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A Hoard of Ptolemaic Coins found in Murabba'at Cave II in the Judean Desert

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Murabba'at Cave II is situated in the cliffy area on the northern bank of Naḥal Darga, about 2 km west of the Dead Sea. It is a complex cave formed by the dissolution of Shivṭa-Formation limestone below the water table. Its total length is approximately 90 m and it has three levels. Previous excavations have shown the cave to be one of the richest in the Judean Desert in terms of finds from various periods. Among the many finds was an ancient wooden box containing a Ptolemaic coin-hoard from the reign of Ptolemy VI, which was discovered in a crevice near a shaft leading down to the interior cavities. This article presents and discusses the hoard, a typical emergency hoard, with all its components, while considering its geographical-historical context. Several possible historical events may have led to the hoard's deposition, mainly the Sixth Syrian War and the Maccabean Revolt.

Keywords: Hoard, Ptolemy VI, Wood Pyxis, Coins, Purse

Introduction

The Wadi Murabba'at caves are situated in the cliffy area on the northern bank of Naḥal Darga, about 2 km west of the Dead Sea. There are four caves: three are close together, easily accessible, with square or rectangular entrances that are visible from a distance (Caves I–III; map ref. 23543/61067); the fourth has a small, hidden entrance, and is located about 200 m to their east (Cave IV; Fig. 1). The shape of the cave entrances gave this segment of the

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wadi and the caves their Arabic name, 'Murabba'at,' i.e., square-shaped (Benoit, Milik and Vaux 1961). Caves I–III are situated 60 m above the wadi riverbed, 150 m below the top of the cliff, and 400 m east of the meeting point of Naḥal Teqo'a and Naḥal Darga. The caves were formed by dissolution of the Shivṭa Formation limestone below the water table (Lisker 2007:23–28; Porat 2015:254–255). A path linking Teqo'a and Herodium on the desert fringe toward the Dead Sea shore via Nukb Hamâr or Nukb Trâbeh ran past these caves in antiquity (Fig. 2; Markus 1986:34–35, 65–66, 76–77, 86).

In late 1951, Bedouins discovered ancient documents in Wadi Murabba'at, 17 km south of Ḥorbat Qumran. These documents were acquired by Kando, a Bethlehem antiquities dealer, and examined by the directors of the Qumran excavation. Early in 1952, Bedouins led archaeologists R. de Vaux and G.L. Harding to Wadi Murabba'at, and in January and February of that year the four caves were excavated in the space of six weeks. The excavations were conducted mainly in Caves I and II, which were rich in finds despite the intensive antiquities looting (Vaux 1961:7–8). Important artifacts were retrieved, attesting to the use of these caves in several periods, including the Chalcolithic, Bronze Age, Iron Age and the Roman period. Among the finds were 182 fragments of documents and letters, most of which were brought to the cave by Jewish refugees, probably leaders of the rebel army in the last days of the Bar Kokhba Revolt. These were the first refuge caves in the

Fig. 1. Entrances to caves in Wadi Murabba'at, looking north; Cave II is marked by a red circle (photography: R. Porat).

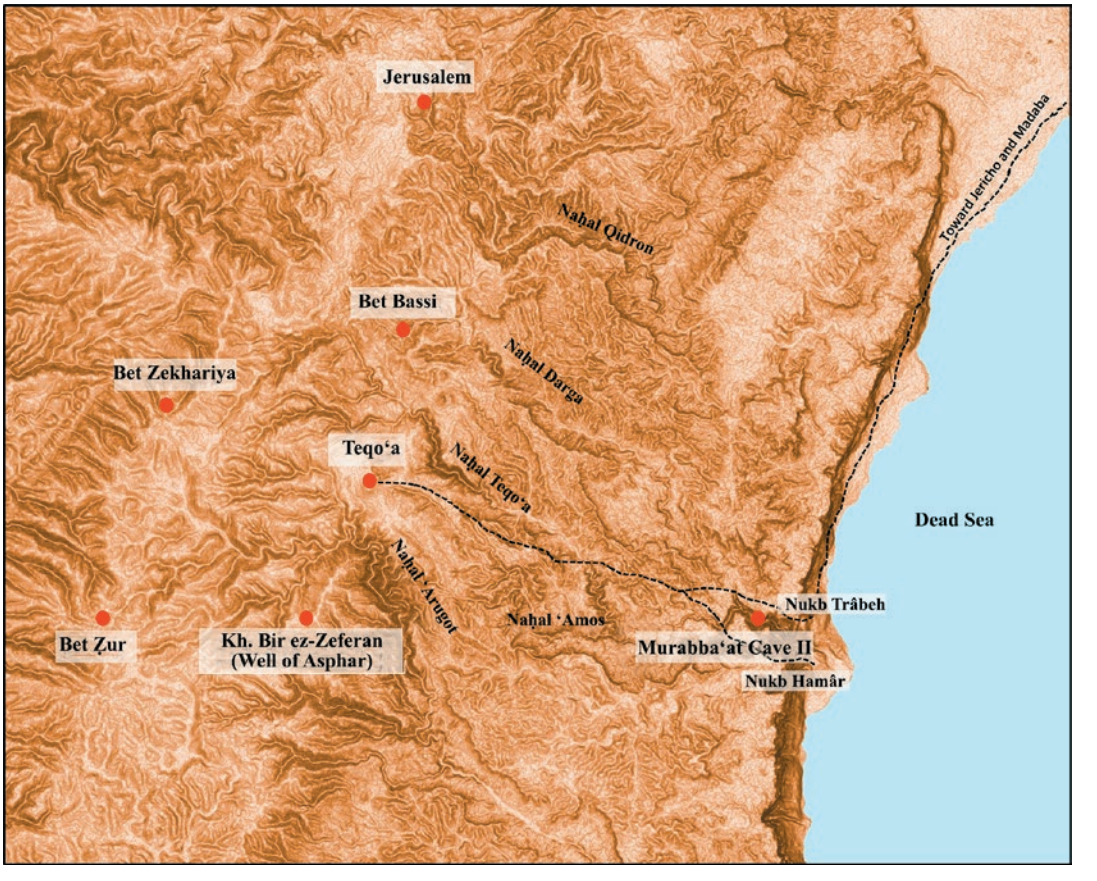

Fig. 2. Location map of Murabba‘at Cave II and other sites mentioned in this article (illustration: E. Klein).

Judean Desert from the time of the Bar Kokhba Revolt to be systematically investigated (Benoit, Milik and Vaux 1961).

In 1971, Bar-Adon spent three days excavating the Wadi Murabba‘at caves, during which time Cave II was surveyed with metal detectors; the excavation results were never published.[2] Mapping of Cave II by the staff of the Israel Cave Research Center of the Hebrew University of Jerusalem began in 1996, and in 2003, Porat and Lisker surveyed and completed the mapping of the caves (Porat 2006:61–64, 164, 201–202).

As part of a new survey of the Judean Desert caves by the Israel Antiquities Authority (IAA) and the Staff Officer for Archaeology in Judea and Samaria (SOA), the Wadi Murabba‘at caves were resurveyed in October and November 2020. Murabba‘at Cave II (Cave Z1-002) was surveyed and remapped on October 21 and November 29–30, 2020. The survey team discovered a wealth of ceramics and organic objects dumped by looters

[2] Although the excavation was not published, Bar-Adon’s Excavation Journal from 1971 was available to the authors, and the information cited here appeared in the entries for January 13, 21, 22.

throughout the cave, and it became clear that despite 70 years of antiquities looting in the cave, there was still a possibility of finding objects of great scientific value. Consequently, we carried out a salvage excavation in the cave between March and May 2022.[3]

The entrance to Murabba'at Cave II is situated 7 m west of Cave I, near the remains of water pools at the entrance to Cave I. The mouth of Cave II is 5 m high and 5 m wide. The overall orientation of the cave is northward, and its total length is 89 m. The cave is divided into five sections (Cavities A–E) on three different levels (Fig. 3). The entrance cavity (A) is rectangular (4.5 m wide, 14 m long), and large chunks of rock from the cave ceiling lay on its floor. In the northeastern part of the cavity, between the fallen rocks, is a narrow crevice (0.5–1.0 m wide, 11 m long) leading to a shaft that also contained collapsed rocks. It is possible to pass through this shaft to the interior sections of the cave, which are about 6 m lower than the floor of Cavity A, by holding on to the corners of rocks or using a rope (Fig. 4).

The entrance shaft leads to Cavity C, the junction of natural crawlways in the rock. In the southwestern and southeastern parts of Cavity C are two narrow crawlways, 0.3 m wide, leading south to Cavity B; most of Cavity B is located beneath the rocks that form the floor of the entrance to Cavity A. A crawlway approximately 0.5–1.0 m wide starts at the western wall of Cavity C and heads north for 7 m. This crawlway leads to Cavity D, which contained many finds, indicating that it was one of the centers of human activity in the cave. This cavity is 12 m long and 2.5 m wide on average, and its present height is approximately 3 m above floor level, making it a reasonable habitation area. Excavation Areas II–IV were opened in it. Under the rocks that form the floor of Area III was a shaft leading to another cavity (Area V), about 3 m lower than the floor of Cavity D. Beyond a stone terrace wall in the northern side of Cavity D there is a narrow natural crevice (13 m long, 0.8 m wide on average) that is passable only with difficulty, and where no one could stay comfortably (Cavity E); there were hardly any archaeological finds there.

In the course of the excavation in the cave, we uncovered a wealth of finds from a variety of periods of activity, especially in the cave's interior (Cavity D, Areas II–V). When the cave was surveyed with metal detectors, a hoard of 15 Ptolemaic silver coins was discovered in a small cylindrical wooden box (pyxis) in Cavity C. In this article we will focus on the hoard, as well on the other objects that form the assemblage that comprised also the wooden box, with its associated fibers and textiles, all of which were exceptionally well-preserved due to the arid climate of the Judean Desert and the microclimate in the cave. This unique

[3] The cave was excavated under the direction of Amir Ganor, Hagay Hamer, Oriya Amicha, Chaim Cohen, and Eitan Klein of the IAA and SOA (Permit No. 06–03–2022 and Permit No. A017-22 of the Israel Nature and Parks Authority). Assisting in the excavation were Tom Kantor and Rotem Ram (ropes and survey); Ziv Ben-Baruch and Eliyahu Waldman (metal detection); Hillel Silberklang, Gidon Goldenberg, Ronit Lupu, Ilan Hadad and Yonathan Pagis (inspectors, IAA Antiquities Theft Prevention Unit); Tomer Liani (SOA); Orit Rosengarten (Dead Sea Scrolls laboratory), Yoli Schwartz (IAA spokesperson), Ehud Weiss and Michal Levy (archaeobothanics), Emil Aladjem (photogrammetry and documentation) and Rom Ganor.

