



Mapping of buried river terraces on the Kopite Hill, Gerecse Mts., Northern Hungary

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The Gerecse Mountains is a part of the Transdanubian Mountain Range. The Kopite Hill located on the northern part of the Gerecse Mountains, on the southern side of the Danube and the Hungarian-Slovakian border. At the southern side of the Danube (100 m a.s.l.) a 290 m high hill of Pannonian (Miocene) marine clay, silt and sand can be found. These Pannonian strata are covered with Pliocene-Pleistocene alluvial sediments, loess and travertine. On the Kopite Hill some small outcrops of gravel can be found, which thought to be one of the highest river terrace levels, but it is not proved. To the northwest there is 270-300 m high plateau of the 'Roman-quarry' with a formerly mined travertine-body. According to a recent discovery a Mammoth-tooth and other fossils of mammals were found there, which were dated and correlated. Because the travertine body is at lower height than the assumed terrace level, a maximum rate of uplift can be given.

The aim of our fieldwork was to determine the geometry of gravel strata and the connections between the distinct outcrops and the travertine body. We used multielectrode measurements with supplementary VES measurements. We found that on the north side of Kopite Hill and to south from the Roman-quarry there is an almost horizontal 300*100 m large, 8-13 m thick pebble stratum. Direct connection to the travertine body is not possible, because there is a few tens of meters gap between the two bodies, filled with loess. We assume the gravel stratum with its 258-252 m height (gently dips to the south) is a river terrace. On the southeast point of this river terrace the thickness of the gravel suddenly increases to 22 meters. To the south there are also some gravel outcrops, and also a drill which suggest that the bottom of these gravels are higher on higher level, about at 265 m a.s.l.. We interpret this phenomenon as a higher terrace level.

With the use of geoelectrical methods we could determine the geometry of gravel stratum on the Kopite Hill and we found no direct connection to the travertine body. The geometry of the gravel stratum strengthens the former thought, that a river terrace can be found about 255 m a.s.l. and also the measurements revealed a higher terrace level about 265 m a.s.l.. Because we know the age of the Mammoth-tooth we can determine the approximate maximum rate of uplift, which occurred as high as 0.3 mm/a.

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