

THE RIMOPORTULA AND THE GENUS *CORETHRON*; TWO ENIGMAS AMONG THE DIATOMS.

Richard M Crawford

5 St Mary Street, Cardigan, SA43 1HA, Wales

This presentation will bring together two aspects of diatom study; the rimoportula and the genus *Corethron*.

A review of the structure and position of the rimoportula in the diatom frustule and its distribution among taxa will show the importance of this tube process, which is widespread among non-pennate diatoms and may well be the precursor of the raphe. This would suggest that a fundamental role in the cell was performed by it long before its place in the evolution of movement because very few non-pennate diatoms lack the structure. However, its function in non-raphid diatoms has not been established and what happens during passage of material through the tube is not understood. Nevertheless it is absent from a very small number of species/genera and one such genus is *Corethron*. Is there anything we can learn from the genus that might tell us why it can thrive without the rimoportula or indeed any other tube process?

Corethron is unique because it possesses exceedingly complicated moveable spines and these shall be examined in detail to show how complex the membrane relationships must be during new valve formation. Some unpublished biochemistry indicates that the genus might also be unique in terms of the sterol components that might be considered structurally primitive when compared to those in other diatom taxa. The genus is also interesting ecologically and the distribution of the three known species may point to an evolution following separation between the two hemispheres. Nevertheless it is a modern diatom and among a majority of genera that vary conservatively so in view of the foregoing, it comes as something of a surprise to see it sitting in the middle of one of the clades of marine “radial centric” diatoms arranged according to rRNA molecular trees.

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