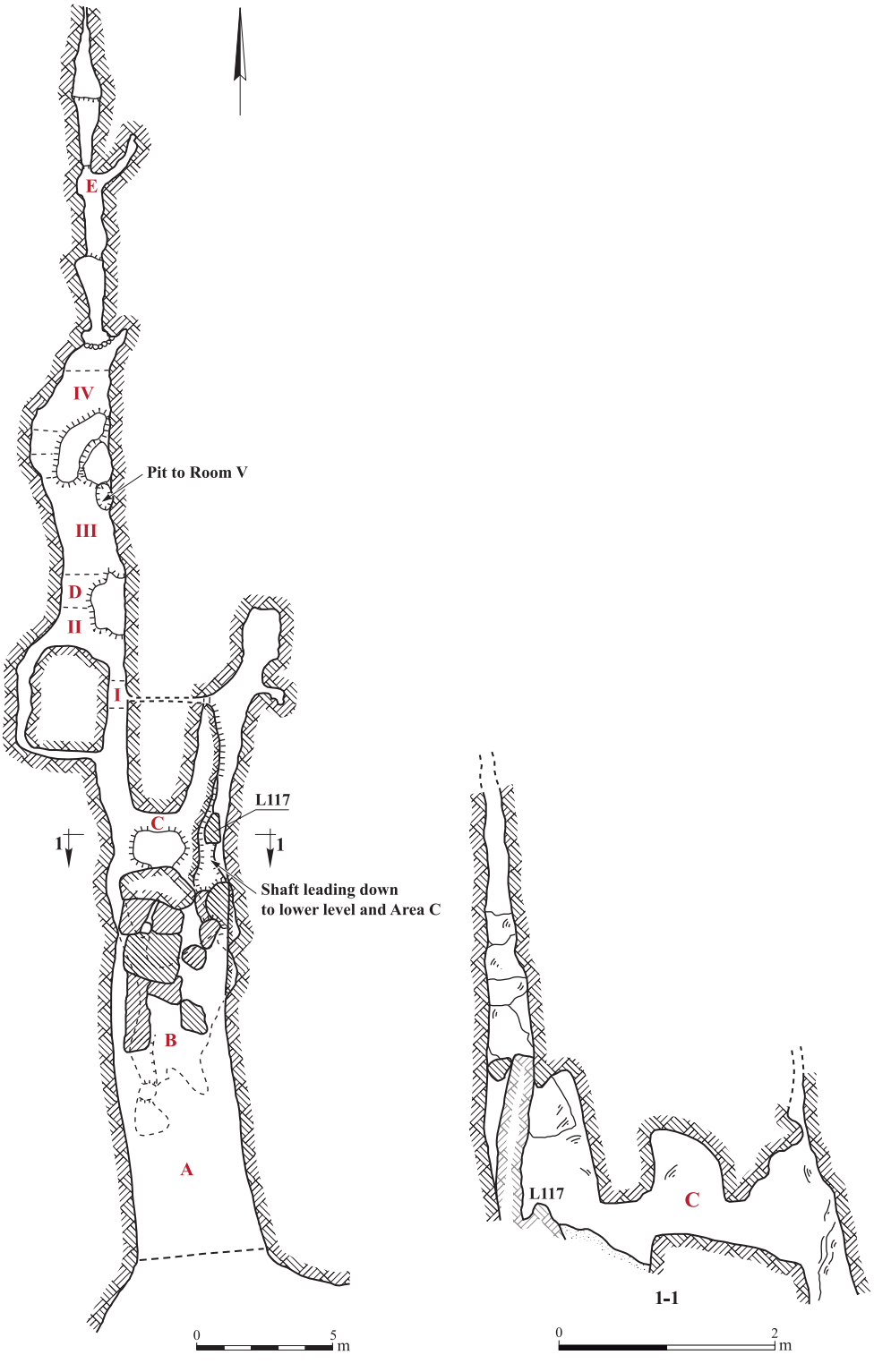

Fig. 3. Plan of Murabba‘at Cave II and section of Cavity C, where the coin hoard was found (drafting: C. Cohen, H. Hamer, O. Amichay, E. Nagel, and E. Klein).

Fig. 4. Descending from the entrance shaft in Cavity A; the cave entrance to Cavity C, below (photography: E. Klein).

assemblage was examined from several viewpoints, using different analytical tools and providing details about the hoard and the intentional deposition of money in the second century BCE. Following the identification of the coins, there is a geographical-historical discussion of the possible circumstances that led to their deposition in the cave.[4]

The coin hoard was discovered in a natural crevice in the eastern wall of Cavity C, about one meter north of the bottom of the shaft descending from the cave entrance and Cavity A to the cave interior. The crevice (0.2 m wide, 0.3 m deep) is located in the rock wall, 0.5 m above the earthen fill on the floor of Cavity C. It was full of loose, crumbly grayish-brown dirt; the hoard was found about 0.2 m beneath the fill (Figs. 5, 6). The location of the hoard at this particular spot—at the bottom of the shaft descending from the cave entrance to the

[4] The other finds from the excavation are currently being examined and processed and will be presented in future publications.

Fig. 5. The wooden box containing the coin hoard *in situ*, in the crevice in the eastern part of Cavity C (L117), looking north (photography: E. Klein).

Fig. 6. The wooden box held by Eliyahu Waldman, who discovered the hoard (photography: E. Klein).

lower levels and near a place where anyone entering the cave would have to pass, rather than in a deeper section of the cave—suggests that the person who hid the hoard had been in the entrance cavity (A) when something prompted him to hide his valuables. He therefore went down the shaft and deposited them in a concealed spot nearest the cave entrance. It should be noted that Cavity A is the most comfortable of the cavities in the cave, as it provides shelter near the path, and is ventilated. For this reason, most visitors to the cave, including passersby, would presumably only enter Cavity A and not the innermost cavities.

Before opening the wooden pyxis, it was subjected to a CT scan to document the position of the contents and prevent any damage to the pyxis and the objects within it (Fig. 7).[5] After that, the cylindrical pyxis was opened and treated in the Artifacts Treatment and Laboratories Department of the Israel Antiquities Authority. When the lid was removed, the box was seen to contain crumbled soil and small stones up to its rim. Beneath this layer was a large piece of purple fabric and below it, wool fiber, which completely covered

[5] The CT scans were conducted at the Dan David Center for Human Evolution and Biohistory Research, Tel Aviv University.

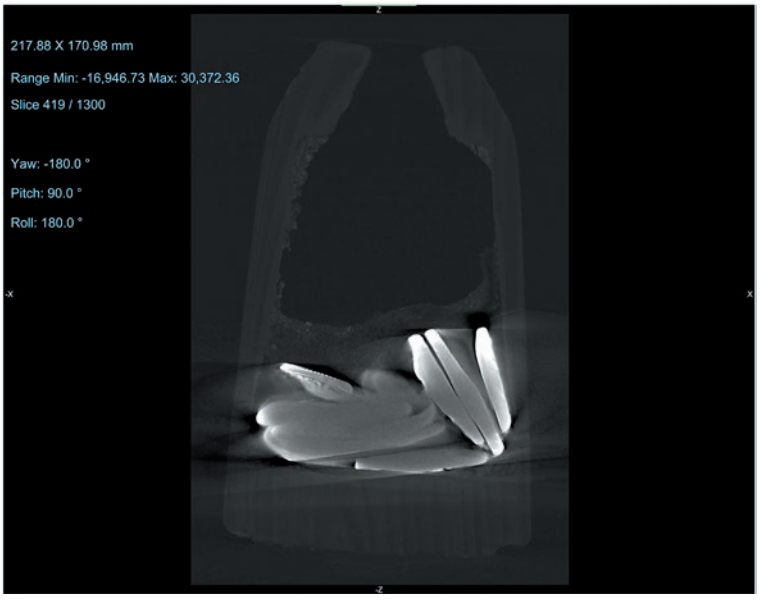

Fig. 7. CT scan (photography: S. Ellenbogen; adapted by S. Halevi).

Fig. 8. The hoard and its contents (photography: D. Gazit).

15 silver Ptolemaic coins that had been placed neatly at the bottom of the box (Fig. 8). Radiocarbon analysis of the fiber dated the hoard to between 199–146 BCE,[6] complying with the dates of the coins.

[6] 2110 ± 30BP, 199–146 cal BCE. Dating was done at the Beta Analytic Radiocarbon Dating Laboratory; calibration based on IntCal20 atmospheric curve.

It is possible that the layer of soil that filled the top of the box, the dyed woolen textile and the fibers, were all intended to fill the box and keep its contents in place as effectively as possible, and perhaps to prevent clinking of the coins.

The Wooden Pyxis

The wooden pyxis (Fig. 9) is tall, narrow and cylindrical (100.4 mm high, body and base diam. 60.2 mm; opening diam. 40.1 mm); its lid (20.2 mm high) has a flange that fits into the opening of the box (diam. 40.1–40.6 mm; cap diam. 53.8 mm). Various types of cylindrical wooden boxes have been previously described by scholars (e.g., Rieth 1955; Pugsley 2003). Based on the Murabba'at pyxis' proportions (h/d—1.7:1), its size and shape, as well as the style of its lid, the box can be classified as Sitry's Type B2 (Sitry 2006, I:82). This type is characterized by a tight-fitting stopper that penetrates the neck of the box and seals its opening. The box becomes narrower at its shoulder and forms a solid opening with a long flange. This corresponds to the forces acting on the box during closing, and maintains its integrity.

The Murabba'at box was manufactured from a single mature branch of *Arbutus andrachne*, the Greek strawberry tree (see below). The branch was turned on the lathe with the pith positioned at the center of the turning axis and its fibers longitudinally parallel to the lathe axis.[7] Its measurements indicate a small ovality at a rate of about 0.9% on average, which is consistent with the nature of *Arbutus andrachne*. It also indicates that the box was processed under low moisture, as expressed by the low degree of shrinkage and the absence of cracks.

Although at first appearing to be a finely-crafted object, upon closer examination several flaws in the details raise the possibility that the box was produced hastily: (a) the base of the box was not completed, making the box unstable; (b) part of the wall near the base was left unprocessed and rough (Fig. 9:a, b), possibly since the workpiece was not properly centered on the lathe, but also due to the natural size and shape of the branch selected, as *Arbutus andrachne* tends to grow branches that are not very straight; (c) the flange of the lid does not match the length and diameter of the opening. Altogether, these imperfections indicate a quick and imprecise operation. To achieve full cylindrical symmetry, it would have been necessary to reduce the thickness of the wall by an additional 1 mm, bringing it to only 3.2 mm (Fig. 9:a).

