

dependent upon local conditions, of which depth of water is probably the most important. Setting aside the six Stations referred to, at which both forms occur, the average depth of nineteen recorded localities for *Pulvinulina elegans* is 340 fathoms; that of twenty-three Stations at which *Pulvinulina partschiana* has been noted, 1000 fathoms.

Speaking in general terms, the home of the former is from the littoral zone to a depth of 600 or 700 fathoms, that of the latter from about 300 fathoms to 2000 fathoms; whilst passage-forms are commonest at 800 to 1300 fathoms.

The differences in external appearance are chiefly due to the thickening of the shell wall. Deep-water specimens of *Pulvinulina partschiana* exhibit a mode of growth very similar to that of a Nummulite—the alar flaps of each new chamber spreading over the lateral surfaces, and giving rise to the lamination of the walls shown in the annexed drawing of the transverse section of the test. With increased age the test loses translucency and becomes opaque-white and dull externally.

The normal aperture of *Pulvinulina elegans* (and *partschiana*) is a fissure at the inferior margin of the final chamber, close to the line of union with the previous convolution. But this is not an invariable character, and specimens from certain localities exhibit a somewhat anomalous feature in the form of a supplementary orifice. This has the aspect of a long, arched, linear slit, immediately within the peripheral margin of the final segment on the inferior side, and parallel to it—that is to say, an opening between the carinal border and the proper wall of the terminal chamber.

FIG. 21.—Transverse section of *Pulvinulina partschiana*, showing the thickness of the shell-wall and its Nummuline lamination. Magnified 40 diameters.



The peculiarity referred to was pointed out to me several years ago by my friend M. Schlumberger, and it has since formed the subject of a "Note" by M. Berthelin (*loc. cit.*) The specimens in which it occurs are identical in every other respect with the typical form, and in some cases at any rate still retain the normal aperture in addition. M. Berthelin, speaking chiefly from fossil specimens, has observed the coexistence of two apertures, but states that the orifice which occupies the ordinary position is of far less importance than that at the periphery. He also states, what is an evident fact, that the peripheral aperture is obliterated when a new chamber is formed; and this of itself appears sufficient evidence that the connection between the segments is maintained by stoloniferous orifices in the normal position. More recently M. Schlumberger has described living specimens possessing the same peculiarity under the name *Rotalina pleurostomata* (Feuille des Jeunes Naturalistes, ann. xiii. p. 27, pl. iii. fig. 5). The nearest analogy to the phenomenon in question is perhaps to be found in *Truncatulina rostrata*; and in this species, as already explained (p. 669), the peripheral or supplementary aperture has not been satisfactorily traced beyond a few of the later segments. Terquem has formed a quasi-generic group,