Deflandrius Bramlette & Martini emend. Forchheimer, 1972

Description:
Rhabdoliths with a circular to slightly elliptical basal plate, consisting of two rim cycles with 16 nearly equal-sized elements in each. In distal view they interlock along zigzag sutures or are wedge-shaped. Open central area spanned by one or two pairs of crossbars, in the latter case forming a proximal and a distal set. They are X-shaped or aligned to the long and short axis. At their intersection there is a square or rounded opening. Some specimens show a central process composed of four longitudinal elements with delicate spines attached at the top, or a stem supported by four buttresses. The stems show protuberances in the middle, and a small cross or four well developed wings at the distal end.

Type species:
Deflandrius intercisus (Deflandre) Bramlette et Martini, 1964.

Remarks:
More than a century ago Sorby (1861) described coccoliths from the Chalk and illustrated them by drawings (figs. 3-4) but unfortunately he did not name these fossils. The description (p. 197) and the drawings correspond very well to species of the genus Deflandrius Bramlette et Martini, 1964.

Arkhangelsky (1912) described Coccolithophora cretacea as being oval-shaped and consisting of two convex shields. The distal shield has in the centre an oval depression from which thin sutures extend. Every suture terminates at the periphery with a depression. It makes the margin tooth-shaped. The central opening is spanned by X-shaped crossbars. The inner shield is sometimes tooth-shaped or sometimes smooth at the margin.

Deflandre in Deflandre et Fert (1954) proposed a new species. The illustrations in text-figs., 91, 92 and light microscope micrographs in pl. 13, figs. 12-13 present a coccolith composed of a basal shield and a process, named by Deflandre as Rhabdolithus intercisus Deflandre, 1954.

Górka (1957) published Discolithus cretaceus (Arkhangelsky) citing Coccolithophora cretacea Arkhangelsky as synonymy. The specimen illustrated with a drawing (pl. 2, fig. 11) shows a rim cycle composed of 14 elements and a central opening spanned by a straight cross. Górka, however, mentioned in the diagnosis of this species 18-48 suture lines in the rim.

Deflandre (1959) erected a new genus Zygrhablithus with the type species Zygrhablithus bĳugatus (Deflandre, 1954) and transferred Rhabdolithus intercisus Deflandre, 1954 to this genus.

In the same year Vekshina (1959) erected a new genus Prediscosphaera with the type species Prediscosphaera decorata Vekshina, 1959 (pl. 1, figs. 8-9; pl. 2, figs. 13 a-c). According to her diagnosis, coccoliths belonging to this genus are of rhabdolith type. Most characteristic of the species Prediscosphaera decorata is the presence of a secondary shield on the distal end of the central process, much less developed than the proximal shield. The shields are ring-shaped. The rhabdolith has a close affinity to the genus Discosphaera due to the funnel-shaped top of the process. As synonymy she proposed Coccolithophora cretacea Arkhangelsky although Rhabdolithus intercisus Deflandre, 1954 has been known.
Gartner (1968) stated that the genus *Predicosphaera* Vekshina, 1959 has to be given priority over the genus *Deflandrius* Bramlette et Martini, 1964. His conclusions were based on numerous electron micrographs of specimens belonging to this genus. As type species he designated *P. cretacea* (Arkhangelsky) due to the fact that *P. decorata* Vekshina, 1959 is an "objective junior synonym to *Coccolithophora cretacea* Arkhangelsky, 1912". Gartner continues: "The species was first described by Arkhangelsky in 1912, but his illustrations are ambiguous. In 1954 Deflandre described *Rhabdolithus intercisus*, but illustrations of this species are also rather unclear. In 1959 Vekshina named and described *Predicosphaera decorata*, citing *Coccolithophora cretacea* Arkhangelsky in her synonymy. She also pointed out the similarity of her specimens to Arkhangelsky's. The specific name *decorata* is an objective junior synonym of the specific name *cretacea* and, therefore, is invalid. The transmission electron micrographs of Vekshina (1959, pl. 1, figs. 8-9) are more accurate than her drawings, which appear to be largely interpretations. In 1959 Deflandre redescribed *R. intercisus*, reillustrated the type specimen and transferred the species to the new genus *Zygrhablithus*. Deflandre's 1959 characterization and illustration of *Z. intercisus* are excellent and he indicated that he did not believe *C. cretacea* Arkhangelsky to be the same species".

As there is no possibility of studying the holotype material of *Coccolithophora cretacea* Arkhangelsky, 1912, a comparison with the drawings on pl. 6, figs. 12, 13 is unreliable. Fig. 12 presents an elliptical coccolith with a very small central opening surrounded by a broad inner cycle. Fig. 13 shows a coccolith with a larger central opening and an outer rim cycle composed of 18 elements. A central process is not mentioned by Arkhangelsky (1912).

Vekshina's illustrations and drawings are also difficult to interpret and the diagnosis differs from that of *Rhabdolithus intercisus*. Further, Vekshina did not mention the paper of Deflandre et Fert (1954) where *R. intercisus* was described. The genus *Deflandrius* Bramlette et Martini, 1964 was erected for species originally described by Deflandre. This genus includes species with "elliptical to nearly circular base with open area bridged by crossbars; rim composed of about 16 larger nearly equidimensional units of keystone shape, each one a unit of calcite, with their optical axis oriented more nearly tangentially than radially. Usually with a smaller and thinner ring composed of fine radial elements, closely attached on the concave basal side and extending within and thus partially closing the central opening. Bars arched up and surmounted at the center by a small knob or an elongated stem of complex construction".

The present author follows this diagnosis with emendations based on scanning electron microscope studies which provide additional fine structure.

A collection of figures redrawn from original publications concerning the taxonomical problem of *Deflandrius* is shown in chronological order in fig. 6.

**Author:**

Forchheimer S., 1972, p. 38.

**Reference:**