

CYLINDRICAL STRUCTURES IN SEDIMENTARY GEOLOGY

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Cylindrical structures in sedimentary rocks are known since the Pre-Cambrium. However, because they are difficult to preserve, they are best known and described in modern sediments. The genesis of such structures is varied. In principle, they can exist in any position and may have formed from biological or sedimentary processes. Their composition (grain sizes from clay to pebbles) and their size (mm to hundreds of metres) varies dramatically. Cylindrical structures may form due to anthropogenic or geogenic processes. Often they may have formed in connection with precursor phenomena like breaking dams, land slides or earth quakes. Of the many theories that were discussed for the formation of cylindrical structures in the past, four models are discussed here. First, their formation as penetrative calcretes in semi-arid climates, ice wedges or plug and plug circles in permafrost areas. Secondly, they may form as concretions in connection with calcite-saturated ground water streams. Third, the best known cylindrical structures are mud- and sand-volcanoes that form in connection with land slides and circular jets that form from those. Fourth, cylindrical structures may represent infilled potholes. Examples are discussed that occur in the Upper-Carboniferous Auernig Group of the Carnic Alps and in recent sediments of the river Mur (Steiermark).