superficial layers being shifted half the breadth of a zone, so that the chamberlets of those layers lie over the zonal septa of the intermediate layer, and the zonal septa of the superficial layers over the annular galleries into which the cylindrical chamberlets of the intermediate stratum open at either end, as already described. When, by this shifting, the complex plan of growth has been fully established, all subsequent increase takes place in accordance with it.—The successive stages of this transition through the "sub-typical" to the "typical" form of *Orbitolites complanata* are diagrammatically represented on a larger scale in fig. 5.

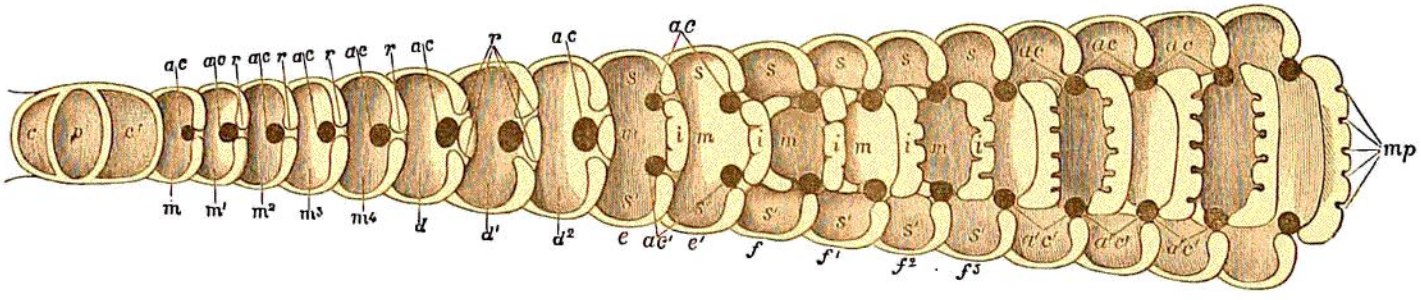

FIG. 5.—Diagrammatic representation of the progressive development of the Simple type of *Orbitolites* into the most Complex.

p, primordial chamber; *c*, *c'*, circumambient chamber; *m*, m^1, m^2, m^3, m^4, chambers of successive zones of *Orbitolites marginalis*, each having its single annular canal, *ac*, and its radial stolon-passage, *r*; *d*, d^1, d^2, chambers of successive zones of *Orbitolites duplex*, each having its single annular canal *ac*, and its double radial stolon-passage *r*; *e*, *e'*, chambers of intermediate (fossil) form of *Orbitolites complanata*, each having a pair of annular canals *ac*, *a'c'*, with an interposed septum *i*, *i*, and having its superficial portions, *s*, *s*,' still in continuity with the median columns *m*, *m*; *f*, f^1, f^2, f^3, chambers of the typical form of *Orbitolites complanata*, each having its double annular canal, its median columnar portion *m*, separated from that of the next annulus by the interposed septum *i*, traversed by oblique pores, which appear as marginal pores, *mp*, at the edge of the disk; but the superficial chamberlets, *s*, *s*, and *s'*, *s'*, alternating in position with the median, and each of them communicating with the annular canals of two zones, as shown at *ac*, *a'c'*.

The morphological differentiation which thus shows itself in the sarcodic body of this "complex" type is thus of the very simplest character, involving (so far as our means of judgment extend) no functional differentiation whatever. Its first stage consists in a partial splitting of the single annular stolon of each zone (Pl. V. fig. 2, *c*, *c'*) throughout its entire length, and the vertical separation of its two halves from each other; their continuity being maintained, however, at certain intervals, so that, when drawn apart, they still remain connected by the cylindrical columns (*d*, *d*, fig. 14) which form the intermediate stratum. When these interpolated columns are looked at, not as parts of the regular annular system of sarcodic sub-segments, but as bands of adhesion between the two sarcodic semi-annuli that are drawn out by their separation, the frequent irregularities that may be remarked in their arrangement (p. 35) are at once understood as confirming this view of their homology. Each of the separated semi-annuli carries with it its own row of half columns (fig. 2, *a*, *a'*, *b*, *b'*); and these form the superficial planes of sub-segments (fig. 14, *c*, *c'*), which are at first in continuity with the interpolated shafts. And the displacement of these in the subsequently-formed annuli constitutes the second stage of this differentiation,