The surface of the vessel exhibits a slightly concave vertical pattern—recognizable only upon close examination—an expected result when working with a slow and primitive tool. The surface of the box is decorated with grooves carved around its circumference: near the base, in the center and on the shoulder. Concentric circles are clearly visible on the base

[7] A parallel turning is beneficial when turning an elongated item; however, special care with regards to the wood in use and the moisture level is required through the process to avoid cracks due to shrinkage.

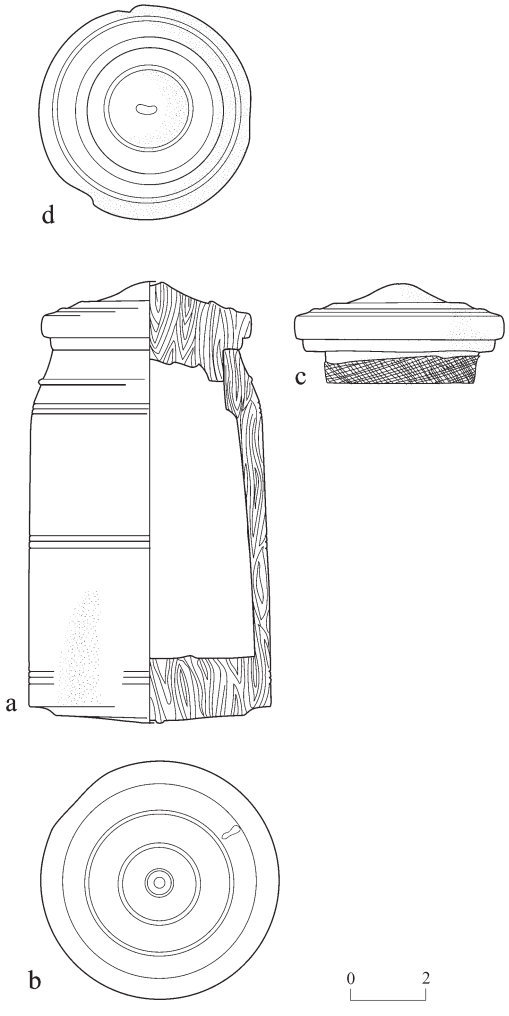

Fig. 9. The wooden box (drawing: I. Lidski-Reznikov).

of the box (Fig. 9:b). At its upper part, the wall of the box is about 7.1 mm thick, while toward the base it thins down to 4.2 mm. The base of the box is up to 16 mm thick. The changes in wall thickness along its length and the heavy thickness of the base are well-known phenomena in traditional turning of deep vessels and are the result of the available tools: a relatively slow lathe, primitive holding devices, and the particular shape and quality of the turning knives (Sitry 2006, I:213–220).

The conical lid, of a similarly slight ovality as the box, and likewise crafted from an *Arbutus andrachne* branch, was likely produced from the same branch as the box. It was also turned with the fibers of the workpiece along the axis of the lathe and the pith at the center of the axis of rotation (Fig. 9:c, d). A decorative scheme is created by a ridge that surrounds the lid-cap and several concentric grooves within it. The diameter of the cap is

slightly larger than the opening of the box, thus providing a comfortable grip to ease the opening of the box. However, while the cap of the lid is well-worked and finished, the flange is unfinished. As described above, the flange of the lid was too loose, requiring the addition of fabric along the opening to ensure a tight fit. The evidence, including the peripheral reduction of the box to allow space for the use of a pressure mandrel (a device for holding the workpiece while it is being turned), indicates that the turner started to reduce the thickness of the flange but did not complete the job.

Cylindrical, turned wooden boxes are known from the fifth century BCE and perhaps even earlier (Sitry 2006, I:78). Pyxides were also fashioned from luxurious materials such as marble, glass and terra sigillata (Lange 2021:120–123). These boxes, which came with lids, could have served as containers for all varieties of materials, including cosmetics, medicinal ointments, or perfume-like substances. In one example from Vindolanda, a Roman fort in the northern England, a lump of unknown black material was found inside a small wooden pyxis. Unfortunately, chemical analysis only proved that the material was organic (Birley 2003:210).

Over 60 turned wooden boxes and covers of various types have been discovered in Israel, among them two boxes of Sitry's Type B2, similar in size to the box described here. One is a whole box and stopper from 'En Gedi (Hadas 1994:38; Sitry 2006, I:66), and the other, discovered in Yadin's excavations at Masada, is a box whose lid was not found (Sitry 2006, I:71–72). Also found at Masada were two lids for boxes of the same Type B2, as well as six narrow stoppers intended for sealing cylindrical wooden containers with narrower openings (Sitry 2006, I:82; II:84–86, Pl. 40). At least four similar boxes, but with Sitry's Type C closure (characterized by an external flange), were identified in Vindonissa, Switzerland (Fellmann 2009:63, Item Nos. 553, 554, 558, 559), one in the Pozzino shipwreck near Tuscany (Pugsley 2003:80) and another in southeastern Spain (Carrión and Rosser 2010:751, 760, Fig. 5, Item No. 4093-183-80).

Wood Identification

Wood is identified based on its ligneous tissue structure as examined under a microscope. Analysis and identification of the wood used in the manufacture of the Murabba'at Cave II box was performed at the Laboratory of Archaeobotany and Ancient Environments at Tel Aviv University and the Steinhardt Museum of Natural History. Typically, samples are cut using razor blades and examined along three axes (transverse, radial and tangential). The suite of features observed within an individual sample—such as the presence, absence, arrangement, size and abundance of key structures within the wood's anatomy—are then compared with the wood and charcoal reference collection of the Southern Levant (at the Steinhardt Museum of Natural History, Tel Aviv University), as well as wood anatomy atlases (e.g., Fahn, Werker and Bass 1986; Wheeler, Baas and Gasson 1989; Schweingruber 1990; Richter et al. 2004; Akkemik and Yaman 2012; Crivellaro and Schweingruber 2013). Significant effort was expended in using as minimally invasive methods as possible, so as to limit any damage to the well-preserved box, even at the cost of restricting observations.

The surface of the box and lid were observed under a Zeiss SteREO Discovery V20 epi-illuminated microscope (Fig. 10), and small samples and macerations were also observed using a TESCAN VEGA3 Scanning Election Microscope (SEM) (Fig. 11) and Nikon Eclipse e100 light microscope. The attribution to *Arbutus andrachne*, the Greek strawberry tree, was based on the identification of several key features. Of particular note was the presence of both simple and scalariform (with five or fewer bars) to reticulate perforation plates (Figs. 10:d; 11:b), features that rarely appear together among Southern Levantine flora. It was further identified by its rays, which tend to be of two distinct size classes: short uniseriate rays composed of square and upright cells, and multiseriate rays which are 2–4(5) cells wide and up to c. 25 cells high (Figs. 10:c, d), and mostly composed of weakly to strongly procumbent central cells (sometimes mixed with square and upright cells) and one to several rows of square to upright (and some weakly procumbent) marginal cells (Fig. 10:e). The vessels are diffuse to weakly semi-ring-porous, either solitary or in radial groups or clusters of 2–6, between 20–60 µm in diameter, and with coarse spiral thickenings present throughout the vessel elements (Fig. 11:c, d). Intervessel pits are small (4–7 µm),

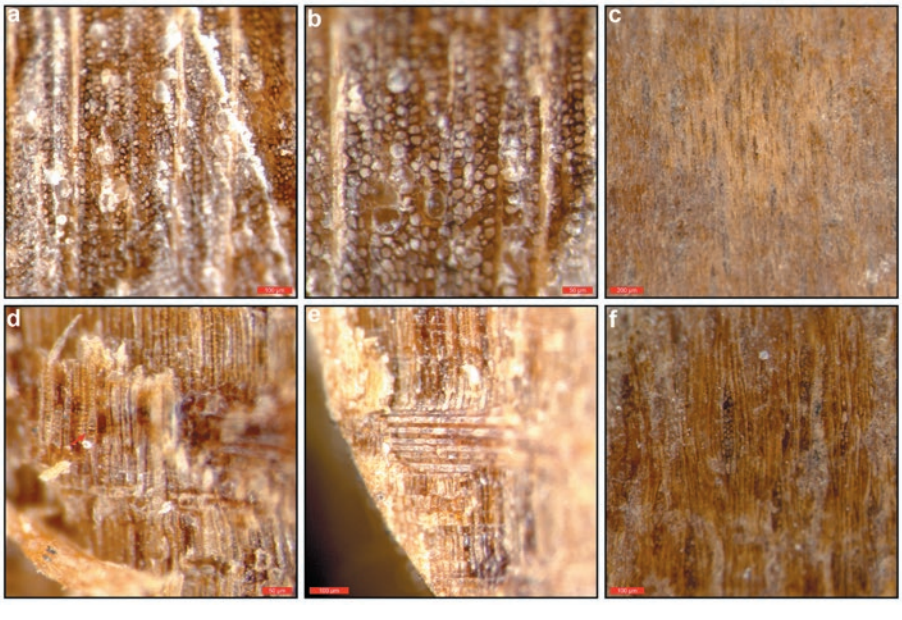

Fig. 10. Stereoscopic microscope images: (a) transverse view showing vessels in radial multiples and clusters, scale = 100 µm; (b) transverse view showing clusters of vessels, scanty paratracheal and diffuse parenchyma, scale = 50 µm; (c) tangential longitudinal view showing rays of two distinct sizes: 2–3(4), cell-wide multiseriate rays, and uniseriate rays, scale = 200 µm; (d) radial view showing scalariform perforation plates of few bars in the smallest vessels, fibers with many simple and distinctly bordered pits, and some with spiral thickenings, scale = 50 µm; (e) radial view showing rays with procumbent central cells and one to several rows of square and upright marginal cells, scale = 100 µm; (f) tangential longitudinal view showing uniseriate and 2–3 seriate rays, scale = 100 µm (photography: M. Cavanagh).

alternate to sometimes opposite, with slit-like apertures (Fig. 11:c). Fibers have numerous simple and distinctly bordered pits in both radial and tangential walls, and are at times observed to have helical thickenings (Fig. 10:d, e). Parenchyma rare, scanty paratracheal and diffuse apotracheal (Fig. 10:b), in 2–5 celled strands.

