

lichtbraune Querbinde auf den Unterflügeln. Diese Generation fliegt im Mai und Juni und ist die bisher für eine selbständige Art gehaltene *Vanessa burejana* Brem.

Alles Nähere hierüber behalte ich mir für eine ausführliche Arbeit vor.

II. Eine japanische *Leptodora*.

Im Kawaguchi-ko, einem kleinen, ca. 770 m hoch gelegenen Süßwassersee in der Provinz Kai, am Nordfuße des Fusinoyama, fand ich im September d. J. eine *Leptodora*. Ob dieselbe mit der einzigen, bisher bekannten Art, der *Leptodora hyalina* Lillj., identisch ist, oder ob wir hier eine neue Art vor uns haben, welch' Letzteres wohl anzunehmen ist, kann ich einstweilen noch nicht beurtheilen, da mir noch das nöthige Vergleichsmaterial fehlt. Ich denke indes, in kurzer Zeit im Stande zu sein, diese Frage zu entscheiden.

Jokohama, im October 1889.

4. Some old and new Questions concerning Sponges.

By Arthur Dendy, M.Sc., F.L.S., University of Melbourne.

eingeg. 1. December 1889.

In Number 311 of the »Zoologischer Anzeiger« there appeared two short communications on Sponges which seem to me to demand notice.

The first is by Dr. R. von Lendenfeld, and deals with the structure of the flagellated chambers. This author questions the existence of a membrane connecting the margins of the collars of adjacent cells, as described and figured by Professor Sollas and myself, and endeavours to explain the appearances presented by supposing that, in life, the space between the collared cells is occupied by a transparent substance closely resembling the ordinary ground-substance of the sponge mesoderm, and that the appearance of a definite membrane in our sections is due to the shrinking of this substance in the course of preparation. In other words, says Dr. von Lendenfeld, the collared cells do not stand freely on the surface of the mesoderm, but are sunk into it.

This hypothesis may be perfectly true of the sponges examined by Dr. von Lendenfeld, but it is certainly unwarranted and unnecessary in the case of *Stelospongius flabelliformis*, which is the form investigated and described by me. I do not contend that »Sollas's membrane« occurs in all sponges; indeed I have myself as yet recog-

nized it only in *Stelospongos flabelliformis* and, less plainly, in *Hali-chondria panicea*; and, until I know that Dr. von Lendenfeld has carefully examined good sections of well-preserved specimens of the sponge in which I have investigated the question, I must decline to consider his criticism of my work as of any particular value. In the case of *Stelospongos flabelliformis*, moreover, a very little consideration will shew that Dr. von Lendenfeld's new explanation of the observed facts is untenable. In that sponge, as I have pointed out in my paper, and as will be perfectly obvious from my figures, the mesodermal ground-substance exhibits the very distinctly and highly granular appearance characteristic of the group to which it belongs, in contradistinction to the transparent, gelatinous, ground-substance of many other sponges. Here then, if the ground-substance existed in the spaces between the collared cells, as Dr. von Lendenfeld assumes, we should surely have no difficulty in recognizing it by its numerous distinct granules; instead of which the ground-substance terminates perfectly definitely at the level of the nuclei of the collared cells, and so comes to form the floor of a large empty space (the peripheral space) which is roofed over by Sollas's membrane supported on the collared cells. Even supposing that the membrane in question were merely the surface portion of the mesodermal ground-substance, widely separated, in some inexplicable manner, from the deeper parts, it would surely retain traces of its granular nature, but, unfortunately for Dr. von Lendenfeld's hypothesis, it does not; it is characteristically hyaline and transparent, and is in all probability simply a special development of the collars of the collared cells, and hence endodermal, and not mesodermal in origin (compare also Sollas, article »Sponges«, Encyclopaedia Britannica).

Concerning my figures Dr. von Lendenfeld observes »Es ist jedoch seine schematische Darstellung dieser Membran (Taf. 32 Fig. 9) keineswegs Vertrauen-einflößend, sondern eher ein Beweis der theoretischen Unwahrscheinlichkeit der Existenz derselben«. He forgets, however, to mention that I also give two figures (Figs. 7 and 8) plainly shewing the membrane, which are not diagrammatic in the slightest degree; they are as exact representations of actual preparations as I was able to produce, while Figure 9 is simply intended for a diagram and described as such. So distinct is the membrane in question that I have been in the habit of demonstrating it to students at the Melbourne University, who have sketched it from nature perfectly distinctly in their note books; Professor W. Baldwin Spencer, also, permits me to say that he has examined my preparations and is satisfied as to the accuracy of my drawings and description.

