Wooden Objects from the Colt Collection – Shivta

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Twenty-one wooden artifacts and artifact fragments were found among the Colt collection from Shivta. While only a few of the objects were complete, and others were broken or in a very poor state of preservation, we were nonetheless able to interpret their functions. Each object was studied along three aspects: identification of the object; determination of the taxonomic classification (species/genus) of the tree used based on its wood anatomy; and characterization of the technology used in its production.

The Objects

Objects Used for Manufacturing Textiles

1. Spindle whorl (Inv. no. 1955-1104) (Fig. 1.1)
Spindle whorl turned on a lathe in the face direction. Typical traces of turning can easily be seen on the item, including three decorative grooves on the front and one decorative groove on the side. Two nibs located on the back, 12 and 15 mm from the center, are the remains of the points of the drive center operated for turning. Also, the wood used to produce the whorl was turned on the lathe apparently while still unseasoned, causing it to become slightly oval as it dried out over time. Compared to typical wooden whorls, this whorl is large and heavy (18.4 gr) and the hole for the stick is likewise larger than average (D 8 mm). Therefore, it is possible that the whorl in question was used for spinning thick yarn or for plying (Barber 1991; Langgut et al. 2016). The item was prepared from Capparis decidua (karīra), which grows in the Negev Desert and the Dead Sea Valley. Its measurements are: D 54-56 mm; H 11.5 mm.

2. Spindle whorl (Inv. no. 1955-1118) (Fig. 1.2)
A large spindle whorl in a poor state of preservation, relatively lightweight (3.2 gr). The whorl was turned on the lathe with its fibers oriented parallel to the lathe axis. Consequently, the whorl cracked
Fig. 1: Objects used for manufacturing textiles.
1.1: Spindle whorl (Inv. no. 1955-1104); 1.2: Spindle whorl (Inv. no. 1955-1118); 1.3: Spindle whorl (Inv. no. 1955-1106);
1.4: Reel (Inv. no. 1955-1112); 1.5: Reel (Inv. no. 47-4667).
(photo by S. Flit; drawing by Y. Gottlieb, and I. Ben-Ezra).
along the rays when the wood dried. The item was prepared from *Quercus* sp. (oak). Due to its poor state of preservation we were unable to identify it to species. The item, or its raw material, was probably brought from the Mediterranean vegetation zone and therefore may point to trade relations with northern regions. The item’s measurements are: D 40 mm; H 13.4 mm; D hole: 5 mm.

3. Spindle whorl (Inv. no. 1955-1106) (Fig. 1.3)

The whorl was turned on a lathe; the fibers are perpendicular to the lathe axis. Three tiny holes at the bottom are traces of the drive center. The whorl is relatively large, medium in weight (8.5 gr), and was made of *Cedrus libani* (cedar of Lebanon), a tree that is not native to Israel. During Classical periods, cedar was imported from northern regions for monumental buildings and prestige crafts (Liphshitz 2007; Roth *et al.* in press; Benzaquen *et al.* in press). Its measurements are: D 48 mm; H 13.5 mm; D hole 6.5 mm.

All three whorls found in Shivta are of the flat type with rounded upper edge. Eleven whorls were found in Byzantine Nessana, seven of which were of the flat type. Therefore this type seems to have been favored in Byzantine sites of the Negev.³

4. Reel (Inv. no. 1955-1112) (Fig. 1.4)

A large wooden disc worked on a lathe in the face direction. The groove has a triangular cut extending across the width of the reel. The front (upper part) of the reel is decorated in a step pattern. A scar and two points located in the middle of the reel, indicating the position of the drive center, bear evidence of the production process. The backside of the reel is cut straight and has no decorations. The item was prepared from *Buxus sempervirens* (boxwood), which is a tree not native to the southern Levant. In antiquity it was mostly used for creating small and delicate objects that either needed to be strong (*B. sempervirens* has a basic density of 0.82 gr/cm³; Crivellaro and Schweingruber 2013: 189) or required fine workmanship, such as lice combs. The qualities of the wood were noted by Classical authors (such as Theophrastus, Virgil and Pliny the Elder; see Roth *et al.* in press and references therein), particularly with regard to its utility in the preparation of luxury wood items. The reel measurements are: D 29 mm; Th 15 mm; depth of groove 4 mm.

5. Reel (Inv. no. 47-4667) (Fig. 1.5)

An almost complete reel, produced by turning on a lathe in the face direction. Traces of the turning process are visible all over the item, including the symmetrical decoration, the sign of the pivot on one side of the reel, and clear signs of a drive center at the back of the reel. Due to the reel’s delicate condition, tissues could not be sampled for anatomical identification of the wood species. The reel measurements are: D 45 mm; Th 9.5 mm, depth of groove 5.5 mm.
6. Reel (Inv. no. 47-4666) (Fig. 2.1)
A finely decorated oval reel produced on a lathe. The reel was turned in the face direction. Traces of turning are clearly seen all over the item, and in particular at the location of the lathe’s pivot. The reel is cracked along its fibers due to shrinking that occurred after the item was turned. This shrinking is also the reason for the oval shape of the reel, which accounts for the 9.5% difference between the two diametrical axes. Such shrinkage along the tangential direction is typical of wood that was worked while being heavily moistened and dried later. In this case as well, due to the object’s delicate condition, the wood could not be identified by its anatomy. The reel measurements are: D 42-46 mm; Th 13 mm; depth of groove 8 mm.

