothing but a perfectly ordinary capillary structure. On the thorax there are also three longitudinal lines, branched in a tree-like fashion behind, and two transverse lines; and these divide its whole dorsal surface into several areas, three of which occupy the entire central space. The small setæ on the segments of the abdomen are short and feathered on both sides, as is known to be the case in some species of *Trombidium*. In the living animal they have a bright white lustre, and so give the whole back a white glimmer. The colour of the skin, however, is a faint violet with a reddish tinge.

"On the lower surface we again see the thoracic segmental lines distinctly running between the coxal plates of the second and third pairs of legs; but besides these the segmental lines of the back likewise pass onto the lower surface, not, however, as simple circularly environing lines, but (and this is particularly distinct in the posterior ones) they bend forward in the middle of the abdomen, and run round the sexual aperture, occupying this laterally, so that, by this means, the anus and sexual aperture appear as if placed in the same last segment. The course of the segmental lines of the more anteriorly situated abdominal segments could not be distinctly traced on the lower surface. The sexual aperture is of considerable size, and is closed by two larger convex valves, which are hollowed within, and each furnished with three somewhat oval sucking-disks. The outer surface of these valves, like the surface of the coxal plates, is covered with a reticulated system of lines; at the margin of each valve there is a close-set series of short feathered setæ, by which the fissure between the plates is partially closed.

"As regards the limbs, all four pairs of legs are quite similarly formed. The number of joints in the anterior legs is five; in the posterior legs there are six free joints. All the feet are armed with three claws. The palpi are five-jointed; and the apex of the fifth joint is closely covered with a number of shortly-plumose setæ. The mandibles are cheliform, short, and rather convex.

"Unfortunately, in the single specimen available for examination it could not be discovered where the tracheal aperture was, or, indeed, whether any tracheæ existed, so that the systematic position of this remarkable animal must remain undetermined. The presence of well-developed eyes, however, renders it probable that this mite is to be placed near the *Trombidia*.

"Its significance in the abdominal question, however, is the most important point in the observation of our mite. It is evident that in examining it we find three natural divisions—the capitulum (mouth-segment), thorax, and abdomen, and this last again divided into distinct segments. In accordance with this we also observe buccal limbs, thoracic limbs (in two pairs), and abdominal limbs (also in two pairs).—*Archiv für Naturg.* 1882, p. 178.