

No. 10, which represents a compressed, regular, neatly constructed, Rotaline shell, with subcarinate, slightly lobulated periphery. It is composed of about two convolutions, the outermost consisting of six segments; the sutures are limbate on the superior side, more or less depressed on the inferior. Good examples have often a diameter exceeding  $\frac{1}{20}$ th inch (1.27 mm.).

Commencing with the comparatively thin, outspread, *Pulvinulina menardii*, the closely allied species *Pulvinulina canariensis*, *Pulvinulina crassa*, and *Pulvinulina micheliniana*, together with some minor varieties, constitute a complete gradational series, the shells of which, by successive modifications of the shape of the chambers and their setting-on, assume, to a greater or less degree, the biconvex, plano-convex, or subconical contour. The subordinate "specific" groups cannot be separated by any sharp lines of demarcation, but the central characters of each are well marked, and there is seldom any practical difficulty in assigning specimens to one or other of the recognised forms.

*Pulvinulina menardii* is more abundant than any of its congeners as a pelagic organism. It was taken in surface-gatherings, during the Challenger cruise, at nine points in the North Atlantic, at seven in the South Atlantic, at six in the South Pacific, and at seven in the North Pacific.

Its distribution, within certain latitudes, is world-wide. The record furnished by bottom-dredgings includes altogether not less than one hundred localities, scattered over the North and South Atlantic, the North and South Pacific, the Indian Ocean, the Southern Ocean, the Mediterranean, and the Red Sea; the depth ranging from shallow water down to 2750 fathoms, but being seldom less than 200 fathoms. Its northern limit, so far as at present known, is about lat.  $55^{\circ} 11'$  N. in the North Atlantic; its southern boundary about lat.  $51^{\circ} 36'$  S. in the South Atlantic. In somewhat higher latitudes, north and south, it is replaced by *Pulvinulina canariensis*.

As a fossil it has been identified as far back as the Chalk-marl of Kent (Jones and Parker); and the white Cretaceous limestones of Sicily (Ehrenberg). It occurs in the Eocene of the Bavarian Alps (Gümbel), in the Miocene and Pliocene of Southern Italy (Seguenza); in a Pliocene deposit in the Nicobar Islands (Schwager); and in a white limestone, probably of similar or still later geological age in the New Britain group (Brady).

*Pulvinulina menardii*, var. *fimbriata*, nov. (Pl. CIII. fig. 3, a.b.).

This is a subordinate modification, dependent on the exuberant growth of the shell. The normal subcarinate or limbate peripheral border of the spire is increased by the further deposit of shell-substance, so as to form a thick, serrate, or fringe-like keel. The test is seldom so large as that of the type.

Free-swimming specimens of the fimbriate variety have been obtained in company