

THE ANCIENT AND PRESENT GEOMORPHOLOGY AND SEDIMENTOLOGY OF MISKA

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INTRODUCTION

The site of Miska is located in the Sharon region in the central part of the Israeli coastal plain, within the drainage basin of Nahal Poleg (Fig. 1). The region is characterized by a series of red sandy soils known as *hamra* (Dan et al. 2007; Singer 2007) that developed atop stabilized sand dunes.

The climate of the region is Mediterranean sub-humid, in which the summers are hot and dry and the winters are cool and rainy. The mean temperature in January is 11°C and the mean temperature in August is 28°C. The rainy season generally lasts from October to May, and the mean annual rainfall is 501–600 mm (*Israel Meteorological Service* 2011). The natural vegetation is almost non-existent due to intensive modern agriculture in recent decades.

GEOMORPHOLOGICAL CHARACTERISTICS OF THE SITE

In order to examine the ancient geomorphological characteristics of the site, a section was cut in Area A—where a refuse pit and industrial deposits of glass manufacture were unearthed (Locs 100, 106, 109, 113, 120; Table 1; Figs. 2–4; see Spivak, this volume: Plan 4, Sq I5; Gorin-Rosen, this volume)—and studied in detail. The section (c. 3 m deep) comprises sandy layers that have a laminated structure in the lower part of the sequence and a dense accumulation of ash in its middle part. The laminae that appear at the bottom of the section are evidence of an ancient active channel with a low-energy water flow regime. Therefore, it seems that the site is located on an ancient course of Nahal Poleg.

The presence of yellow sandy material at the bottom of the section raises questions regarding its origin and source, as local sources of sand could have provided raw material for the glass industry uncovered at Miska (see Gorin-Rosen, this volume). The sand appears to be of natural origin, and there are three possibilities regarding its source: (1) sand dunes located in areas to the east and west of the site (Fig. 1); (2) sand comprising the parent material of the regional red soil (*hamra*)—generally located at the bottom level of the

