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The ultrastructure of some Ordovician graptoloid prosiculae

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The graptoloid prosicula (conus and cauda) forms the first part of the growing colony, and was probably secreted during a single continuous episode of growth. The wall is composed of a central unit of criss-cross fibrils (*fusellar fabric*), interlaced with parallel fibrils whose grouping appears as the spiral line (*spiral line fabric*). The conus is lined with a granular or felted sheet (*sheet fabric*). The diaphragm, at the apex of the conus, appears to be formed of fusellar fabric. The cauda is formed of fusellar and spiral fabrics with a central cavity apparently not open to the conus interior. An outer layer (*diamond mesh fabric*) of fibrils forming a diamond mesh covers both conus and cauda, and is itself overlain by longitudinal rods. The apex of the cauda is formed of a second domed diaphragm of criss-cross fibrils, covered by a sheet fabric. The nema is extended distally as a series of finger-shaped increments, overlain by bandages. An outermost layer of clustered fibrils (stellate fabric) is occasionally present, lying on, or formed by a modification of the diamond mesh fibrils of the conus.

Key words: graptoloids, prosiculae, ultrastructure, stellate fabric, secretion.

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