

QUATERNARY MORPHODYNAMICS AND NEOTECTONICS OF THE LOWER ENGADINE (SWITZERLAND/AUSTRIA)

Rufus J. Bertle & Peter Schlusche (1937–1981)

The results of the investigations of P. Schlusche, who died in 1981 are presented in this abstract for the first time. The investigations took place from 1959 to 1980 in the area of the Lower Engadine valley and included detailed mapping and C-14 dating. Schlusche was the pioneer of neotectonic investigations in Austria (TOLLMANN 1987, p. 135).

The Engadine valley, located in the western part of the Eastern Alps, is striking in W-E direction from the Maloja-Paß in the West to Landeck in the East. The main structural features along the Engadine valley are the W-E trending Engadine Line (TRÜMPY 1972, SCHMID & FROITZHEIM 1993) and the Lower Engadine window (BERTLE in prep.), which is located at the Austrian-Swiss border region.

In the western part of the Engadine valley, in the region of St. Moritz, Quaternary evolution is well known, whereas the region between Zernez and Landeck is still a missing gap from recent investigations except the excellent, but unpublished work of Schlusche (data collected from 1959-1981). The results of Schlusche are presented for the first time here.

Morphodynamics of the Lower Engadine is dominated by adaption of glacial erosion and filling on the neotectonic movements along prominent tectonic structures. During and after glacial regression (post-Gschnitz) fluvial processes like filling of lakes, which were dammed by rock falls and later floods caused by the break down of the dams. Three different stages of lake evolution in the main valley between Scuol and Pfunds are documented and two other stages of lake evolution are known

from the S-charl valley. The age of the different lakes is pre-Daun, around Egesen and around 2000 B.C. (last age is indicated by carbon dating – Probenanalysen B-996, B-976, B-2027, B-2028, B-977, B-978, B-2029, all data measured in Bern). Increased fluvial sedimentation around 1500 B.C. can be correlated with the Santorin-event.

The main morphological features of the Lower Engadine valley are the so called “Dorfterrassen” which show a complex sedimentological structure due to polyphase development and the confluent valleys which reach the main valley several hundred meters above the recent river bed resulting in deep gorges of the confluents in the direction of the main river En (Inn).

The neotectonic activity is dominated by two main systems – one striking E-W (Engadine Line, see also SCHMID & FROITZHEIM 1993 for the part above/west of Scuol) and the other one striking N-S (Reschen Line and parallel faults, SCHLUSCHE & BERTLE in prep., BERTLE in prep.). Slope movements in the valleys are controlled by these two fault systems resulting in rock slides in areas where Bündnerschiefer crop out.

Recent geothermal activity (mineralised springs of Scuol, Val Sinestra, Prutz) along the Engadine valley correlates with major fault systems.

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Authors' address:

cand. phil Peter Schlusche (Wien, 1937-1981); Mag. Rufus J. Bertle, Institut of Geology, Univ. Vienna, Althanstraße 14, A-1090 Wien, Austria