

THE PROSICULA OF *RETIOLITES GEINITZIANUS* BARR

SIR,—A boulder of grey calcareous mudstone found in an urban district of Berlin contained *Monograptus priodon* and *Retiolites geinitzianus*, suggesting Upper Valentinian or Lower Wenlock age. After acid treatment with HCl and HF, adult rhabdosomes of *Retiolites geinitzianus* were obtained, together with numerous specimens in various stages of development.

The main discovery recorded here is an early ancora stage of which I obtained three specimens. Two of these show the distal half of a prosicula, opening towards the bifurcating ancora structure. The third specimen, which unfortunately disintegrated, represented a later stage of development of the ancora and retained a tiny fragment of the prosicula. Still later stages, with th1¹ and th1² do not show any trace of the prosicula.



Prosicula and ancora of *Retiolites geinitzianus* Barrande. B.M.N.H., H 4541.
× 25 approx.

The distal half of the prosicula of the figured specimen shows four strengthening rods, one of which is continued beyond the opening of the prosicula as the axis of the ancora; a helical line has not been observed on the prosicula. No transverse growth-lines are visible anywhere on the specimen, and it is obvious that a chitinized metasicula *sensu stricto* did not exist in *Retiolites geinitzianus* even at this stage, but it is possible that the axis of the ancora may correspond to the virgella.

In the figured specimen the ancora shows primary and secondary bifurcations: the whole specimen as preserved is slightly less than 1 mm. long.

The growth of the chitinous skeleton of *Retiolites geinitzianus* is thus directly comparable with that of biserial graptolites. From the formation of the prosicula to the earliest stage of bifurcation of the ancora, growth is downward. In the later stages the periderm grows upward, surrounding the axis of the ancora and the prosicula. Beyond the prosicula, the axis of the ancora grows upward as a virgella, sending branches to the lateral walls at regular intervals, and extending beyond the growing distal end of the rhabdosome.

There are now three successive stages of retioloid development which illustrate progressive reduction of the pro- and metasicula. In the Upper Ordovician (Ostseekalk) *Retiolites regimontanus* both pro- and metasicula are fully chitinized. In *Retiolites geinitzianus* only the prosicula is chitinized, the axis of the ancora probably representing the metasicula. In the Lower Ludlow *Retiolites tenuis*, *mancki*, *simplex*, *tetracanthus* even the prosicula is no longer chitinized, the ancora passing directly into the virgella.

The recognition of a prosicula attached to the axis of the ancora confirms the interpretation of the retiolitid rhabdosome given by Eisenack (1951), though in his plates and drawings he reverses the normal orientation of a graptolite rhabdosome.

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BERLIN—WILMERSDORF
NASSAUISCHE STR. 62.
July, 1953.

REFERENCE

EISENACK, A., 1951. Retioliten aus dem Graptolithengestein. *Palaeontographica*, c, Abt. A, 129-163.