The tree from which the box was manufactured, *Arbutus andrachne*, is an evergreen tree of the Mediterranean forest/maquis (average height 5–6 m), notable for its striking smooth, red-brown bark that peels annually in large sheets, and for its edible red fruit (Zohary 1973; Danin 1992). It is endemic to the Eastern Mediterranean, where it thrives on chalky-marly rock with high clay contents and is commonly found in Galilee and on Mount Carmel, as well as in the Judean and Samarian Hills, with some presence in the Shephelah and Transjordan (Zohary 1962; Danin 1988). The box was likely produced from a single branch, not much larger than the finished product, which was explicitly selected for this purpose due to its size, straightness and smoothness. *Arbutus andrachne* is uncommon in archaeological

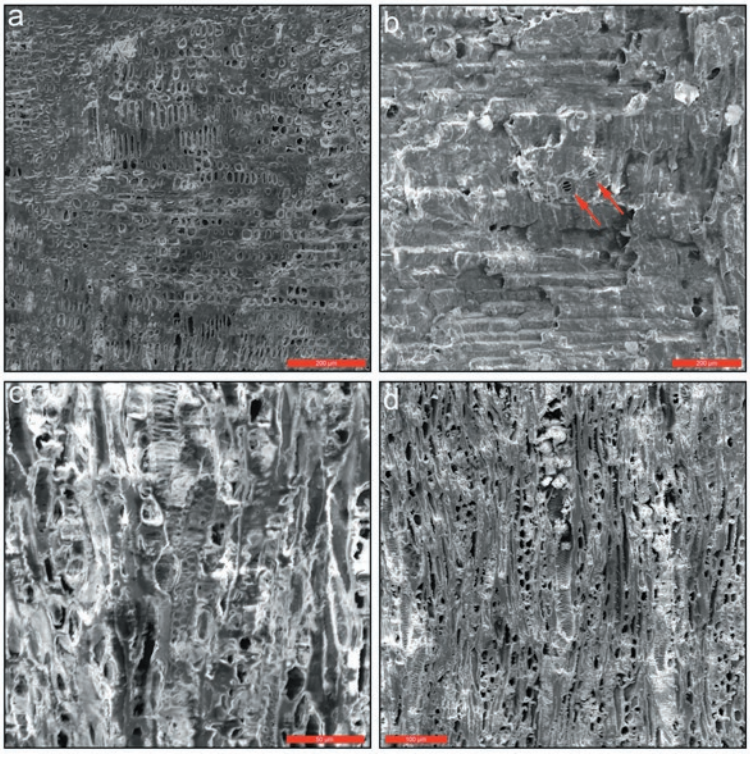

Fig. 11. SEM images: (a) radial view, with a mix of procumbent and square cells and procumbent-upright marginal cells, some cells with crystals, scale = 200 µm; (b) radial view, showing several scalariform and reticulate perforation plates, and square and procumbent ray cells, scale = 200 µm; (c) tangential longitudinal view showing coarse spiral thickenings and small pits (c. 4–7 µm), scale = 50 µm; (d) tangential longitudinal view, showing uniseriate and multiseriate rays and coarse spiral thickenings, scale = 100 µm (photography: M. Cavanagh).

contexts in Israel but has been identified in the Neolithic sites of Naḥal Beẓet in Galilee (Liphschitz 1997) and Kefar Samir on the Carmel coast (Galili et al. 2018). Although it is not frequently used in construction (probably due to the tendency of the tree to grow bent branches and to split into several trunks after fires or cutting, rather than remain as a single bole), it is a good wood for turnery and has been used to produce several worked objects, including two bowls and a small box from Hellenistic-period graves at ‘En Gedi (Hadas 1994; Werker 1994); a small perfume box from the Cave of Letters, dating to the period of the Bar Kokhba Revolt (Yadin 1963; Liphschitz 1998; Amar and Sukenik 2018); and a small cylindrical box from Nabatean Mo’a (Liphschitz 1998).

The Organic Fibers in the Hoard

Three items made of organic fibers were found inside the wooden box (Fig. 8): Un-spun wool (1.97 g), which was placed directly over the coins; a folded purple textile, which was placed at the top as a filler; and a textile that was attached to the lid. All fibers were identified as wool on the basis of their morphological structure, which was characterized by a scale pattern visible under the microscope (Sukenik and Tepper 2019; Fig. 12). The use of wool in the Southern Levant is not attested earlier than the Middle Bronze Age (Crowfoot 1960:519, 524; Shamir 2020),[8] but by the Hellenistic and Roman periods it became an essential raw material in the textile industry, alongside linen (Cleland, Davies and Llewellyn-Jones 2007:212). According to Josephus (*Jewish War* 5:331), Jerusalem-based shops specialized in this commodity. The Talmud refers to the key role that Judea played in the supply of wool: “But one may purchase from women... woolen goods in Judea and linen goods in the Galilee” (BT, *Bava Kama* 119a). Properties of wool, such as its capacity to repulse water and the possibility to spin its fibers, made it the most suitable fiber for weaving. Additionally, wool is relatively easy to prepare for weaving, unlike linen, whose fibers take quite some time to process—with certain stages even lasting several weeks (Forbes 1964:27–32; Strand 2012). Also, in contrast to linen, wool can be dyed easily due to the protein component of the fiber, which allows for better absorption of the dye than plant fibers (Brunello 1973:46; Hofenk de Graaff 2004:15). The threads in both textiles were made in the common S-spun direction, observed in wool textiles from different sites in the Levant in general (Barber 1991:65–68), and in Israel in particular, for example, in the Cave of Letters (Yadin 1963:178–182), Masada (Sheffer and Granger-Taylor 1994:164), ‘En Raḥel (Shamir 1999:92) and Mo’a (Shamir 2005:100).

Both textiles in the box are made in tabby technique and weft-faced weave, which is typical of wool textiles. It is a simple weaving method, in which each weft thread alternately

[8] Fibers extracted from the Ashalim implement, considered to be a spindle-whorl combination from the Chalcolithic period, were identified as being of animal origin; however, it remains unclear whether they were *in situ* (raw material) fibers or contaminated by animal activity within the cave.

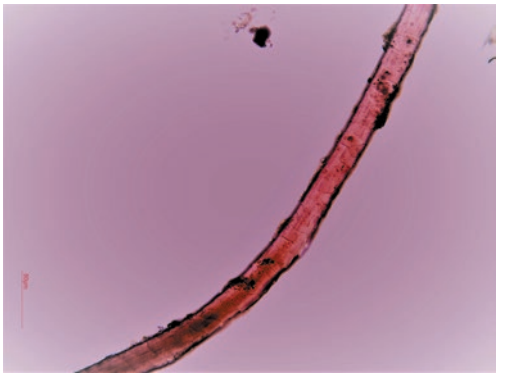

Fig. 12. Single fiber from the purple textile under a polarizing microscope (photography: N. Sukenik).

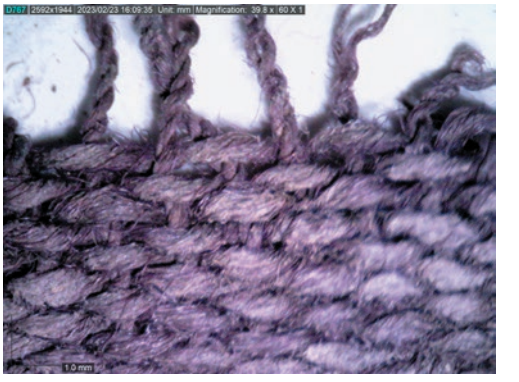

Fig. 13. Close-up view of the purple textile (DinoLite photography: N. Sukenik).

runs over and under subsequent warp threads, while the number of the weft threads is greater than the warp threads (Yadin 1963:188–192). The density of the textile that was found attached to the lid is 10/18 threads per cm, and its fiber was left in its natural color. The textile fully covers the internal surface of the lid, including its flange, and probably helped seal the box hermetically, as the lid flange was too loose (see above). One edge of the textile is folded and shows cutting marks, and it can be assumed that it is in secondary use and was cut from a larger fabric.

The purple textile is of fine quality, with a density of 10/22 threads per cm. The warp threads are made of thin-plied yarn (S-spun, Z-plied = 2sZ, to achieve a stronger thread; Fig. 13), while the weft threads are S-spun. Plied yarns were usually employed in sewing and were not common in wool weaving. Nevertheless, this method was found in a few cases, including woolen textiles from Murabba‘at Cave I, which were found by de Vaux and dated to the Roman period (Vaux 1961: Textile Nos. 1, 2, 7, 22, 29). Other examples were found in woolen twill textiles from Egypt, as in Mons Claudianus and Abu Sha‘ar (Bender Jørgensen 2018; 2020:51). The source of this technique, and whether it was employed under specific circumstances, or for specific purposes, is still debated and should be a subject for future studies.

The purple textile was folded in half and compressed inside the wood box. It shows cutting marks and was originally rectangular (approximately 12 × 22 cm; Fig. 14). On three sides it is possible to observe sloppy, non-uniform seams. Some stitches are only 1.7 cm from the textile selvedge, so close to it that we can assume that they did not exist in the original textile. Along one of the long edges, the remains of another simple purple wool textile, now faded, are still visible. This textile was folded before the two were sewn together. It is a tabby-weave textile, s/s spun in both systems and 16/16 threads per cm. Tiny remnants of the same textile can also be seen along the opposite edge of the purple textile, and along the stitches on two more sides (Fig. 14). It is highly probable that the two textiles were sewn together on three sides, leaving one side open, to create a pocket or a purse.

Fig. 14. Illustration of the open textile based on digital images and the analysis of the remains, top view (illustration: I. Lidski-Reznikov).

Fig. 15. Single fiber from stitches under a polarizing microscope (DinoLite photo: N. Sukenik).

The two fabrics are stitched together with linen fiber. This was determined by visual examination of the structure of the fiber under a light microscope, which showed a typical linen morphology of cross-section shape that divides the fiber into segments and typically narrow lumen (Sukenik and Tepper 2019; Rast-Eicher 2016:90; Fig. 15). The linen fiber derived from the stalks of the flax plant (*Linum usitatissimum* L.) was widely used in the Hellenistic period alongside wool (Sukenik and Tepper 2019:205–206; Shamir 2013); however, the mixing of linen and wool fibers in the same textile (in Hebrew: *Sha'aṭnez*) is not common in the archaeological records in Israel (Shamir 2014; 2016:58; 2017), possibly as it is forbidden according to Jewish law (Leviticus 19:19; Deuteronomy 22:11; Shamir 2014; 2017). Nevertheless, wool textiles with linen stitches were found in a few sites,

including the Cave of Letters, which was occupied by Jewish refugees (Yadin 1963:241–243, Textile No. 49–2.12; Sheffer 1993:70). At Masada, none of the textiles combined wool and linen in its weave, but there are some instances of wool cloths sewn with linen threads (Sheffer and Granger-Taylor 1994:160, 249, Table III), as in our textile. It is possible that in times of stress, such as during a war, people were less concerned with Jewish Halakha.

