

SEDIMENTOLOGY AND CHRONOLOGY OF QUATERNARY LACUSTRINE TRAVERTINE KEY SECTIONS - AN INTEGRATED STUDY IN HUNGARY

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Lithological, sedimentological, magnetostratigraphic, stable isotope, palaeontological and X-ray diffractometric analyses were carried out on six isolated travertine deposits. The 10-15m thick travertines represent a cyclic, shallowing upward sequence deposited on alluvial sediments and covered by loess. The basal algal laminites are overlain by limestone interlayered with fine clastics and palaeosols related to subaerial exposures. These horizons have great lateral continuity and contain terrestrial gastropods, vertebrates and human artefacts. The upper unit consists of massive, frequently brecciated and reed-bearing limestone with thin siliciclastic intercalations near the top. The travertines contain molluscs, plant and early human remains. Depositional microkarst is common although long, vertical fissures and single-level cave systems also developed in places. All carbonates are very low-magnesian calcite. The palaeosols are composed of calcite, quartz, little montmorillonite and illite. Correlations to the time scale indicate that the individual sections represent brief time intervals covering together a large part of the Pleistocene. Variations in the sequence reflect changes in water-level controlled mainly by climatic changes. The travertines deposited in shallow marginal lakes fed by thermal springs, and the calcite derived from the underlying Mesozoic carbonates. Molluscs and isotope studies suggest a water temperature from 20 to 55°C. The evolution of the lakes was interrupted and terminated by subaerial exposures. The results shed new light on the Quaternary stratigraphy and process of human evolution.