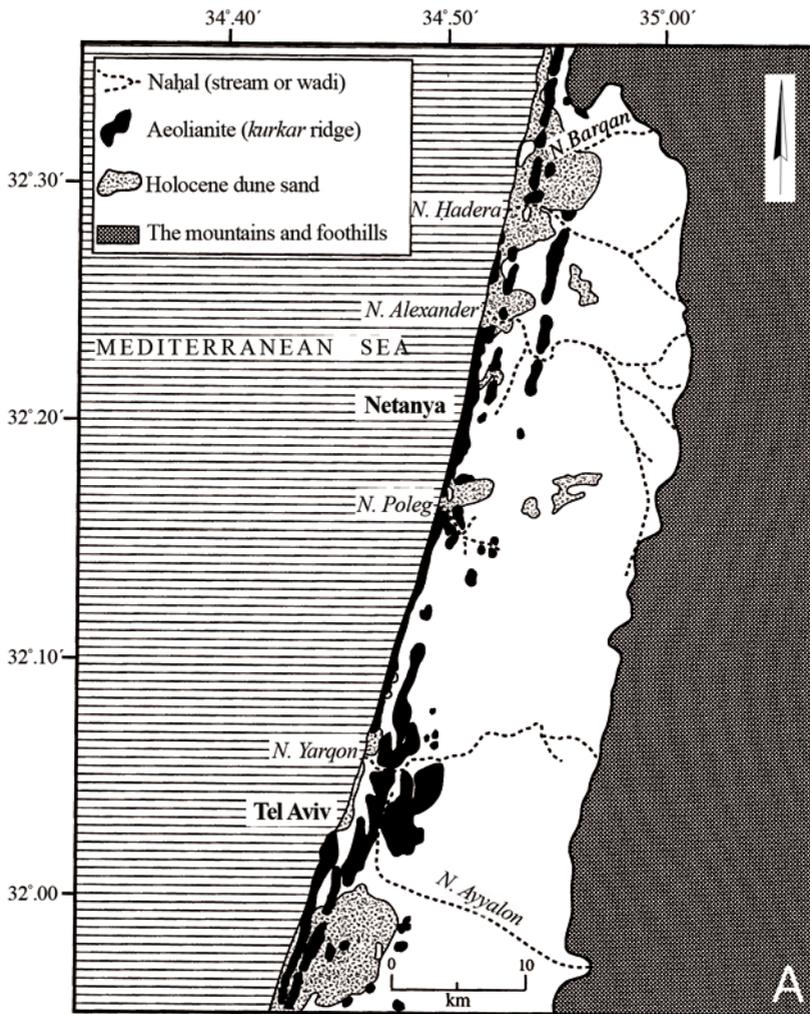


Fig. 1. Geomorphological map of the central coastal plain of Israel (after Tsoar 2000: Fig. 1A; reproduced with the permission of Israel Science Journals).

regional soil profile—that was exposed by the water flow of Nahal Poleg, incising the bottom of the profile; (3) a combination of the two sources mentioned above, in which the sand was naturally transported to the site from both the sand dunes and from the bottom of the soil profile.

Table 1. Section of Area A, General Description

Locus	Depth from the Surface (cm) ⁱ	General Characteristics	Color ⁱⁱ	Texture ⁱⁱⁱ	Boundary	Notes
100	0–30/40	Sandy sediments	Brown (7.5YR 4/2)	Sandy loam	Clear and wavy	Massive, loose to soft, angular limestone fragments 0.5–4.0 cm long
106	40–60	Sandy sediments	Dark brown (7.5YR 4/6)	Loamy sand	Gradual to sharp and wavy	Massive and soft, two lenses with yellow reddish color (5YR 5/8 and 5YR 4/6, respectively)
	60–85		Yellowish red (5YR 5/6)	Loamy sand	Clear and wavy	Massive, loose to soft, angular limestone fragments 0.5 cm long with hard red (2.5YR 5/8) sediment peds
109	85–100		Yellowish red (5YR 5/6) (wet)	Loamy sand	Abrupt and wavy	Massive, loose to soft, with hard red (2.5YR 5/8) sediment peds
113, 120	100–148	Ash deposit	Light brown (7.5YR 6/3)	Loamy sand	Clear and wavy	Ash layer with inter-fingering of sand laminae
120	140–150/155	Sandy lamina	Dark yellowish brown to dark brown (10YR 3/4–3)	Sandy clay	Sharp and wavy	Massive and loose. transition layer from the ash (charcoal) to the sandy layer
120	150/155–180		Brownish yellow (10YR 6/6)	Loamy sand	Abrupt straight to wavy	Sandy layer with lamina, interspersed with clay layers
	180–200		Pale yellow (2.5Y 7/4)	Loamy sand	Abrupt straight	At the bottom of the layer: a line of sub-rounded rock fragments 0.5–1.0 cm in diameter
	200–220/230		Yellow (2.5Y 7/6)	Loamy sand	Clear and wavy	Massive with a few laminae
	230–235/240		Strong brown to reddish yellow (7.5YR 4/6 to 7.5YR 6/6)	Loam	Clear and gradual	Massive with signs of clay and nodules of secondary calcium carbonate
	235/240–260		Light yellowish brown (10YR 6/4)	Loamy sand	Abrupt straight to wavy	Massive with a lamina 0.5 cm thick
	260–280/290		Brownish yellow (10YR 6/6)	Loamy sand	Not exposed	Massive with laminae, with signs of clay

ⁱ Top of section: absolute height 44 m asl.

ⁱⁱ According to Munsell Soil Color Chart. Sample color was checked in dry conditions, unless stated otherwise.

ⁱⁱⁱ Classification made using a field method of feel and hand manipulation.