The Source of the Purple Color

In this study, the purple textile dye, which was considered the most prestigious hue in the Classical world, was identified. 'Tyrian purple,' a very dark bluish-red color, is regarded as representing ancient nobility, especially a king or emperor, his family and the high magistrates (Alfaro Giner 2013). Various aspects of the 'true purple' dye, which was produced primarily from species of sea mollusks of the Muricidae family, were extensively discussed in the literature (Ruscillo 2005; Koren 2006; 2018; Amar 2014; Karapanagiotis 2019; Sukenik et al. 2021). The beautiful color of this dye, the fact that it does not fade and the complex dyeing process, made it desirable by many (Reinhold 1970; Alfaro Giner 2013). Moreover, purple was one of the most important means of identifying high rank and was an important indicator of social status (Reinhold 1970; Alfaro Giner 2013). Murex dye can be identified in ancient textiles by the unique indigoid molecules that only appear in this dye: monobromoindigotin and dibromoindigotin (cf. Koren 2006; Sukenik et al. 2021).

The dye was analyzed using the HPLC-DAD (Hitachi LaChromElite Chromatography) system,[9] a method that has been widely used since 1985 for the identification of dyes used in archaeological artifacts (Wouters 1985). HPLC is considered the most appropriate method for identifying dyes in archaeological textiles since it requires only a small sample, ensuring minimal destruction. At the same time, this method is reliable, with a high degree of accuracy and separation capability, qualities which are crucial for the identification of minor compounds in archaeological textiles (Taylor 1986; Hofenk de Graaff 2004; Koren 2008; Vajanto and Bommel 2014). A minute sample was taken from the purple fiber and was run in the HPLC.[10] The analysis revealed that the purple hue was produced by a dye

[9] The dye-analysis research was undertaken by Dr. Naama Sukenik, Dr. David Iluz, Dr. Said Abu-Ghosh, Yaniv Avissar, Dr. Anna Rossin and Prof. Zohar Amar as part of the dyes research project, and will be published separately. The dye research was supported by funding from the Israel Science Foundation (Grant 1143/19; 1880/17).

[10] Two different samples were dissolved in 150 µL DMSO, and heated for 10 min at 95ºC. The liquid was then separated from the sample by centrifugation and transferred to a sterile Eppendorf 1.5 mL microtube to be processed by HPLC. Two analytical protocols were used: Protocol A for analysis of red-brown-black dyes, and Protocol B for analysis of blue dyes. The mobile phase for Protocol A consisted of a linear gradient of acetonitrile and 100mM ammonium acetate pH4: acetonitrile (9:1 v/v), with the flow rate of 1mL/min and injection volume of 25 µL. The mobile phase for Protocol B was made up of A: phosphoric acid 0.5% (w/v), B: methanol, and C: H_2O. The flow rate was held at 1 ml/min and 10 µL injections were made (for more details on the gradient elution conditions, see Sukenik et al. 2017: Table 3).

extracted from madder (*Rubia tinctorum* L.), with the main component being alizarin, which was identified in chromatograph with the typical spectrum. Madder is one of the essential dyes in the dyeing industry and among the earliest known to have been used in the dyeing craft to obtain the red color (Sukenik et al. 2017). *Rubia tinctorum* L. is a cultured perennial plant, native to the Middle East and the Mediterranean region (Cardon 2007:108). The dye, which concentrates in the long branching roots of the plant (Fig. 16), had a central role in the ancient dyeing industry in this region, used by the Egyptians, Greeks and Romans (Cardon 2007; Sukenik et al. 2016:267). Madder is one of the mordant dyes, which allows a relatively simple process of dyeing by cooking the plant in water, then adding the wool to the solution. During the dyeing process, a mordant, such as salt of aluminum (Alum), was added to fix the dye to the fiber. Madder is often mentioned in Jewish sources in laws concerning daily life, and it would seem that it was widely used in the dyeing industry (for example: Mishnah, *Shabbat* 9, 5; *Shvi'it* 7, 2). In addition to alizarin, an unknown compound, which probably contributed to the purple hue of the textile, was recorded in the chromatograph.[11] On the other hand, no indigoid compounds were detected in the chromatograph; hence, we can eliminate the murex sea snail from the list of possible dying agents for this textile. Another option that was ruled out is plant-based indigotin, like *Isatis tinctoria* L., which was used in double dyeing with madder to produce 'imitation purple.' This method was widespread and identified in many ancient purple textiles (Koren 1994; Sukenik 2016:269), but not in our case. Notable evidence of efforts to achieve a purple hue through different substitutes can be found in the Egyptian Stockholm Papyrus dated to the third century CE, which specifies various plants and insects (Caley 1927). Presumably even in the textile under discussion, an effort was made to achieve the purple shade by means other than the murex snail, but we will be able to address this issue only through further research.

Secondary Use of the Textile

The purple color, which was mostly reserved for decorative textiles such as garments, as well as the manner of sewing described above, indicate that this textile was in secondary use. This is also true for the textile on the lid, which was probably cut from a larger textile that had already gone out of use. In antiquity, intensive efforts were expended to produce even a single textile. This was an exceedingly time-consuming and labor-intensive process, which included many separate tasks, as one can appreciate from the Talmudic statement: "…and how many labors Adam had to carry out before he obtained a garment to wear! He had to shear, wash [the wool], comb it, and weave it, and then at last he obtained a garment to wear (BT *Berachot* 58a). Due to the cost of new clothes, there would have been a flourishing market for secondhand ones (Croom 2002:28; Grömer 2017; 24–25; Wild 2020). Worn or damaged garments were first patched, and when they were beyond redemption the serviceable parts were salvaged and converted into something else (Wild 2002:23). According to the Mishnah,

[11] We intend to try to identify the unknown compound by other means, such as HPLC-MS.

Fig. 16. Madder roots (photography: S. Cohen; courtesy of Prof. Z. Amar).

when a garment went out of use it was reused as a towel for cleaning (*Shabbat* 21:2), a stopper (*Parah* 19:2) or a bandage (*Shabbat* 19:2), so as to fully utilize the raw material. Similarly, we can assume that purses for carrying money could also have been made of recycled textile (Wild 2002:23). The textile analysis indicates that first a rectangular piece was cut out of a large purple fabric and sewn to another textile with linen threads to produce a pocket or purse, maybe for the coins. In the next stage, the purse was torn and compressed into the pyxis over the wool fiber that covered the coins; the textile was used as a filler or to prevent noise. The wooden pyxis would have better protected the coins than a simple fabric and was well-suited for long-term burial.

Pollen Examination of the Soil

The soil found within the box was submitted for pollen analysis.[12] The pollen assemblage recovered from this sediment was compared to the palynological spectrum of sediments that were embedded in the cave nearby and served as a control sample. The cave sediment is characterized by a relatively high pollen concentration, governed by desert elements. The predominant taxon was Chenopodiaceae (goosefoot family). From the Asteraceae

[12] The pollen analysis was conducted by Dafna Langgut and Eitan Kremer in the Laboratory of Archaeobotany and Ancient Environments, Institute of Archaeology, and The Steinhardt Museum of Natural History, Tel Aviv University. We used a pollen extraction procedure that has been successful in examining other nearby desert archaeological sediments (Langgut and Gleason 2020).

(composite family), two pollen types were identified: Asteroideae and Cichorioideae (aster-like and dandelion-like, respectively), as well as *Artemisia* (sagebrush). Members of the Brassicaceae (cabbage family), Apiaceae (parsley family) and Caryophyllaceae (pink family) were also common. In contrast, the palynological spectrum extracted from the sediments in the box is characterized by lower pollen concentrations and is dominated by Apiaceae, Euphorbiaceae (euphorbias), and Asteraceae, mostly of the *Centaurea* type (knapweeds). Common desert trees that were identified, albeit in low ratios, as part of the control sample from the cave, such as *Ziziphus* (jujube), *Tamarix* (tamarisk) and *Ricinus* (castor-oil plant), were not found inside the box. The differences between the two assemblages indicate clearly that the box was sealed elsewhere and not in the cave. In addition, the total absence of Mediterranean arboreal pollen in the sediments recovered from the box, and especially of the wind-pollinated trees *Pinus* (pine) and *Olea* (olive), which often release large quantities of pollen to the atmosphere, suggests that it was not sealed in the Mediterranean region but at a semi-desert steppe environment or in an arid, treeless landscape (Langgut et al. 2014).

The Coin Hoard

The hoard, consisting of 15 silver Ptolemaic *tetradrachms* (Fig. 15), is chronologically homogenous, spanning a very short time from 176/175 to 171/170 BCE.[13] Each coin group is discussed according to catalogue numbers. A full catalogue of the coins follows, as well as a commentary.

Coin Groups

Coin Nos. 1–3: Three specimens of the same type were struck in massive quantities by Ptolemy VI in Alexandria (best known as Svoronos 1489). The coins are undated, and they read on the reverse ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ instead of ΣΩΤΗΡΟΣ. The latest date proposed for this coin group is c. 174–157/156 BCE. However, given the chronological context of the hoard, Nos. 1–3 were most likely minted closer to the beginning of the series, in c. 174–170 BCE, apparently as part of the defensive preparations for the Sixth Syrian war. In the catalogue below, only the early date (c. 174–170 BCE) appears (Lorber 2019:15).