Dr. von Lendenfeld further states that the sponge investigated and described by me (*Stelospongia flabelliformis*, Carter) belongs to his genus »*Thorecta*«, which makes its appearance as »n. gen.« for the first time in 1888, in the »Descriptive Catalogue of the Sponges in the Australian Museum, Sydney«. We must regard this statement with a good deal of caution when we consider the fact that the first example of *Thorecta* described by the author (l. c.) is »*Thorecta exemplum* n. sp.«; while the third is »*Thorecta exemplum* var. *secunda*, Hyatt«, under which latter appears »*Spongelia rectilinea* var. *tenuis*, A. Hyatt«, as a synonym! I must decline to place any great reliance on the nomenclature of an author who so persistently violates the accepted laws of priority.

The second communication to which I referred at the commencement of this article is by Dr. N. Poléjaeff, on *Korotnewia desiderata* and the phylogeny of the horny sponges.

Dr. Poléjaeff tells us that we must abandon the idea of the close relationship of the *Keratosia* with the *Homorrhaphidae* (especially with the *Chalininae*) and consider the horny sponges as a palaeontologically ancient group. He further maintains that the modern speculations concerning the alleged polyphyletic origin of the *Keratosia* »alle in der Luft schweben«, and that we must not artificially separate what we can naturally unite.

In the Report on the Challenger Monaxonida, and more recently in a memoir on the West Indian *Chalininae*¹, I have firmly upheld the opposite view to that of Dr. Poléjaeff, and I must still continue to do so. Unfortunately Dr. Poléjaeff does not state, in the communication referred to, what he means by the term »*Keratosia*«. If he includes amongst the horny sponges only those forms which have obviously not originated in comparatively recent times from true siliceous sponges — and doubtless there are such horny sponges — no one will venture to question the truth of his views. If, on the other hand, he includes amongst the horny sponges — as is usually done — all those forms which are provided with a horny skeleton and destitute of spicules, I think he will find few Zoologists to agree with him.

In my paper last referred to, I have given what appear to me to be conclusive arguments for believing that at any rate some sponges with a well developed horny skeleton and entirely devoid of spicules, have descended and are in process of descent, from spicule-bearing *Chalininae*. As only an abstract of this paper has as yet been published²

¹ To be shortly published in the Transactions of the Zoological Society of London.

² Proceedings of the Zoological Society of London, 1887.

(although the full paper with the accompanying plates is now in proof) I may perhaps be allowed to give a brief résumé of my arguments in this place.

In the genus *Siphonochalina* we meet with three species — *S. spiculosa*, *S. procumbens* and *S. ceratosa* — which nearly resemble one another in external form. *S. spiculosa*, however, has a skeleton in which the spicules are large and extremely numerous, greatly exceeding in quantity the spongin and forming by far the most important element in the skeleton. *S. procumbens* has a well-developed, rectangularly meshed skeleton in which the spongin forms the principal part, but spicules are still distinct and abundant, especially in the primary fibres. *S. ceratosa* has a skeleton which is to all intents and purposes entirely composed of spongin, the spicules being excessively small and slender and reduced to the merest vestigial structures imbedded in the stout horny fibres. These vestigial spicules are more numerous in the primary than in the secondary lines of the skeleton, whence it appears that the spicules first vanish from the secondary fibres.

Here then we have a beautiful series of closely related species, all belonging to the same genus, which clearly demonstrate how a siliceous skeleton, with scarcely any spongin present in it, may be gradually replaced by a horny skeleton containing only the merest traces of spicules.

But this is not all, for in the case of two other species of *Chalininae*, viz. *Spinoseella plicifera* and *Spinoseella maxima*, some specimens of the same species may sometimes contain vestigial traces of spicules while others are entirely destitute of spicules (so far as could be ascertained by careful examination). Hence it appears that one and the same species may sometimes be a horny sponge and sometimes a siliceous one!

In view of these facts I think no one can doubt that some horny sponges at any rate are descendents of siliceous *Chalininae*.

Melbourne, October 25, 1889.

5. Ein moderner Theoretiker und seine Methodik.

Zur Abwehr gegen Herrn Rabl.

Von R. S. Bergh in Kopenhagen.

eingeg. 9. December 1889.

Eine kürzlich unter dem etwas großartig klingenden Titel »Theorie des Mesoderms«¹ erschienene Abhandlung von Herrn C. Rabl veran-

¹ Morpholog. Jahrb. 15. Bd. 2. Hft. 1889.

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