

Planorbulina, d'Orbigny (emend. Carpenter, Parker, and Jones).*Planorbulina*, *Truncatulina*, *Anomalina*, *Siphonina*, et *Planulina*, auctorum.

In its full generic significance the term *Planorbulina* embraces too large an array of closely related forms to be conveniently handled as a single group. To obviate the difficulties attendant on the collective treatment of so extensive a series, Dr. Carpenter and his colleagues recognise the d'Orbignian genera *Planorbulina*, *Truncatulina*, and *Anomalina* as representing three subordinate types of sub-generic or quasi-generic value,¹ and a similar course has been pursued by von Reuss.²

Under this arrangement *Planorbulina* comprises the outspread varieties, the earlier segments of which (in typical specimens) are arranged on a plano-spiral plan, whilst those subsequently formed are disposed in more or less regular annuli; and the individual chambers have marginal orifices, of which those of the outermost whorl constitute the general aperture of the test.

To *Truncatulina* are allotted the more distinctly Rotaliform species, spiral throughout, either plano-convex in contour, the whole of the segments being visible on one side, and only those of the final convolution on the other, or else biconvex, the convolutions embracing each other to a greater or less degree, though unequally, on both faces of the test.

Anomalina, on the other hand, includes those forms in which the spire not only approaches something like bilateral symmetry, but is, at the same time, more or less evolute, the contour of the shell being either biconcave and coronate or nearly complanate.

The genera *Siphonina* of Reuss and *Planulina* of d'Orbigny appear needless additions to the nomenclature. Hitherto they have each been represented by a single specific form, which may be assigned in the one case to *Truncatulina* and in the other to *Anomalina*.

Amongst *Rotalinæ* the genus *Planorbulina* is characterised typically by the coarsely perforated test, and by the aperture which has often a thickened lip or rim, developed in some cases to such an extent as to become a short, oval or rounded neck. The exterior of the shell is most frequently smooth, but it is subject to superficial decoration in the form of limbation of the sutures, exogenous tubercles, or a fringed condition of the margin.

The genus *Planorbulina*, in one or other of its modifications, is common to the seas of all latitudes, and its bathymetrical range extends from the littoral zone down to 3000 fathoms or perhaps more. Its distribution, from the geological standpoint, dates back as far as the Carboniferous epoch; it is rare in the Lias, but becomes comparatively abundant during the Cretaceous period, and furnishes a fair proportion of the Rotaline species of every division of the Tertiary system.

¹ Introd. Foram., p. 206.

² Das Elbthalgebirge in Sachsen, 2^{te} Theil, p. 113.