

ACTINOTODISSUS

Loeblich & Tappan 1978

ACTINOTODISSUS Loeblich & Tappan 1978, p. 1236: "Vesicle ranging from elongate-subovate to nearly equal in length and breadth, commonly polygonal in outline, the poles ornamented with hollow processes that communicate with the vesicle, central area of vesicle bare of processes; wall thin, both process and vesicle surface sculptured with grana, longitudinal ridges commonly traversing the central area, or entire vesicle and processes may be laevigate; no definite excystment opening observed, other than random ruptures of the vesicle wall". (A. longitalesus: Loeblich & Tappan 1978, p. 1241, Pl. 2:1-5).- text-fig. 3:4.

characterised by diacrodian symmetry and hollow processes

ACTINOTODISSUS n. gen.

Diagnosis.—A diacrodian with similar processes present on opposite poles, the simple, conical, hollow processes communicating with vesicle interior.

Description.—Vesicle ranging from elongate-subovate to nearly equal in length and breadth, commonly polygonal in outline, the poles ornamented with hollow processes that communicate with the vesicle, central area of vesicle bare of processes; wall thin, both process and vesicle surface sculptured with grana, longitudinal ridges commonly traversing the central area, or entire vesicle and processes may be laevigate; no definite excystment opening observed, other than random ruptures of the vesicle wall.

PFO for remarks



Remarks.—The status of the "diacrodians" is somewhat confused in the literature. Timofeev (1958, p. 830–831) first named genera of this group when he validly described *Lophodiacrodi*, *Lophorytidodiacrodi* and *Acanthodiacrodi*. Later in the same year

Downie (1958, p. 345) described *Diornatosphaera*. Timofeev (1959) then described eight additional genera, as follows: *Acanthorytidodiacrodi*, *Acanthozonodiacrodi*, *Dasydiacrodi*, *Dasyrytidodiacrodi*, *Lophozonodiacrodi*, *Trachydiacrodi*, *Trachyrytidodiacrodi* and *Trachyzonodiacrodi*, but of these eight genera, only *Trachyrytidodiacrodi* and *Trachyzonodiacrodi* were validly described and both were monotypic. Lacking designated type species, the other six were invalid (see ICBN Art. 37). Deflandre & Deflandre-Rigaud (1961) [the same article was printed in 1962 in Rev. Micropaléontol. 4:190–196] revised the 12 genera and reduced these to four genera, employing a zoological classification. The first genus to be recognized, *Trachydiacrodi* Timofeev, 1959, they validated by designation of a type species. However, *Trachydiacrodi* Timofeev ex Deflandre & Deflandre-Rigaud, 1961 was invalid under ICZN Art. 23(e)(i) and illegitimate under ICBN Art. 63, par. 1, because two prior validly and legitimately proposed genera, *Trachyrytidodiacrodi* Timofeev, 1959 and *Trachyzonodiacrodi* Timofeev, 1959 were included as synonyms.

The second genus recognized by Deflandre & Deflandre-Rigaud was *Lophodiacrodi* Timofeev, 1958. This was validly described, with type fixed by monotypy as *L. obtusum* Timofeev, 1958. Deflandre & Deflandre-Rigaud correctly included in *Lophodiacrodi* both *Lophorytidodiacrodi* Timofeev, 1958 and *Diornatosphaera* Downie, 1958, but they then designated *Lophodiacrodi bubnoffi* (Timofeev) Deflandre & Deflandre-Rigaud, 1961 = *Lophorytidodiacrodi bubnoffi* Timofeev, 1958 as the type species. The latter

was the type species of *Lophorytidodiacrodi* by monotypy and as a different species had already become the type of *Lophodiacrodi*, it could not be changed to select a better or even the best represented species.

