

value, as there is no tridistichate *Antedon* of the normal type with a syzygy in the third brachial which has flattened rays and protected ambulacra.

A still more striking instance of reversion to the more generalised condition is sometimes met with both in *Antedon angusticalyx* and in *Antedon inæqualis*. The tridistichate series may be replaced by a bidistichate one; but this apparently unimportant variation is always accompanied by a change in the grouping of the syzygies above the distichal axillary. Except in one or two abnormal species like *Actinometra pulchella*, the first two brachials are never united by syzygy when they follow two articulated distichals; and so when a bidistichate series occurs as a variation in *Antedon angusticalyx* or *Antedon inæqualis* the first two brachials are articulated, and there is a syzygy in the third. This is well seen in the two lateral rays of the figured specimen of *Antedon angusticalyx*¹ (Pl. L. fig. 1).

There is one species of the *Granulifera*-group which presents a different type of arm-structure from the rest. *Antedon porrecta* is also tridistichate, but the second joint above the distichal axillary is a syzygial one (Pl. LII. fig. 3). There are often no palmars; but when they do occur the series consists of two joints, the axillary a syzygy, so that the formula of the type becomes A.3.2{(p.)br}. This is the only species of *Antedon* with a syzygy in the second brachial, though the character is a common one in *Actinometra*, as seen in Pl. LX.; Pl. LXII. fig. 3; and Pl. LXVI. figs. 1, 4.

The species of the *Granulifera*-group may be classified as follows:—

A. A syzygy between the first two brachials.

I. Calyx and arm-bases not spinous. The first two pinnules about equal, with compressed and carinate joints; the genital pinnules have unequally expanded joints.

a. Primary arms of adjacent rays in close lateral contact. Palmars usually absent; the second syzygy generally not beyond the fifteenth brachial.

- 1. Cirri smooth and without an opposing spine. First radials invisible; the second very short and deeply incised. The lower joints of the distichal pinnule not specially wide,
- 2. Cirri somewhat carinate, with an opposing spine. First radials partly visible. The lowest joint of the distichal pinnule much wider than the rest,

- 1. *angusticalyx*, n. sp.
- 2. *inæqualis*, n. sp.

b. The distichal axillaries of adjacent rays partially separated by the pinnule of the preceding joint. Palmars usually present; the second syzygy from the twentieth to the twenty-fifth brachial.

- 1. The lower pinnules rather stout,
- 2. The lower pinnules comparatively slender,

- granulifera*, Pourtalès.
- 3. *distincta*, n. sp.

II. Calyx and arm-bases spinous. The first pinnule much longer than the second, with stout joints, the lowest of which have their inner edges cut away. The genital pinnules have uniformly expanded joints,

- 4. *multispina*,² n. sp.

B. A syzygy in the second brachial,

- 5. *porrecta*, n. sp.

¹ The fourth brachial is the syzygial joint in one arm of the right-hand ray.

² Some forms of this species have only ten arms; see p. 117.