In a transverse section of a branch of *Grammaria magellanica*, three hydrothecæ (Pl. XXIII. fig. 2^b, *b*) may be seen nearly in the same plane projecting from the circumference of the branch, and at equal distances from one another, while alternating with these may be seen in section three others (*a*), whose bases lie in a plane above that of the former and whose distal ends have been removed by the section. Again alternating with the last may be seen the sections of three others (*a*) which spring from the axial tube in a plane still nearer to the observer, and have consequently a greater portion cut off by the section. These last, from the fact of the section passing nearer to their origin, are filled with the basal portion of the hydranth. The hydrothecæ of *Grammaria magellanica* are thus arranged in six longitudinal series, so disposed that the hydrothecæ of the six series lie in a succession of transverse planes, each plane containing three hydrothecæ, which exactly alternate with those of the plane on each side of it.

A similar disposition exists in *Grammaria stentor*, while in *Grammaria insignis* the number of longitudinal series is four, each transverse plane containing two nearly opposite hydrothecæ (fig. 3^b, *b*) which alternate with those immediately above and below them. The arrangement as seen in all these instances in transverse sections of a branch is thus very regular and symmetrical.

Lying external to the axial tube and its hydrothecæ are the peripheral tubes of the fascicle. These were always six in number in the species which I examined. They run quite superficially, and here and there separate in order to give exit to the free portion of the hydrothecæ. They accompany the axial tube to its distal extremity, resembling in this respect the peripheral tubes of *Perisiphonia*, and differing from those of *Cryptolaria*, in which the axial tube for a greater or less extent towards its distal end ceases to be covered by the peripheral.

All the tubes entering into the composition of the fascicle, not excepting even the included portion of the hydrothecæ, are in such close approximation as to assume a prismatic form, and are inseparably adherent to one another. So intimate is this adhesion that I have found no treatment, even prolonged boiling in caustic potash, capable of in any way overcoming it. *Grammaria* in this respect presents a striking contrast to *Cryptolaria* and *Perisiphonia*, as well as to the other genera of the Perisiphonidæ, in all of which maceration in a solution of caustic potash so weakens the adhesion of the tubes to one another that these may then be easily separated by the dissecting needle.

As in *Cryptolaria* so also in *Grammaria* it is difficult to find characters available for the systematic diagnosis of the species. Throughout the genus the hydrothecæ present but little variation, while the gonosome from which differential characters might be expected has not yet been found in any species. A really good character is afforded by the number of longitudinal series in which the hydrothecæ are disposed upon the stem and branches, but even here the variation takes place within very narrow limits, six and four having been as yet the only numbers in which the longitudinal series of hydrothecæ