

somewhat curved, compressed, and pod-shaped form of the gonangia will, however, at once distinguish it. The specimens in the collection have a height of more than two inches. The main stems arise from a prostrate, branched, tubular filament, and while they are themselves unbranched are set from end to end with exactly opposite pinnæ. A joint more or less distinct exists on the stem at the distal side of every pair of pinnæ. With the exception of an occasional pair of hydrothecæ in the interval between two pinnæ, no hydrothecæ are borne by the stem. The pinnæ are given off at a very wide angle, being nearly at right angles with the stem. They are divided by deep constrictions into short equal internodes, each internode carrying a pair of exactly opposite hydrothecæ. The hydrothecæ are deep, tubular, adnate to the internode for about two-thirds of their height, and then abruptly divergent at a high angle. The orifice is perfectly circular, and its margin entirely destitute of serration.

The gonangia are usually, but not exclusively, carried by those hydrothecæ which lie near the base of the pinna. They have the appearance of being absolutely sessile on the summit of the hydrotheca. In reality they have a long peduncle which passes down through the hydrotheca and completely fills its cavity. They would seem to differ in the two sexes. Those which I regard as female (fig. 1a) are compressed, so as to be elliptical in transverse section, are slightly curved towards the axis of the pinna, and are very elegantly ornamented on the two broad faces by prominent, transverse, parallel ridges, which gradually thin away towards the edges, where they become finally effaced. Gonangia which differ from these in form were present in one specimen (fig. 1b). I regard them as those of a male colony. They are oviform, with the axes straight, and are destitute of the ridges which form a characteristic feature in the others. Both forms of gonangia open on the summit by a small, scarcely elevated, even orifice.

In one of the specimens of *Synthecium campylocarpum* in the collection no gonangia were present; but the place of a gonangium was taken by a branch which thus had its origin within the hydrotheca, from the orifice of which it protruded (fig. 1c). This branch carried pairs of opposite hydrothecæ, and differed in no respect from an ordinary pinna.

Though I regard this as an entirely abnormal condition, it is by no means destitute of morphological interest as repeating in *Synthecium* a feature which constitutes the essential character of *Thecocladium*; while the substitution of a typical nutritive element of the colony for a typical reproductive one is not without significance.

*Synthecium* has been hitherto known only as a New Zealand genus, *Synthecium elegans* being apparently an abundant and characteristic species of the New Zealand coast. The same haul of the dredge, however, which brought up *Synthecium campylocarpum* from a depth of between 30 and 35 fathoms off Port Jackson, yielded also *Synthecium alternans*, another very distinct and interesting member of the genus.