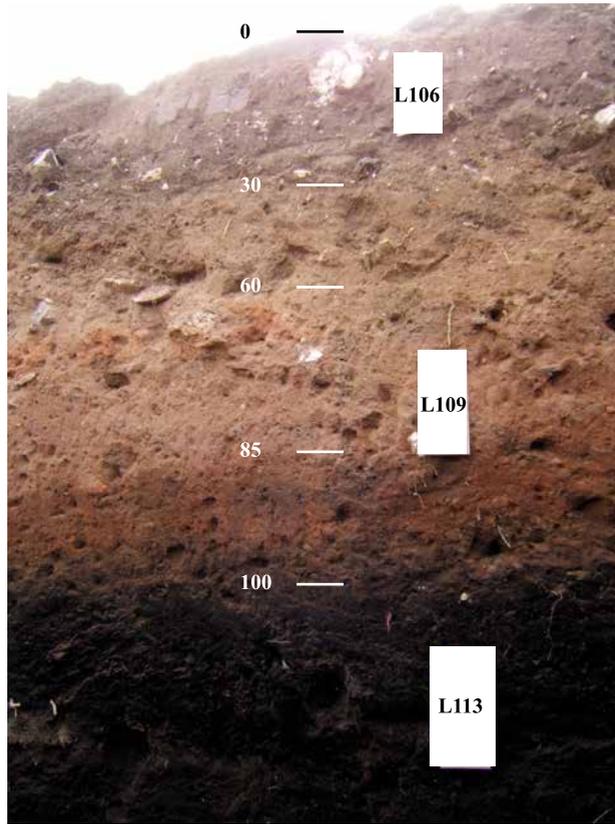


Fig. 2. Area A, general section, from surface to c. 140 cm depth; note ashy layer (L113).

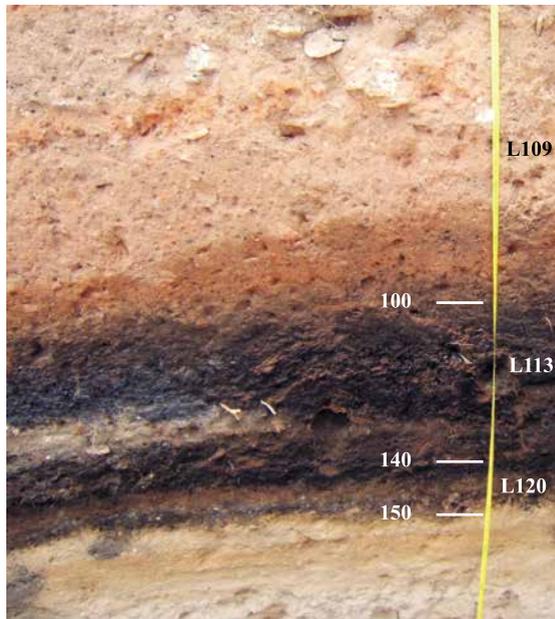


Fig. 3. Area A, general section, from surface to c. 60–160 cm depth.

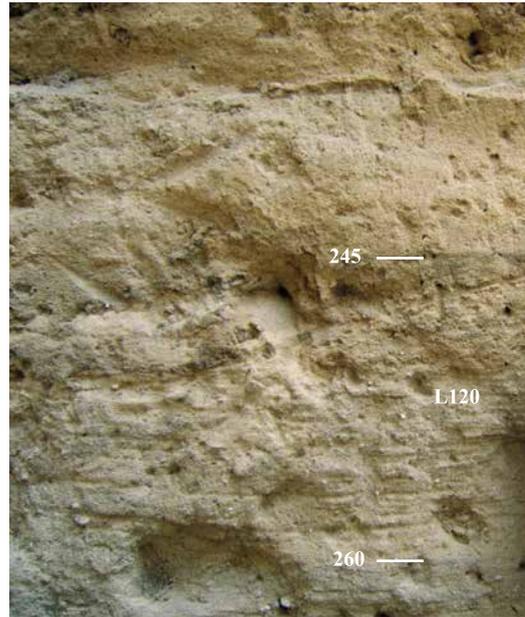


Fig. 4. Area A, general section bottom of section (depth c. 220–260 cm); note the laminated sandy structure.

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