Acanthodiacrodi Timofeev, 1958 was the third genus recognized by the Deflandres; under this name they included the invalidly described genera *Acanthorytidodiacrodi* and *Acanthozonodiacrodi* (see ICBN Art. 37). They correctly cite the type as *Acanthodiacrodi dentiferum* Timofeev, 1958, but in their discussion of the genus they nonetheless proposed another species as type, i.e., *A.*

uniforme Timofeev, 1959, a species incontestably characteristic, although again the type of the genus cannot be changed under either Code of Nomenclature.

The last genus recognized by the Deflandres was *Dasydiacrodi* Timofeev ex Deflandre & Deflandre-Rigaud, 1961 which they validated by designation of *D. eichwaldi* Timofeev ex Deflandre & Deflandre-Rigaud, 1961 as type species.

Based on the descriptions and valid type species the common "diacrodians" found in the American Middle and Upper Ordovician are not congeneric with any of the genera described by Timofeev (1958, 1959) nor those of Timofeev as revised by Deflandre & Deflandre-Rigaud (1961).

Actinotodissus n. gen. differs from *Acanthodiacrodi* Timofeev, 1958 in having numerous long processes at each pole that communicate freely with the vesicle interior rather than having short conical knobs or nubs on the poles as in the type of *Acanthodiacrodi*. It is impossible to ascertain whether or not the latter communicate with the vesicle, from either the description or illustrations.

Timofeev (1958, p. 831) described *Acanthodiacrodi* from the Weesensteiner Graywack at Müglitztal in Saxony, and regarded it as of Cambrian age. Burmann (1969, p. 298) stated that it is almost impossible to recover unal-

tered "diacrodia" by chemical means from such altered beds, which she and other German geologists regard as of Precambrian age. She suggested that Timofeev's specimens that were recorded from these beds were instead the result of laboratory contamination. Hence, the Weesensteiner *Acanthodiacrodi* probably is of much later Tremadocian age, perhaps from the Russian Platform.

Although the type specimen of *Acanthodiacrodi* was not available to us for examination, many specimens of *Acanthodiacrodi* were examined from the Tremadocian of the USSR, some of which appear similar to the type species. All have much thicker walls than does *Actinotodissus*, and the short conical knobs or processes occurring on other species of *Acanthodiacrodi* were solid (see Pl. 1, figs. 1–4) and do not communicate with the vesicle interior. *Acanthorytidodiacrodi* Timofeev, 1959 and *Acanthozonodiacrodi* Timofeev, 1959 are both invalid (ICBN Art.

36), and as indicated by the Deflandres are synonyms (*Acanthorytidodiacrodi* only in part) of *Acanthodiacrodi*. They differ from *Acanthodiacrodi* only in that *Acanthorytidodiacrodi* shows transverse folds that result from compression during compaction of the sediments, whereas the "edging" described in *Acanthozonodiacrodi* results from viewing the wall thickness in the optical plane.

Actinotodissus n. gen. differs from *Dasydiacrodi* Timofeev ex Deflandre & Deflandre-Rigaud, 1961 in having similar processes at each pole rather than having strikingly dissimilar processes on opposite poles. *Lophodiacrodi* Timofeev, 1958 is very similar to *Acanthodiacrodi* Timofeev, 1958 based on the illustrations of their type species; re-examination of the type specimens may prove them to be congeneric. *Actinotodissus* differs from *Lophodiacrodi* in having elongate processes on both poles rather than short, stubby (solid?) knobs on each pole.

Our new genus differs from *Trachydiacro-*

di Timofeev ex Deflandre & Deflandre-Rigaud, 1961, *Trachyrytidodiacrodi* Timofeev, 1958 and *Trachyzonodiacrodi* Timofeev, 1958 in having long processes at each pole rather than a chagrenate surface. From *Schizodiacrodi* Burmann, 1968, *Actinotodissus* differs in possessing simple conical processes rather than bifurcate or multifurcate ones.

The generic name is from the Greek *actinos*, with rays + *dissos*, two-fold, double. Gender masculine.

Type species.—*Actinotodissus longitalesus* n. sp.