

I examined the very minute pedicels in some very young individuals of *Oneirophanta*, which pedicels were evidently in an early state of evolution. The extremely thin walls of the pedicels contained only a few small, simple spicules, which, more or less developed, were always surrounded by an evident sheath, and this when treated with hæmatoxylin became deeply coloured and very manifest. Supposing the sheaths to be developed first,—the calcareous matters being subsequently produced by them,—I expected to find small empty sheaths, and I succeeded in doing so. The smallest sheath I could discover attained the inconsiderable length of 0·08 mm. (Pl. XXXVI. fig. 8), and was consequently extremely minute in proportion to the adjacent more developed sheaths, which had a length of about 0·7 mm. The walls of the sheaths are extremely thin and contain scattered cells. I did not discover any epithelial lining, which Semper¹ has observed inside the sheaths in the Synaptidæ. As the material which has been at my disposal has not been sufficient to admit any satisfactory examination, it is possible that such an epithelial lining is present though it has escaped my attention. When stained with a solution of hæmatoxylin the sheaths become violet, while the structureless matters which they contain remain almost colourless. The sheaths increase and gradually assume the shape of a spicule. I have first discovered calcareous matter inside them when they have attained a length of about 0·20 mm., which, in the shape of a minute, elongate bright body (Pl. XXXVI. figs. 10 and 11), is situated in the centre of the hitherto structureless substance; sometimes two small calcareous bodies are present. At the same time that the carbonate of lime appears, a concentric structure becomes obvious within the substance enclosed by the sheath, which structure is most conspicuous round the minute recently-formed calcareous body. The sheaths increase, approaching gradually the shape of the future calcareous spicule, while the calcareous deposits themselves grow larger, until they finally become most closely encircled by the wall of the sheaths. It is most probable that a solution of lime-salts is secreted by the walls of the sheaths, and that the calcareous bodies are deposited from this secretion.

The shape of the calcareous deposits varies at different places in the body. There is, for instance, a certain difference traceable between the deposits of the dorsal surface and those of the ventral one with regard to their shape as well as to their number. The dorsal surface seems regularly to be rougher than the ventral, and consequently the calcareous deposits of the latter surface are often fewer in number, smaller and of a more irregular form, their outwardly-directed processes, which cause the roughness, being short or sometimes altogether wanting. The tentacles, the pedicels, and the dorsal processes are towards their ends strengthened by a greater or smaller number of more or less simple spicules, the shape of which is discussed under the description of the species. The dorsal processes are usually supported by a smaller number of spicules, which seem sometimes to be absent, in which case the walls of the processes are provided with

¹ *Reisen im Archipel der Philippinen*, pp. 30, 31, pl. vii. fig. 2, d.