Coin Nos. 4, 5: Two coins of this series were discovered in the hoard. The most recent identification of the provenance of the series and its dating (Aumaître and Lorber 2021) was adopted here. The coins are imitative *tetradrachmas* bearing 'Akko–Ptolemais control marks and reading 'year 32.' Aumaître and Lorber considered that this imitative issue was

[13] All our gratitude and admiration to Catherine Lorber, who very patiently introduced us to the world of Ptolemaic coinage. We are totally indebted to her, and to Donald T. Ariel, for sharing with us new unpublished data. Special thanks go to Julian Olivier, who was the first to help us with the preliminary identifications and bibliography.

produced slightly before 175/174 BCE. These imitations do not appear in third-century BCE hoards, but only in those from the second century BCE (Lorber 2013:19). A concentration of individual coins, and a cluster of hoards containing imitative *tetradrachmas*, were found in the northern area of the Dead Sea and Jordan (Aumaître and Lorber 2021:80, Fig. 3). The authors proposed that the mint of the imitative *tetradrachmas* was in Ammanitis, Jordan. This region was under the administration of a distinguished Jewish family, the Tobiads, who supported the Ptolemies in their struggle against the Seleucids and collected the farming tax in their name. Aumaître and Lorber (2021:82, 84–85) explained that disruptive and violent events took place with the ascension to the throne of Antiochus IV around 175/174 BCE, and there was a need for money to pay the troops. This situation may have caused the production of imitative *tetradrachmas*, the prototype of which is the enormous 'year 32' issue of Ptolemy II from 'Akko (*CPE* 1/1:378, No. 649; Svoronos 775), whose minting ceased after the death of Hyrcanus, a member of the Tobiads family, in 169 BCE.

Coin No. 6: This coin was minted in Citium (Kition), Cyprus, as indicated by the control mark KI on the right upper side of the reverse. In the left field, the date 'year 6' refers to Ptolemy VI's first sole reign (176/175 BCE), as suggested by Carlen and Lorber (2018). Dating by regnal years was the usual system used in Ptolemaic coinage. In the case of Ptolemy VI, the system is more complicated. In the twelfth year of his sole reign, 170/169 BCE, this king associated his sister Cleopatra II and brother Ptolemy VIII to the throne, and a new regnal count began (years one to seven). In the seventh year of co-regency (164/163 BCE), this arrangement came to an end, and Ptolemy VI resumed his former sole reign, which was now counted as year 18.[14] Contra Carlen and Lorber's interpretation of 'year 6' as 176/175 BCE, Olivier dates this *tetradrachm* to 'year 6' of the co-regency, the equivalent to 165/164 BCE (Olivier 2012: No. 1131). Accepting his view means that coin No. 6 would be the latest in the hoard, determining the date of its deposition.

Coins Nos. 7, 8: These two *tetradrachmas* are contemporary with coin No. 6 according to the date suggested by Carlen and Lorber, 176/175 BCE; however, they follow a different system of counting which was also applied to the remaining coins found in the wooden box (see below, coins Nos. 9–15). These *tetradrachmas* are dated by an *uncertain era* classified into three phases: years 48 to 55; years 70 to 92; and c. 90s to year 117. On the basis of the incidence of mixed hoards that contain uncertain era coins together with dated Seleucid coins, Lorber was able to determine the modern equivalents of the uncertain era dates. She concluded that the uncertain era coinage ended with the death of Ptolemy VI in 145 BCE

[14] Carlen and Lorber (2018) believe that 'year 6' is equivalent to 176/175 BCE, and cite also the die study of Mørkholm and Kromann (1984:160, Nos. 20–22, obverse die A5). Moreover, Carlen and Lorber state that all coins dated to the time of the co-regency in Citium, show a symbol in the field in addition to the date and mintmark (Mørkholm and Kromann 2018:13–15), and this is not the case for the coin in our hoard.

Fig. 17. The coin hoard (photography: D. Gazit).

Fig. 17. (cont.).

(Lorber 1995/1996:256–268, and pp. 262–263 for discussion of the era coinage). This conclusion was accepted by Duyrat in her study of dies for the coinage of Aradus (Duyrat 2005:266–270). Today, while scholars agree on the closing date of the uncertain-era coinage, there is no consensus concerning when and for what purpose this era was established.

Coins Nos. 9–11: Three *tetradrachmas* of the same type as Nos. 8−10. They were struck in Cyprus in year 88 (175/174 BCE).

Coins Nos. 12, 13: Two *tetradrachmas* of the same type, struck in Cyprus in year 89 (174/173 BCE).

Coin No. 14: This coin was struck in Cyprus and reads ‘year 90’ (173/172 BCE). In the right field of the reverse there is a graffito in Aramaic letters, reading: שלמי (see *Discussion*, below).

Coin No. 15: This coin was struck in Cyprus and reads ‘year 92’ (171/170 BCE). If we accept Carlen and Lorber’s dating of Coin No. 6 (see above), this is the latest coin in the hoard, providing the *terminus post quem* for its deposition in the cave.

Catalogue

1. K47531, L117, B1321
Ptolemy VI, c. 174–170 BCE, Alexandria.
Obv.: King's diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle stg. l. on thunderbolt.
Æ, ↑, *tetradrachm*, 14.22 g, 28 mm.
Svoronos 1904:245, No. 1489; Faucher et al. 2015:205–217, Nos. 3–463; *CPE* II/1: No. 1117.

2. K47532, L117, B1322
Ptolemy VI, c. 174–170 BCE, Alexandria.
Obv.: King's diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle stg. l. on thunderbolt.
Æ, ↑, *tetradrachm*, 14.25 g, 27 mm.
Svoronos 1904:245, No. 1489; Faucher et al. 2015:205–217, Nos. 3–463; *CPE* II/1: No. 1117.

3. K47533, L117, B1323
Ptolemy VI, c. 174–170 BCE, Alexandria.
Obv.: King's diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle stg. l. on thunderbolt.
Æ, ↑, *tetradrachm*, 14.23 g, 27 mm.
Svoronos 1904:245, No. 1489; Faucher et al. 2015:205–217, Nos. 3–463; *CPE* II/1: No. 1117.

4. K47534, L117, B1324
'Akko-Ptolemais imitation, Year 32 = not long before 175/174 BCE, Jordan (Ammanitis?).
Obv.: Ptolemy I diademed head, facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle with closed wings stg. l. on thunderbolt. To l. above: Τ, below: ΛΕ; to r. above: ΑΒ; below: Θ
Æ, ↑, *tetradrachm*, 13.08 g, 27 mm.
CPE II/1: No. Am 11.1.

5. K47535, L117, B1325
'Akko-Ptolemais imitation, Year 32 = not long before 175/174 BCE, Jordan (Ammanitis?)
Obv.: Ptolemy I diademed head, facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle with closed wings stg. l. on thunderbolt.
To l. above: Τ, below: ΛΕ; to r. above: ΑΒ; below: Θ
Æ, ↑, *tetradrachm*, 14.16 g, 28 mm.
CPE II/1: No. Am 11.1.

6. K47536, L117, B1326
Ptolemy VI, Year 6 = 176/175 BCE, Kition (Cyprus).
Obv.: King’s diademed head, facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle stg. l. on thunderbolt. To l. L ϛ; to r. ΚΙ
Æ, ↑, *tetradrachm*, 14.30 g, 28 mm.
Mørkholm and Kromann 1984:160, Nos. 20–22, Pl. iv; *CPE* II/1: No. 1187.

7. K47537, L117, B1327
Era Year 87 = 176/175 BCE, Cyprus.
Obv.: King’s diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. below: ΖΠ (Ζ above Π).
Æ, ↑, *tetradrachm*, 14.25 g, 28 mm.
Carlen 2015:115–116, Nos. 9–28; *CPE* II/1: No. 1305.

8. K47538, L117, B1328
Era Year 87 = 176/175 BCE, Cyprus.
Obv.: King’s diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤ[ΗΡΟΣ] Eagle stg. on thunderbolt. To l. below: ΖΠ (Ζ above Π).
Æ, ↑, *tetradrachm*, 14.39 g, 28 mm.
Carlen 2015:115–116, Nos. 9–28; *CPE* II/1: No. 1305.

9. K47539, L117, B1329
Era Year 88 = 175/174 BCE, Cyprus.
Obv.: King’s diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. ΠΗ
Æ, ↑, *tetradrachm*, 14.40 g, 25 mm.
Svoronos 1904:175, No. 1110; Carlen 2015:116–117, Nos. 29–66; *CPE* II/1: No. 1306.

10. K47540, L117, B1330
Era Year 88 = 175/174 BCE, Cyprus.
Obv.: King’s diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. ΠΗ
Æ, ↑, *tetradrachm*, 13.93 g, 27 mm.
Svoronos 1904:175, No. 1110; Carlen 2015:116–117, Nos. 29–66; *CPE* II/1: No. 1306.

11. K47541, L117, B1331
Era Year 88 = 175/174 BCE, Cyprus.
Obv.: King’s diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. ΠΗ
Æ, ↑, *tetradrachm*, 14.37 g, 28 mm.
Svoronos 1904:175, No. 1110; Carlen 2015:116–117, Nos. 29–66; *CPE* II/1: No. 1306.

12. K47542, L117, B1332
Era Year 89 = 174/173 BCE, Cyprus.
Obv.: King's diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. ΠΘ (Θ inside Π)
Æ, ↑, *tetradrachm*, 14.20 g, 28 mm.
Svoronos 1904:176, No. 1111; Carlen 2015:117–118, Nos. 67–91; *CPE* II/1: No. 1307.

13. K47543, L117, B1333
Era Year 89 = 174/173 BCE, Cyprus.
Obv.: King's diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. ΠΘ (Θ inside Π)
Æ, ↑, *tetradrachm*, 14.14 g, 27 × 29 mm.
Svoronos 1904:176, No. 1111; Carlen 2015:117–118, Nos. 67–91; *CPE* II/1: No. 1307.

14. K47544, L117, B1334
Era Year 90 = 173/172 BCE, Cyprus.
Obv.: King's diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. ϥ, to r. graffito with Aramaic letters reading: שלמי
Æ, ↑, *tetradrachm*, 14.14 g, 26 mm.
Svoronos 1904:176, No. 1112; 197, No. 1205; Carlen 2015:118–120, Nos. 92–138; *CPE* II/1: No. 1308.

15. K47545, L117, B1335
Era Year 92 = 171/170 BCE, Cyprus.
Obv.: King's diademed head facing r.
Rev.: ΠΤΟΛΕΜΑΙΟΥ ΣΩΤΗΡΟΣ Eagle stg. on thunderbolt. To l. ΡΒ
Æ, ↑, *tetradrachm*, 14.27 g, 29 mm.
Svoronos 1904:197, No. 1208; Carlen 2015:121–122, Nos. 175–19; *CPE* II/1: No. 1312.

Commentary
Lorber (2021:314–326) divided the second-century BCE hoards in Coele-Syria and Phoenicia, which is considered a closed monetary zone, into five periods, the first of which spans the end of the Fifth Syrian War in 198 and the late 170s BCE, when no silver hoards were deposited. At that time, this closed monetary zone was inaccessible to the Attic weight standard coinage and thus, to Seleucid silver coinage (Olivier 2018; Lorber 2019), and even fresh Ptolemaic silver coinage failed to penetrate its western part (Lorber 2021:312). Only the second and third periods of Lorber's classification are relevant to this discussion.[15]

[15] The fourth period corresponds to the later 140s BCE, during the time of Alexander Balas, Demetrius II Nicator, Ptolemy VI and Jonathan, and the fifth group dates from the 140s BCE until the end of the century, with Antiochus VII, Simon and John Hycanus (see Lorber 2021:314–326).

