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The Secret of the Chalcolithic Shafts: Insights from the Portable Luminescence Method (pOSL)

Oren Ackermann¹, Edwin C.M. van den Brink², Eriola Jakoel³, Yaakov Anker⁴, Joel Roskin⁵, and Yotam Asscher⁶

¹Ariel University, Institute of Archaeology, The Department of Land of Israel Studies and Archaeology, Ariel, Israel (orenack@gmail.com)

²Israel Antiquities Authority, Department of Archaeological Research and Expertise, Tsfat, Israel.

³Israel Antiquities Authority, Central District, Tel Aviv, Israel

⁴Department of Chemical Engineering and the Eastern R&D Center, Ariel University, Israel.

⁵The Department of Geography and Environment at Bar Ilan University, Israel

⁶Israel Antiquities Authority. Analytics Lab.

A late Chalcolithic period site was discovered in central Tel Aviv during a salvage excavation that was conducted by the Israeli Antiquities Authority. The remains included 113 pits and shafts which were divided according to their shape into four groups:

Group 1: Round pits: a group that includes three types: small (0.5–0.6m diameter); medium (c. 1m); large (c. 2m). Some pits contained brown sediment mixed with ceramic fragments, animal bones, and flint; others had no archaeological finds.

Group 2: Bell shape pits

Group 3: Narrow, deep shafts 1–2m diameter, 3–6m deep. This group includes three types of shafts that differ from each other according to their shape: shafts with uniform width; conical shafts narrowing towards the bottom; shafts with a wide niche in the lower third. In some of the shafts, the fill consisted of brown sediments; some contained archaeological finds and some did not. In some of the shafts, the fill contained fragments of aeolian sandstone, sand, and anthropogenic brown sediment on top that sealed the fill.

Group 4: Shaft that opens into an underground space. Only one shaft like this was exposed.

Many questions arise about the function of these diverse shafts including why were so many of

them mined?

Examination using the pOSL (portable luminescence method), showed that some of the shafts were used for a long time, and some were probably used for a short time, or not at all. From this, it can be assumed that the large number of shafts may be the result of trial-and-error style probing.

The pits which contained sand and rock fragments (group 3) had a section with a wide niche in the lower third and a thin clay layer. This suggests that these shafts served as water wells for the site inhabitants, which raises a further question: why was it necessary to dig wells along the Ayalon River?

This will be discussed in the presentation