

were subdivided by partitions answering to its surface-markings (fig. 7, p. 46), springing from their inner septa between the pores, but not extending to their outer, the result would be exactly what we here find.

Now the peculiar point of interest attaching to this *Orbitolites tenuissima*, is that the structure of the inner part of every disk shows it to have thus originated: for the "nucleus" is here a continuous spire of five or six turns (Pl. II. fig. 3), closely resembling that of a young *Cornuspira*, with an indication of imperfect septal interruptions resembling those of a *Spiroloculina*; the spire, when beginning to open-out (fig. 5, *a*), is interrupted by a complete septum traversed by pores, exactly corresponding to that of *Peneroplis*; whilst the next chamber, *b*, is divided into four chamberlets by three partitions springing from this septum between its pores, this subdivision converting the incipient *Peneroplis* into a young *Orbiculina*. In the specimen here figured, this chamber is not separated by a completely-formed septum from the next chamber *c*, and the latter is undivided save by a single radial partition; and although this is a mere individual variation, it is of interest as showing a reversion to the "peneropline" type, even after the assumption of the "orbiculine." The orbiculine type prevails through several succeeding chamber-additions; but the *spiral* plan of growth characteristic of it soon begins to give place to the *cyclical*; for the next-formed chamber *d*, *d*, which is divided into chamberlets by radiating partitions that spring from the inner septum between the pores, sends backwards alar extensions *d'*, *d'*, which begin to enclose the spiral "nucleus." This extension is still more marked in the next chamber *e*, *e*, whose two alæ, *e'*, *e'*, reach the ends of the transverse diameter of the original spire; and the alæ of the subsequently-formed chambers extend themselves further and further back around the spire (as shown in Pl. I. fig. 1), until—in the specimen here figured—those of the ninth chamber meet at the opposite side of the spire, so as to enclose it all round, while the tenth forms the first complete annulus, to be itself surrounded by a succession of similar annuli, the number of which in full-sized specimens may exceed thirty.

Thus we have, in this one organism, a complete transition from the simple slightly interrupted spiral tube of the least differentiated *Miliolines*, through the expanded and chambered spire of *Peneroplis*, and the chamberletted spire of *Orbiculina*, to the concentric annulation and subdivided chambers of the typical *Orbitolites*. And we shall presently see how this last plan undergoes, in other species, a progressive modification, until, in its most specialised types, we lose all trace of derivation from a spiral,—the annuli being formed concentrically, from their very commencement, around a discoidal "nucleus," and their chamberlets being so modified in shape and disposition, as not to suggest their origin in the subdivision of a *Peneroplis*-chamber by radial partitions.

*Reparations.*—As might be expected from the extreme tenuity and fragility of the disks of this species, they are obviously very liable to fracture; scarcely any specimen