The Wadi Murabba‘at hoard relates to the second period, the decade of the 170s BCE, at the end of which the Sixth Syrian War broke out. The hoard is very homogeneous, comprising only Ptolemaic coins ranging in date from 176/175 to 171/170 BCE, almost without gaps (only year 172/171 BCE is not represented). In terms of provenance, the Wadi Murabba‘at hoard—like several other hoards which contain imitations—originated in both sides of the northern Dead Sea, in Jordan and the Judean Desert (Aumaître and Lorber 2021:80, Fig. 3, map of hoards). In terms of contents, hoards of the second period are characterized by the following: Tobiad local imitations struck in Jordan; *tetradrachmas* dated to the second phase of the uncertain era from Cyprus; and Ptolemy VI coins from Alexandria (Svoronos 1489). Lorber also observed that hoards of this group usually contain older, third-century BCE coins that were still in circulation within the closed monetary zone of Coele-Syria and Phoenicia. However, this is not the case with our hoard, where no old Ptolemaic *tetradrachmas* were discovered. All coins are close in date and in an excellent state of preservation, reflecting a very short period in circulation (Lorber 2021:315; Ariel, forthcoming). Lorber attributed three more silver hoards to this group: one from the Jericho area (Olivier and Meadows 2017),[16] and two from Jordan, one with a closing date of 174/173 BCE (Lorber 2019:16, n. 49) and the other, with a closing date of 172/171 BCE (Lorber 2019:16, n. 50).

The third period includes Ptolemaic hoards concealed during the decade of the 160s BCE. One of the characteristics of this group is that hoards may contain fresh Ptolemaic coins that were permitted to circulate freely in the closed monetary zone of Coele-Syria, Phoenicia and Judea during the time of the Maccabees (Lorber 2021:319). Lorber cites several hoards that are related to this period. One hoard, found in the Bethlehem area in 1984, was closed in 162/161 BCE (but according to Meadows, not earlier than 162/161 BCE), and consisted of nine silver *tetradrachmas* of Ptolemy VI from Alexandria and Cyprus, and one *didrachm* of an uncertain era (Meadows 2017a; *EH* 113, 224; *CH* 8.432). Another hoard, known as the Southern Palestine hoard, surfaced on the antiquities market. It was closed in 164/163 BCE (or in the late 160s BCE, see Meadows 2017b), and included only fresh *tetradrachmas* of Ptolemy VI from Alexandria. Interestingly, two small hoards and one isolated *tetradrachm* were discovered in the excavations of a farmsteads in El‘ad (Mazor) at the foothills of Samaria. The closure date of these two hoards, which seem to have been related, is 165/164

[16] The Jericho area hoard was published by J. Olivier and A.R. Meadows (2017). The provenance of this assemblage of 46 *tetradrachmas* is unknown. Thus, its contents cannot be precisely ascertained, but it contains one coin of the ‘Akko-Ptolemais imitative issue dated to year 32 (Lorber 2021:64, No. 56). Like our hoard, the closure date is 171/170 BCE. It contained exclusively Ptolemaic coins, with a predominance of uncertain era *tetradrachmas* from Cyprus. Unlike our hoard, the Jericho hoard includes two worn coins of early Ptolemies (parcel A, Nos. 1, 2). The two other hoards from Jordan have a similar composition: a much larger number of old third-century BCE issues; coins exclusivity Ptolemaic; predominance of uncertain era *tetradrachmas* from Cyprus; and contemporary coins of Ptolemy V and VI (Lorber 2019:16).

BCE (Ariel, forthcoming). The closure date of the hoards of the third group is probably connected to the military activities of the Maccabees.

The Graffito

On the reverse of Coin No. 14, to the right of the eagle, there is a brief graffito in Aramaic letters that was scratched with a sharp tool by a non-professional hand (perhaps the owner of the hoard?) (Fig. 18). The inscription clearly includes four letters, three are clear: *shin*, *lamed* and *yod*, and one, in the third place (*mem*?), less so (see below).

On the basis of the shape of the letter י, the script can be identified as Aramaic lapidary script, resembling the inscriptions from Mt. Gerizim, which were identified by Dušek as written in Aramaic monumental script of the Hellenistic period (Dušek 2012:30–34; 163–166), and in the Relief of the Priest Philôtas, dated to 250–150 BCE (Dušek 2012:32, 172, Fig. 6). Nevertheless, no exact parallels could be found.

Fig. 18. Coin No. 14: (a) location of the Aramaic inscription (marken in red; photography: D. Gazit); (b) the Aramaic inscription, *Shalmi* (photography: Y. Asscher); (c) facsimile of the inscription (tracing: E. Klein).

Shin (ש). This letter comprises three basic strokes, written in this order: a right arm, a left down stroke that crosses the right arm and continues a little below it, and a middle one.

Lamed (ל). A vertical line, bending slightly in the middle. It seems to be written in two strokes, maybe first the lower part and then the upper, in an attempt to make it longer. We assume that the scribe meant to write a vertical stroke, bending horizontally to the left at its bottom, but forgot the last stroke. This form fits the beginning of the second century BCE.

Mem (מ). This letter was written in two strokes: a short stroke slanting from left to right, and a down stroke to the right, which bends to left at its base. It seems that the scribe may have wanted to continue it farther down but was blocked by the wing of the eagle. This letter, which is missing the stroke that cuts through the roof, resembles the letter *mem* in Mt. Gerizim Inscription No. 147 (Dušek 2012: No. 147), in Maresha Inscription No. 63 Line 1 (מטה; Eshel 2010:65–66) and in the Relief of the Priest Philôtas (Dušek 2012:32, 172, Fig. 6). Other options, less probable than *mem*, are *peh* or *kaph*, but in both letters the roof bends downward from right to left.

Yod (י). The letter is of the Aramaic lapidary script, resembling examples from Mt. Gerizim. It is written in three strokes—the first slanting down from left to right with a bend, followed by a ‘tail’ that crosses it to the bottom. Finally, a short horizontal line strikes to the left from the downward stroke. This form of the letter conforms to other Hellenistic-period inscriptions, such as those from Mt. Gerizim (Dušek 2012:32, Fig. 6).

Although the first three letters resemble the Aramaic script, considering the usage of a lapidary Aramaic form, we suggest identifying the script as lapidary Aramaic, executed by a non-professional hand. The hard metal surface may have also made writing more difficult. Based on the above, we suggest reading the name שלמי.[17]

A man by this name is mentioned in the list of the Temple servants (הַנְּתִינִים) in Nehemiah 7:48:[18] בְּנֵי שַׁלְמָי, “the sons of Shalmai.” This name is probably the short form of שלמיה, a name known for various biblical figures, e.g., שֶׁלֶמְיָה, Shelemiah (Jeremiah 37:3; see also Jeremiah 37:13; Ezra 10:39; Nehemiah 3:30; 13:13). This name is also known from epigraphic sources, among them: דליה ושלמיה בני סאבלט פחת שמרין, “Delaiah and Shelemiah sons of Sanballat governor of Samaria” (Porten and Yardeni 1986:68–71, *TAD* A4 7:29), and two people mentioned on ostraca: שלמיה בר ישוב, “Shelemia son of Jashub” (Porten and Yardeni 1993:229, *TAD* C3 15, Col. 2:24), and שלמ[יה] כהנא, “Shelem[ia] the priest”

[17] Our initial reading of this short graffito was של גד, but eventually we rejected it due to the long ‘roof’—slanting stroke in the letter ג. This stroke does not appear in any known inscriptions of the second century BCE.

[18] In some manuscripts it is written with שׁ.

(Porten and Yardeni 1993:260–267, *TAD* C3 28, Col. 7:113). The name יונתן [בן/בר ש]למיה, "Yehonat[an ben/bar She]lemia," further appears on an ossuary found inside a burial cave that was part of the necropolis of Jerusalem from the Second Temple period, dated between the first century BCE and the first century CE (Goldenberg et al. 2020).

If our reading is correct, the graffito may indicate that the coin once belonged to someone named Shalmai. The practice of scratching the owner's name on coins was common in this period (e.g., Elayi and Lemaire 1998:88; Lemaire 2003–6; Ronen 2013), and even mentioned in the Talmud: "Even if his name is written on it, he has not said anything, because a coin has no distinguishing feature" (BT, *Bava Metzia* 25b).[19]

Geographical-Historical Discussion and Conclusions

The location of the hoard in the mouth of a secluded cave in the Judean Desert, far away from any main road but relatively easily accessed from the Judean Mountains and desert fringe to its west, implies that the person who deposited the hoard in the cave came from the populated areas of Judea. This assumption is supported by results of the pollen analysis, which attested that it originated in a semidesert environment, most likely the desert fringe area, some 12–18 km west of the cave. Based on the latest coin in the hoard, its deposition date is estimated at 171/170 BCE, or slightly later. This date complies with several historical events that may have triggered the deposition of the coins in the cave.

In 170–168 BCE, the Sixth Syrian War between the Ptolemaic and Seleucid Kingdoms took place. Although most of the battles were waged in Egypt and the Sinai—and none in Coele-Syria, Phoenicia, Judea or the Judean Desert—these latter areas suffered from instability and were influenced by the various events of the war and its consequences. After Antiochus IV returned from Egypt in 169 BCE, he attacked the Jewish Temple in Jerusalem and looted its treasures (1 Maccabees 1:20–25). The ultimatum given by the Romans to Antiochus, and his second withdrawal from Egypt in 168 BCE, had direct consequences for Judea. Rumors of the king's death incited battles between the different Jewish factions in Jerusalem, led by Jason on the one hand, and by Menelaus and Lysimachus, on the other; however, these rumors turned out to be false, and Antiochus marched his army to Jerusalem to suppress the rebellion. He massacred the Jewish population, looted the Temple, destroyed the city walls and built the Acra fortress to guard the Temple. In the wake of these events,

[19] This discussion in the Talmud refers to a coin in the market, a place full of people where coins pass from one person to another frequently during commercial activity; therefore, it is stated that a mark on a coin cannot be used to identify the owner and the finder does not have to publicize the find. However, because this particular coin was discovered in a box with special features and in a secluded, unusual location, it is clear that if a Jew had found the hoard in the Second Temple period he would have had to publicize his discovery in accordance with the Jewish laws in effect at that time. In any case, it is clear that the coin/hoard did not necessarily belong to someone named Shalmai, since Shalmai may have given the coin to someone else during commercial activity.

many of the inhabitants of Jerusalem fled the city (1 Maccabees 1:29–40; 2 Maccabees 5:11–27). According to 2 Maccabees 5:27: “Judas, also known as Maccabaeus, in a group of about ten, withdrew to the mountains, where he and his men eked out a living like beasts. There they stayed, eating herbs for food, in order to keep clear of defilement.” It is quite possible that following the events of these years in Jerusalem and the instability in Judea, some of the residents of Judea fled to the nearby Judean Desert and took shelter in its caves; perhaps the hoard in question is evidence of this activity.

