
An Early Silurian (Llandovery) Graptolite Succession from Central Saudi Arabia: First Documented Record of Telychian Faunas from the Arabian Peninsula

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Shales from three shallow boreholes penetrating the Early Silurian Qusaiba Member of the Qalibah Formation in central Saudi Arabia contain exquisitely preserved graptolite assemblages of middle Aeronian and early Telychian age. Two partially overlapping boreholes were drilled in the Baq'a area and one near the old town of Qusaiba. The oldest graptolites, found in both areas, comprise assemblages including *Campograptus undulatus?*, *Lituigraptus convolutus*, *Metaclimacograptus bohemicus*, *Neolagarograptus rickardsi*, *Normalograptus?* aff. *scalaris*, cf. *Paradiversograptus capillaris*, *Petalolithus minor*, *Pristiograptus regularis* sl, *Pseudorthograptus insectiformis*, *Pseudoretiolites perlatus?* and *Torquigraptus?* *decipiens*, that identify the middle Aeronian convolutus Biozone. *Monograptus bjerreskovae*, *Monograptus* ex gr. *marri*, *Pristiograptus renaudi*, *Stimulograptus becki* and *S. halli?* indicate the presence of the early Telychian guerichi Biozone in the Baq'a area. The graptolite faunas are generally of low diversity, with most levels yielding between one and three species, but a few contain seven species.

The paleogeography of the depositional basin coupled with the low diversity and the abundance of *Pristiograptus* and *Normalograptus* suggests a marine shelf setting. This is also indicated by the common occurrence of benthic shelly fossils, including gastropods and articulated bivalves. In general, the graptolite faunas are of much lower diversity than contemporaneous more oceanic-influenced marine assemblages from the British Isles and Czech Republic, and probably represent a graptolite biotope of "cratonic invaders." The graptolites display well-preserved details of fusellar banding (growth increments) and perhaps ultrastructure. Damaged rhabdosomes observed at unburrowed levels, however, suggest unusually high rates of graptolite predation in the water column.
