a summary of the researches of his predecessors, though he states that he has himself made some observations on *Antedon rosacea* at the Zoological Station at Trieste. It was perhaps not to be expected that he should have done otherwise than propagate the orthodox German view respecting the nervous system. But the account which he gives of the position in 1883 of the doctrine that the axial cords are nerves, is an extremely inadequate one. He states (p. 283) that it has been proved to be incorrect by Greeff; while a few pages further on (p. 290) he says that attempts have been made to support it by the supposition (*Annahme*) that fine branches proceed from the axial cords to the muscles and arm-segments—"Ludwig und Greeff wiesen jedoch das Unzulängliche und Unrichtige der von Carpenter angeführten Argumente nach." He then refers to the experiments performed by Dr. Carpenter, and leaves the question for further investigation.

Now, in the first place, the only comment which Greeff has made upon the doctrine that the axial cords are nerves has been a simple denial of its truth, without any attempt to discuss the subject at all;[1] and yet this denial is referred to by Weinberg as a proof of the doctrine being incorrect!

Ludwig, on the other hand, admits that the experimental evidence seems to afford very considerable support to Dr. Carpenter's views;[2] but he declines to accept them on account of the morphological difficulties which they involve. He has been unable to find the muscular branches from the axial cords which have been described by Dr. Carpenter and myself, and more recently by Perrier, Marshall, and Jickeli. But this does not justify Weinberg in stating that Ludwig has proved the arguments advanced by Dr. Carpenter and myself to be insufficient and incorrect; nor that the existence of these branches is merely a supposition. The fact that they were overlooked, not only by Teuscher and Greeff, but also by Ludwig and Weinberg, even after I had specially called attention to them, is no proof of their non-existence. Two figures of arm-sections, showing these branches, together with a further discussion of the whole question, were published in my paper[3] On the Minute Anatomy of the Brachiate Echinoderms, which appeared two years before Weinberg wrote his résumé, but is not referred to by him at all.

Another point of considerable interest in its bearings on this question is left entirely unnoticed by Weinberg, though it was fully explained in a paper[4] which he quotes, and it was illustrated by a diagram which also shows the branches of the axial cords; although, according to Weinberg, the existence of these branches is a mere supposition. I refer to the frequent absence of the ambulacral nerve on more or fewer of the arms of *Actinometra*. Weinberg admits its absence on the oral pinnules of *Antedon*, for this was

[1] Ueber den Bau der Crinoideen, *Sitzungsb. d. Gesellsch. z. Beförd. d. gesammt. Naturwiss. zu Marburg*, Nro. 1. 1876, pp. 21, 22.

[2] Crinoideen, *loc. cit.*, p. 335.

[3] *Quart. Journ. Micr. Sci.*, 1881, vol. xxi., N. S., pp. 188–192.

[4] Remarks on the Anatomy of the Arms of the Crinoids, part ii., *Journ. Anat. and Phys.*, vol xi., 1876, pp. 90–93.