

He united Quoy and Gaimard's recent *Marginopora* (as I had myself previously done) with Lamarck's fossil *Orbitolites*; but so little did he know of the internal structure of this type, that he altogether failed to perceive its very close similarity to that of *Orbiculina*, which he ranked with *Peneroplis*, *Dendritina*, and other genera allied to these, among his "Hélicostègues."

This similarity had been already recognised (1850) by Prof. W. C. Williamson, whose previous studies of Foraminiferal structure had so far prepared him for the right appreciation of it, that, on coming into possession of specimens of *Orbitolites marginalis*¹ from the calcareous sands of Havannah, and of a small worn specimen of the recent *Orbitolites complanata* from Tonga, he made it perfectly clear, by a comparison of their internal structure with that of the proteiform *Orbiculina adunca*, that these three types closely accord in their general structure, differing only in their plan of growth (Transactions of Microscopical Society, vol. iii., 1852). And it is greatly to his credit, that at a time when the authority of M. d'Orbigny was generally accepted as the highest in regard to Foraminifera, Prof. Williamson should have ventured not merely to call in question the value of "plan of growth" as an *ordinal* character, but even to rank it as good only for *specific* differentiation. He clearly showed (1) that the well-known *Orbiculina adunca* of the Antilles, though always *beginning* life as a *Hélicostègue*, often ends it as a *Cyclostègue*; its first-formed arcuate rows of chamberlets, which represent the successive chambers of the flattened spire of *Peneroplis*, often sending backwards two alar extensions, which meet at the back of the first-formed spire, so as to form a complete annulus, after which every successive addition takes place on the *cyclical* plan; (2) that whilst in *Orbitolites marginalis* the first growth is spiral, yet this very early gives place to the *cyclical* plan; and (3) that in *Orbitolites complanata* the growth is *cyclical* from the beginning, the very first row of chamberlets forming a complete annulus, and all further additions being made on the same plan. He also showed that *Orbitolites marginalis* and *Orbitolites complanata* alike originate in a globular or pyriform primordial chamber, which opens by a flask-shaped neck into a second chamber; and that it is from the latter that the first row of chamberlets originates in each case. He fully recognised also the "simplicity" of the structure of *Orbitolites marginalis*, with its single tier of chamberlets, and the "complexity" of that of *Orbitolites complanata*, with its "multiplication of strictly analogous parts"; and he showed that the latter is further differentiated by its possession of concentric rows of superficial fossæ, distinct from the cavities of the intermediate stratum of the disk. And the only considerable error in his whole description, which arose from the abrasion of the surface of his single specimen of the "complex" type, was his treating the chamberlets of the superficial plane, which are closed-in by lamellæ of shell, as open fossæ. The great importance, then, of Prof. Williamson's memoir, lay in

¹ It is unfortunate that Prof. Williamson misnamed the specimens he so well described. His *Orbiculina complanata* is clearly the *Orbitolites marginalis* of Lamarck; while his *Orbiculina tonga* is no less clearly the *Marginopora vertebralis* of Quoy and Gaimard, the recent type of Lamarck's fossil *Orbitolites complanata*.