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Volvocacean nature of some Palaeozoic non-radiosphaerid calcispheres and parathuramminid "foraminifera"

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A number of Devonian and Carboniferous microfossils generally referred to as non-radiosphaerid calcispheres or parathuramminid foraminifera are identified as poor preservations of the Devonian volvocacean alga *Eovolvox silesiensis*. The cell walls are decomposed and embedded in a calcareous matrix of combined early and late diagenetic origin. The main stages of the complex preservational history of the Devonian volvocaceans are discussed and each results in the formation of microfossils known so far as *Vicinesphaera* Antropov, *Polyderma* Derville, *Palaeocancellus* Derville, *Pachysphaerina* Conil & Lys, and *Archaesphaera* Suleimanov. These microfossils have a world-wide distribution and are particularly common in certain Upper Devonian and Lower Carboniferous limestones. They are often associated with radiosphaerid calcispheres and in the Devonian sometime with *Amphipora*. The presence of autochthonous and abundant volvocacean algae in sediments, up till now interpreted as marine or restricted marine deposits, probably indicates brackish (oligohaline) or fresh-water depositional environments similar to modern strongly eutrophized lakes. Volvocacean calcispheres appear to be a very sensitive paleoenvironmental indicator.

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