

## Introduction (and geological background)

During the Late Miocene and Holocene intensive spring activity characterized the W-Gerecse Mts. and as a result of this in the surroundings of Tata many local travertine deposits were formed (Fig. 1).<sup>1</sup>

The Porhanyó-Quarry (Fig. 2) is situated in the neighbourhood of the Eötvös Secondary School (Tata), on the west side of the Öreg-lake, and was named after its loose, friable sediment. The quarry became famous from its archaeological finds. The limestone occurring in the quarry deposited from the parents of the springs, which once fed the Fényes- and Cseke-lake (Tata). The karst-springs discharged from Mesozoic carbonates on the alluvium of the Által-creek, on the II/a—and sometimes on the II/b—terraces (Népkert-springs).<sup>2</sup> The freshwater limestones deposited from the Fényes-springs on the alluvium of the Által-creek together with limestones occurring on the west-side and east-side of the Öreg-lake (on the II/a terrace). The rocks are porous, friable and dissected by mud- and sand-layers. The layers are drab, pale yellow and their thickness is 1-2 m. The freshwater limestones located on the II/b terrace of the Által-creek belong to the marsh-pool facies type but comprise also tetaratas, which indicate smooth-slope facies. Similar travertines can be found on the eastern part of the Öreg-lake until the Cseke-lake (in the area of Tata town). The layers settled here comprising tetaratas deposited from the "Angolkert-springs" (Népkert-springs) when the springwater flew into the Által-creek that was located at a deeper position.<sup>3</sup>

After Scheuer and Schweitzer and Pécsi the travertines of the Porhanyó-quarry were deposited on the terrace II/a and II/b of the Által-creek as a tetarata-pool system.<sup>4</sup> The height of this terrace is 146 m asl. and it is 15-20 m above the present valley floor.<sup>5</sup> According to Pécsi (1959) the formation of this terrace level took place around the end of the penultimate (Riss) or the beginning of last (würm) glaciation. The terrace is covered by the T<sub>2</sub> travertine horizon of 5-8 m thickness.<sup>6</sup>

The first palynological investigation of Tata-Porhanyóbánya was carried out in 1958. A 19 m long core was drilled into the travertine, the samples were analyzed at every 20 cm<sup>7</sup> and 19 pollen taxa were identified. In May 2003 new pollen analytical research started at the locality.

<sup>1</sup> SCHAFARZIK 1904.; DOBOSI 2003, 205-214.; LENKEI 1943, 115-117.; HORUSITZKY 1923.; SCHRÉTER 1951, 111-150.; VÉRTES ET AL. 1964.; SCHEUER-SCHWEITZER 1974, 113-134.; SCHEUER-SCHWEITZER 1988, 131.

<sup>2</sup> SCHEUER-SCHWEITZER 1988, 131.

<sup>3</sup> SCHEUER-SCHWEITZER 1988, 131.

<sup>4</sup> SCHEUER-SCHWEITZER 1988, 131.; PÉCSI 1959, 346.

<sup>5</sup> RUSZKICZAY-RÜDRIGER 2003.

<sup>6</sup> SCHWEITZER-SCHEUER 1995, 163-186.

<sup>7</sup> JÁRAI-KOMLÓDI 1964, 67-77.