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PEDOLOGICAL ANALYSIS OF SECTION 7. AT MEGYASZÓ-SZELESTETŐ ARCHAEOLOGICAL SITE (SEPT: 1993)

The archaeological excavation was conducted on the fringe of an intravalley ridge proportioned by erosional valleys with steep (16–18 degrees) sides, a geomorphologically characteristic formation of the Szerencs hill range. The plateau-like intervalley ridge slopes in gentle waves towards the South. Its highest point, which functions as a denudational source area toward the North, is separated from the excavations by a deeply retreated erosional side-valley. As the direct vicinity of the research trench was bound by this deeply cut side-valley and slopes facing the main valley, one of the aims of the pedological analysis was to determine to what extent the area was disturbed by natural surface replacement processes.

The grain size analysis of the samples that had been collected by 10 cms from –30 cm (the bottom of the ploughed soil) to a depth of 110 cm revealed that *no kind of surface deplacement process*, be it superposition, accumulation or erosion could be demonstrated. The grain size composition of the samples from under the ploughed soil is practically uniform from 40 to 110 cm. From a pedological respect, typical loess (0.002–0.005 mm) dominated with 32–35% in all the samples, even if the loam fraction also makes up about 30% (Table 1). The clay fraction and sands with larger grains than the loess are represented with 15–20%. Consequently, the physical composition of the samples does not reflect any kind of stratification. It should be mentioned that there are two levels, where the finest fraction (grain size under 0.001) is missing: between 50–60 cm and 90–100 cm.

The chemical analysis showed a greater variability (Table 2). Regarding the *humus content*, the growing ratio of organic materials in the level between 50–60 cm and at the bottom of the section is striking. The high humus content of the 50–60 cm deep level cannot be explained by a natural process, especially as compared to the absolutely 'normal' less than 1% in the under- and overlying levels. The depth of 60 cm might imply deep ploughing, which may turn organic mate-

rials into deeper soil levels. The significantly lower humus content between 40 and 50 cm, the low clay content of the soil and the absence of grape cultivation, however, all contradict this possibility. It is also an unexpected phenomenon with a naturally developed soil that the humus content would grow to a relatively great depth, in a layer that is practically transitory toward the soil forming rock. It is difficult to find natural causes, since the grain size distribution does not attest to a buried or redeposited layer.

The *lime content* is high in the section, and, together with the above data (loess fraction, humus content), it corresponds to the chernozem of *fragmentary forest*. There is also a break in the lime content to a depth of 50–60 cm. The receding lime content from under 80 cm also reflects the beginning of levels with different chemical compositions. The lime content of the soil sections are less dependent on the given level due to the better solubility of $CaCO_3$ in water. In chernozem soils the wandering (recovery of lime content) of limey levels is a common phenomenon, still the data direct the attention to the levels in question.

The *chemical reaction* of the section is slightly acid close the surface (6.6–6.7), which changes to slightly alkaline characteristics (7.8–8.0). The minor alteration in the samples from 40–50 cm is insignificant, although it is congruous with the rising lime content. At the same time, the abrupt rise of the alkaline character from under 80 cm is unmistakable. A similar tendency can be observed with the slightly eluviated chernozems, so this change of the pH value is a natural feature.

Summing up the data of the laboratory analyses, it seems unambiguous that the section represents a transition between the chernozem of fragmentary forest vegetation and the brown forest chernozem. This accords to the zonally developed soil type. Its most important feature is that it was not disturbed by slope deposition, so the changes in the humus content at the depth of 50–60 and 90–110 cm cannot be understood as natural accumulations.

Table 1. *Grain constitution of section 7. at Megyaszó-Szelestető*

Depth	0–30	30–40	40–50	50–60	60–70	70–80	80–90	90–100	100–110
above 0.2	2.4	4.8	9.9	0.1	1.3	3.8	5.0	0.1	2.5
0.1–0.2	3.6	5.4	209	3.9	10.7	4.0	3.0	7.2	3.0
0.05–0.1	9.3	8.1	8.2	10.5	9.7	11.2	8.4	9.2	10.2
0.02–0.05	35.2	32.8	31.2	34.2	32.7	33.4	31.9	33.0	33.4
0.01–0.02	3.6	16.9	17.1	18.0	15.9	15.8	17.6	17.0	18.8
0.005–0.01	18.4	11.2	11.3	11.4	9.8	10.5	11.2	12.1	12.5
0.002–0.005	10.1	8.7	9.3	9.1	7.8	8.1	8.0	7.9	6.9
0.001–0.002	7.9	5.3	4.6	4.7	4.8	4.5	5.1	3.8	3.6
under 0.002	9.5	6.8	6.5	8.1	7.3	8.7	9.8	9.7	9.1

Table 2. *Chemical analysis of the soil from section 7. at Megyaszó-Szelestető*

Depth	Humus (%)	pH		
		Lime (%)	H2O	KCl
0–30	3.95	10.18	6.82	6.75
30–40	1.82	13.67	6.58	6.39
40–50	0.82	19.05	6.72	6.34
50–60	1.93	14.70	6.61	6.40
60–70	0.81	17.39	6.60	6.44
70–80	0.75	17.60	6.95	6.68
80–90	0.59	13.67	7.82	7.41
90–100	0.87	10.56	7.85	7.35
100–110	1.01	5.38	8.05	7.75