secondary axials, one between secondary and tertiary." This would now be stated as "three distichals, the axillary a syzygy, and two palmars united by syzygy"; but in neither case is the syzygy at all easy to recognise, and his omission to notice it is therefore not surprising. He found, however, that "sometimes there are syzygia in the first and second joints of the arms." This, interpreted by the light of later morphological work, would mean that the first two brachials are united by syzygy,[1] and that the third may also be a syzygial joint. *Antedon granulifera* thus presents a type of structure which we have not yet studied. There is no syzygy between the two outer radials or between the first two distichals, and yet the first two joints above the distichal axillary are united by syzygy, instead of by the usual bifascial articulation; while the normal syzygial union in the third brachial may or may not persist. If a palmar series is present it consists of two joints united by syzygy, just as the first two brachials are; and the formula of the type thus becomes $A.3.\frac{(p.)br}{2}$. This also holds good for *Antedon distincta* of the Challenger collection, as seen in Pl. LI. fig. 1. The unique specimen of this fine species has its full complement of ten distichal series, which are all normal in character, and it has already been noticed on p. 55 as illustrating an exceptional type of arm-structure. But in *Antedon granulifera* some of the distichal series are usually absent, so that the arms spring directly from the radial axillaries. This is frequently also the case in *Antedon angusticalyx* and *Antedon inæqualis*, which are constructed on the same type as *Antedon distincta* and *Antedon granulifera*, except that there is normally no axillary above the distichal (Pl. L. fig. 1; Pl. LI. fig. 2). But in all three species alike the first syzygy of an arm which starts directly from the radial axillary is in the third brachial, the two preceding joints being united bifascially. We thus meet with a reversion from the abnormal grouping of the syzygies, which is most fully developed in *Antedon distincta* (Pl. LI. fig. 1), to that of the simple ten-armed type with the first syzygy in the third brachial.

Antedon multispina affords another excellent instance of the same kind. Four individuals of this type were obtained by the Challenger, three of them having only ten arms. But in the fourth (Pl. LXIX. figs. 1, 2) there are two tridistichate series, and in each of the four arms which are thus produced the first two brachials are united by syzygy. This is not the case, however, in the tridistichate varieties of *Antedon rosacea*, *Antedon variipinna*, and *Antedon anceps* (Pl. XXXV. fig. 1), which retain the third brachial as a syzygial joint above the intercalated distichal axillary, and thus remain normal in character.

The syzygial union of the two lowest brachials above the distichal axillaries of *Antedon multispina* thus gives an important clue to its affinities, which is of the greater

[1] My reasons for considering this union as a syzygy *between* the first two brachials, and not as a syzygy *in* the first brachial, will be found in Part I. pp. 51, 52.