In 167 BCE, the situation in Judea worsened, following Antiochus IV’s decision to impose religious decrees on the Jews. This incited the Maccabean revolt against Seleucid rule. Contemporary accounts contain a few references to military actions in the Judean Desert, although most of the fighting took place along the spine of the Judean Hills and in the Judean Shephelah. The territory of Judea was small at the time, extending from Bet El in the north to Bet Ẓur in the south, and from Emmaus in the west to Jericho, the Dead Sea and the Jordan River in the east (Stern 1981:97). Settlement in the Judean Desert was extremely sparse, and the area served as a hinterland for activity along the spine of the Judean Hills.[20] Presumably, the southern portion of the Judean Desert, south of a line of latitude that passes through Bet Ẓur, was under the influence of the Idumeans, who lived along the spine of the hills, while the northern and central parts of the Judean Desert were under the influence of the Jews within the Province of Judea.

One of the few events mentioned in contemporary sources in connection with the Judean Desert took place at the start of the Hasmonean uprising, testifying that groups of people fled to desert hideouts due to the religious decrees imposed on the Jews in 167 BCE (1 Maccabees 2:29–38):

> At that time many went down to dwell in the desert, seeking justice and vindication, they and their children and their wives and their cattle, hard pressed by the persecutions. A report came to the king’s men and to the forces in Jerusalem, the City of David, that men who had violated the command of the king had gone down to the hiding places in the desert. With a large force they pursued them and, on coming upon them, they encamped and formed in battle line against them on the Sabbath day, saying to them, “Come out to us and obey the word of the king, and we shall let you live”. They, however, replied “We shall neither come out nor obey the word of the king to profane the Sabbath day!”. Accordingly, they advanced quickly upon them in battle line…They were killed with their wives, their children, and their cattle, to the number of one thousand human beings.

Schwartz and Spanier suggested that these refugees fled to the Desert of Samaria, while other scholars proposed the Judean Desert, or the Desert of Teqo‘a, as the place where this event occurred (Schwartz and Spanier 1991:257–260, nn. 22, 23, and see further references

[20] In the survey of 672 caves in the Judean Desert cliffs, only four were found to contain objects from the third or second century BCE; all four are located in the northern part of the desert.

therein); these suggestions, however, were not confirmed by the archaeological excavations in these areas. The Ptolemaic hoard from Murabba‘at Cave II may now be considered as such possible archaeological evidence.

Nevertheless, it is certainly possible that groups of Jews fled to caves in the Judean Desert on other occasions in the course of the Maccabean Revolt due to religious decrees or other military actions conducted along the spine of the Judean Hills, and especially on the southern boundary of the hills, which is close to the Murabba‘at caves. Thus, for instance, in 164 BCE, the rebels under Judah Maccabee fought a battle against Lysias and the Seleucid army at Bet Ẓur, ending in a Jewish victory (1 Maccabees 4:28–35; *Jewish Antiquities* 12:313–315). Bet Ẓur is located along the spine of the Judean Hills, on the main Jerusalem-Hebron Road, about 26 km west of the Murabba‘at caves—today a strenuous one-day walk (for identification of the site and relevant references, see Tsafrir, Di Segni and Green 1994:87–88). The route from Bet Ẓur to the desert would run along the upper tributaries of Wadi Sa‘ir or Wadi el-‘Arub, which lead from the eastern part of Bet Ẓur east to Ḥorbat Teqo‘a on the edge of the desert, and from there east to the Murabba‘at caves. Although this is not mentioned explicitly in the historical sources, residents of the nearby villages may have fled to the desert as a result of the fighting in this region and have taken shelter there until danger had passed.

Another possibility is the 162 BCE Battle of Bet Zekhariya that Judah Maccabee and his troops fought against Antiochus V and Lysias in the same region, on the southern border of Judea in the area between Bet Ẓur and Ḥorbat Bet Zekhariya (1 Maccabees 6:28–47; *Jewish Antiquities* 12:367–374). In this battle, Judah’s brother, Ele‘azar, was killed, and the Jews retreated to Jerusalem. Ḥorbat Bet Zekhariya is located about 9 km north of Bet Ẓur and 8 km southwest of Bethlehem, in the western part of Gush ‘Eẓyon (for identification of the site and relevant references, see Tsafrir, Di Segni and Green 1994:87). The distance from this area to the Murabba‘at caves, is about 25 km, which can be accomplished in a one-day strenuous walk along the upper tributaries of Naḥal Teqo‘a. Perhaps some of the Jewish fighters, or villagers from the area, fled to the desert. However, as the sources do not explicitly mention a flight of refugees or rebels in either of the these two events, and given the relatively long distance between these sites and the desert, and the fact that the battles occurred six–eight years after the mint of the latest coin in the hoard, it seems unlikely that these events led to the hiding of the coin-hoard in Murabba‘at Cave II.

Later, between 160 and 157 BCE, after the death of Judah Maccabee, the rebels’ activity moved from the Judean Shephelah and the spine of the Judean Hills to Transjordan and the Judean Desert fringe, especially the Desert of Teqo‘a, where the Murabba‘at caves are located.

After the Battle of Elasa in 160 BCE, the Seleucid general Bacchides attempted to capture Judah Maccabee’s surviving brothers, bringing the revolt against Seleucid rule to its final end. Jonathan and Simon fled with their loyalists to the Desert of Teqo‘a, to a place known as the ‘Well (or pool) of Asphar.’ Jonathan then sent his brother Johanan Gaddi to Transjordan to hand over the rebels’ abundant property to their Nabatean Arab allies for

safekeeping. While on this mission, Johanan encountered a tribe of nomads, the Jambrites, who lived in the vicinity of Madaba; they murdered Johanan and seized his goods. Jonathan and Simon responded by taking revenge on this tribe in the Madaba region (1 Maccabees 9:33–43; *Jewish Antiquities* 13:8–11, 18–21). Scholars generally identify the "well of Asphar" with Khirbat Bir ez-Zaferân, on the edge of the desert, 5.5 km south of Ḥorbat Teqo‘a and 18 km west of the Murabba‘at caves, at the head of the upper tributaries of Naḥal ‘Arugot (Abel 1925:196–197; Vilnay 1976:257). The most logical way to reach the Madaba region in Transjordan from the "well of Asphar" is to traverse the Judean Desert to the western shore of the Dead Sea, cross the Jordan where it flows into the Dead Sea, and from there continue east toward Madaba. In this case, Johanan had to go north from the "well of Asphar" via the upper tributaries of Naḥal ‘Arugot to the area of Ḥorbat Teqo‘a, and from there take the path east through the Judean Desert down to the Dead Sea shore via Nukb Trâbeh. This route passes next to the Murabba‘at caves, which can be easily reached on a one-day walk from the "well of Asphar" (see Fig. 2). Although this event occurred some ten years after the minting of the latest coin in the hoard, given the location of the cave on the fringe of the Desert of Teqo‘a, we may suggest, with due caution, that this event too is a possible candidate for the deposition of the hoard in the cave. If this assumption is correct, Johanan and his troops may have camped at the entrance to Murabba‘at Cave II on the first night of their journey to Madaba, when some unforeseen event—perhaps an attack by local nomads—compelled Johanan, or one of his men, to hide the hoard of silver coins at the bottom of the entrance shaft leading to the interior of the cave.

Another documented event that took place in the Desert of Teqo‘a was the Battle of Bet Bassi. Based on historical-geographical data, this event may have also triggered the deposition of the hoard in the cave. The battle was fought in 157/156 BCE, in and around Bet Bassi, identified with Khirbat Beit Bassa, 6.5 km northeast of Teqo‘a and 2 km southeast of Bethlehem (Abel 1925:212–215). According to 1 Maccabees, in that year Bacchides returned to Judea, intending to take Jonathan and his supporters by surprise and capture them. However, Jonathan discovered the plot and foiled it. He rebuilt Bet Bassi on the edge of the desert and entrenched himself there. Bacchides laid siege to the place for a long time, but Jonathan placed Simon in charge, while he harassed the Seleucid troops from the outside. Jonathan headed to the desert, where he joined forces with two nomadic tribes, the Odomera and the Phasironites, who helped him fight Bacchides' troops (for the battle and its stages, see Ilan and Amit 1986; see also Rappaport 2004:245, n. 12). Meanwhile, Simon launched an attack from Bet Bassi and set fire to the siege engines. The battle ended with a Hasmonean victory, a de-facto recognition of Jonathan's power, and an agreement that he could return to Judea and be based in Machmas (1 Maccabees 9:58–73). Although these events occurred in the Desert of Teqo‘a, the hoard could have been hidden in Murabba‘at Cave II during this campaign; it is somewhat unlikely, however, especially since most of the coins in the hoard are dated to the 170s BCE, whereas the battle took place in the mid-150s BCE, i.e., the battle was later than the probable date of deposition of the hoard.

To sum up, the period between 170–160 BCE was extremely turbulent in Judea, which underwent several battles and armed conflicts, mostly during the Maccabean Revolt and the events that led to it. All the abovementioned events may have led to the concealment of the hoard in Murabba‘at Cave II. We consider the conflicts that took place in Judea during the Sixth Syrian War and the first few years of the Maccabean Revolt more appropriate to have served as the background for the deposition of the hoard rather than the events from the mid-160s and beginning of the 150s BCE; however, as of yet, no clearcut answer can be provided.

The hoard of Murabba‘at cave II is unique. Typologically, it constitutes a typical example of an emergency hoard (see Bijovsky and Kudish-Vashdi, this volume), and it is the first-ever direct archaeological evidence that the Judean Desert caves were used by rebels, or refugees, not only during the First Jewish Revolt or the Bar Kokhba Revolt, but even earlier, during the Maccabean Revolt.

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