

nach Lindström's Entdeckung T. Thorell als *Palacophonus nuncius* beschrieben und abgebildet hat.

Es ist das Verdienst E. Ray-Lankester's, zuerst auf eine verschiedene Formbildung auch dieser äußeren Theile bei den Scorpionen die Aufmerksamkeit gelenkt zu haben; er bezeichnet sie (s. »Transactions of the Zoological Society of London, XI, part 10. 1885) als oval bei *Euscorpius*, spaltförmig bei *Buthus* und kreisförmig bei *Brotheas*. Einen durchgreifenden Unterschied in der Stigmenbildung bei *Euscorpius* und *Buthus* vermag ich zwar nicht zu bestätigen, wohl jedoch das Vorkommen spaltförmiger und kreisförmiger Stigmen; nur ist Herrn E. Ray-Lankester ein Irrthum in der Deutung der von ihm untersuchten Scorpione unterlaufen. Denn *Brotheas* Herbst hat wie das Gros der Scorpione spaltförmige Stigmen, während kreisförmige Stigmen ausschließlich den beiden neotropischen Gattungen *Chactas* Gerv. und *Teuthraustes* E. Sim. eigenthümlich sind. Zur Unterscheidung von *Chactas* und der ihr sehr nahe stehenden Gattung *Brotheas* giebt die Kreisform der Stigmen bei *Chactas* das sicherste, wenn auch bisher noch nirgends hervorgehobene Merkmal ab. Von *Teuthraustes atramentarius* E. Sim. erhielt die zoologische Abtheilung des Königl. Museums für Naturkunde zu Berlin erst kürzlich durch Herrn Custos Kirsch in Dresden tauschweise ein trocken conservirtes Exemplar, welches Herr Dr. A. Stübel in Ecuador, Provinz Imbabura, erbeutet hatte.

### 3. The Vascular System of the Hirudinea.

By Alfred Gibbs Bourne, D. Sc. (Lond.), Madras.

eingeg. 14. November 1887.

I have only recently received the »Mittheilungen aus der Zoologischen Station zu Neapel (Bd. VI)« for 1885 and have consequently seen now for the first time a remarkable paper by Maurice Jaquet entitled »Recherches sur le Système vasculaire des Annélides«.

The paper deals with *Hirudo*, *Aulostoma*, *Nepheleis*, *Pontobdella* and *Clepsine* among the *Hirudinea*, and with *Lumbricus*, *Arenicola*, *Terebella*, *Spirographis*, *Protula*, *Nephtlys*, *Nereis*, *Siphonostoma* and *Hermione* among the *Chaetopoda*. I concern myself here with the Hirudinean genera only.

Numerous and most skilful injections has enabled M. Maurice Jaquet to add several facts to our knowledge of the distribution of the blood channels in these leeches. The interpretations however put by the author upon these facts instead of serving to advance our morphological knowledge rather tend to take us back to a condition of

things which existed forty years ago. It is a pity that M. Jaquet did not take the trouble to make himself more thoroughly acquainted with the previous literature upon the subject. My own »Contributions to the Anatomy of the *Hirudinea*« are treated in a very off-hand manner. They are mentioned in one place only, and that in connection with *Pontobdella*, here, M. Maurice Jaquet having discovered that I actually believed that there was »un sinus dorsal, emprisonnant le vaisseau dorsal« appears to have given up any attempt to read further what I had to say. The statement quoted is however correct, and further, it embodies the keynote to the whole of my views regarding the blood spaces found in leeches viz. that there are in all leeches two systems of spaces which contain blood and that although these communicate one with the other, the one system (vessels) represents the closed vascular system of *Chaetopoda*, while the spaces (sinuses, capillaries and botryoidal spaces) of the other system represent collectively, coelom. I lay no claim to having originated this theory, I merely followed in the footsteps of Leydig, De Quatrefages and Whitman. Leydig and subsequently Whitman recognised the existence of the two systems and De Quatrefages went further and compared one of the systems to the closed vascular system in *Chaetopoda* I arranged, the facts previously established and my own observations, in such a way as to place the theory upon what seemed to me a very satisfactory basis. But M. Maurice Jaquet will have none of it, the words sinus and vessel have no separate meaning for him, with this result, that the interpretations that he himself puts upon the facts which he has discovered are unintelligible, while I read in his facts confirmations of the theory stated above and have little doubt but that if M. Jaquet with his marvellous skill in injecting would reexamine certain points of detail that we should know the whole truth. I proceed to point out a few of the most interesting questions.

*Hirudo*. M. Jaquet confesses himself unable to find any direct communication between the lateral vessels and the dorsal sinus although he is satisfied that communication exists, so am I, but not a direct communication, it is through the intervention of capillaries or botryoidal tissue spaces into which numerous small vessels open and these together with the ventral sinus form part of the coelomic space. Again he recognises the difficulty of shewing exactly how the lateral vessels communicate with the dorsal sinus. Indeed nowhere in his exact and elaborate description of the blood channels in this genus does he contradict any of my statements while nothing that he adds militates against my interpretation of the facts.

*Aulostoma*. I devoted but little time to this genus, my state-

ment that there was no dorsal sinus was based upon the examination of a young specimen, a drawing of which I have in my possession which certainly shewed no trace of dorsal sinus. I have seen it since in sections of an adult, the specimen examined may have been abnormal or the dorsal sinus may be a late development and this specimen immature, there is however nothing in M. Jaquets description which does other than support the theory of the two systems of spaces.

*Nepheleis*. There is here one point in the description which I should like to see reexamined viz. the direct communication (there is nothing in the text to shew that it is established by anything bigger than a capillary) between each lateral vessel and the ventral sinus in the posterior sucker. An examination of the figure (fig. 17), if we keep in mind the direction which the circulating blood is likely to take, will shew that the exact arrangement figured is not a very probable one.

*Pontobdella*. Here I have no hesitation in saying that M. Jaquet has entirely overlooked the dorsal, ventral and lateral vessels and has described the sinus system alone. Vaillant as I stated appears to have overlooked the lateral sinuses and the dorsal and ventral vessels. A comparison of these accounts with my own will shew how exactly the discrepancy between the Frenchman's accounts may be explained.

M. Jaquet has added considerably to our knowledge of the system of sinuses. He says nothing about what I have called the branchial sinuses. I suppose the injection did not pass into them. It may be that they are absent in *P. verrucosa*, I worked with *P. muricata*, this is however exceedingly unlikely as they occur in a more or less imperfect condition in all the genera of Rhynchobdellidae which I have examined, *Pontobdella*, *Piscicola*, *Clepsine* and *Branchellion*.

*Clepsine*. The author has as he admits not been so successful here in his injections and consequently gives a very incomplete description. He mentions Budge's paper in his bibliography, but although it contains by far the best account of the vascular system he makes no further reference to it.

The vascular system in *Clepsine* still presents a most interesting field for research.

#### 4. Vorschlag zur Gründung von zoologischen Stationen behufs Beobachtung der Süßwasser-Fauna.

Von Dr. Otto Zacharias, Hirschberg i/Schl.

eingeg. 15. November 1887.

Daß die Thierwelt des Meeres schon seit Jahrzehnten im Vordergrund des wissenschaftlichen Interesses steht, begreift sich leicht,

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Autor(en)/Author(s): Bourne A.G.

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