Ten other wooden reels of the same type have been found in Israel (Sitry 2006, Vol. A: 125-126; Vol. B 143-145). Among them, four from the Byzantine period were found by Colt in Nessana, and others were found from the Roman period at Masada and Moyat ‘Awad. Similar objects from the New Kingdom were found in Egypt; They were made of various materials – wood, ceramics and faience (Sitry 2006, Vol. A: 125).

7. Button (Inv. no. 1955-1113) (Fig. 2.2)
A small worked object. Its bottom is flat and its face and sides were hand-whittled using a simple knife. The button was drilled through from one side, almost perfectly in the center, and then was drilled again on its front side to create a shallow socket 9 mm in diameter. Fastening buttons were used for garments in the Classical world beginning in the sixth century BCE (Elderkin 1928: 336). There are two major types of fastening buttons: The popular variety was a round, hemispherical button with a centered hole,4 while the other is long, with a circumferential groove in the middle.

Four wooden fastening buttons of the second type (including the one presented in this study) were unearthed in Israel. Three of them belong to the Roman period – one from ‘Ein Rachel and two from Wadi Muraba’at – have a circumferential groove, while our button is unique because it combines features from both types,5 and it was prepared from the luxurious imported tree Buxus sempervirens (see more above, No. 4). Similar buttons made of bones from the Roman/Byzantine periods were found in Caesarea Maritima, Dor, Kastra (Ayalon 2003: 63)6 and in Tel Far’a South from the tenth-ninth centuries BCE (Petrie 1930: Pl. XL No. 498). A parallel fastening button with a central hole made of bone, probably from the Byzantine period, was found in Corinth (Davidson 1952: 177-178, Pl. 79, No. 1274), while five other finely worked wooden buttons from the same site and period have a circumferential groove (ibid.: 302, Pl. 124, No. 2589). The button measurements are: L 60 mm; W (max) 10 mm; Th (max) 14 mm; D hole 5 mm.
Cylindrical Boxes (Pyxides)

8. Lid to a cylindrical box (Inv. no. 1955-1103) (Fig. 3.1)

A conical fragment of wood worked on a lathe, its fibers parallel to the lathe’s axis. (Fig. 3.1). The item is decorated with shallow grooves at its top while other traces of turning are visible between the grooves. The bottom has a triangular-cut recess, creating a lip that overlaps a tongue on the outer side of the wall of the box. This system of covering is typical of small wooden pyxis of type C, which could hold a glass container (Sitry 2006, Vol. A: 83; Vol. B: Pl. 43; Harden 1936: 183, Pl. VI, No. 512). Similar wooden items from the Roman period were found in Masada, ‘Ein Gedi, Wadi Muraba’at and Moyat ‘Awad (Sitry 2006, Vol B: 174). The item was prepared from Moringa peregrina (ben tree), a relatively rare Sudanian (tropical) tree that grows mainly in the Dead Sea region. Its measurements are: D 61 mm, H 21 mm.
9. Cover for a cylindrical box? (Inv. no. 47-4713) (Fig. 3.2)

A worked disc with a decorated conical top. The bottom is flat. The item is reminiscent of type A pyxis covers, in which the cover sits on a step carved into the inner side of the box wall (Sitry 2006, Vol. A: 81). Similar wooden items from the Roman period that have a centered projection designed for ease of grasping were found in ‘Ein Gedi, Masada, Moyat ‘Awad and the Cave of Horror. The item was made of *Tamarix* sp. (tamarisk), a common desert tree in the vicinity of Shivta. Its measurements are: D 37.5 mm; H 12.5 mm.

**Parts of Furniture and Joints (Fig. 4.1)**

10. Doorframe (Inv. no. 1955-1109)

A board used as a doorframe for a small, built-in niche. The board is the lower part of the frame. It includes the joint, which would have been attached to the vertical board, as well as a socket that served as a hinge for the door. The exact type of the joint is not clear due to the poor preservation of the board. It might be a front-mitered, double mortise-and-tenon joint (Freedman 1947: Fig 48; Kidron 1966: 29) or a simple, diagonal overlap joint. The joint was diagonally cut at a perfect 45° angle. The board is poorly decorated, with sloppy grooves sawed into it and chipped along its length. To the left of the inner side of the board is a truncated conical socket worked as a vertical door hinge. It is 30 mm deep and its opening is 24 mm in diameter. The rim of the socket is raised 5 mm above the surface to ensure a suitable gap between the door and the frame. The joint itself is not at the end.
Fig. 4: Parts of furniture and joints.
4.1: Doorframe (Inv. no. 1955-1109); 4.2: Thin, decorated board (Inv. no. 1955-1101); 4.3: Round frame (Inv. no. 1955-1102).
(photo by S. Flit; drawing by Y. Gottlieb, and I. Ben-Ezra).
of the board as expected, but a little farther inside, leaving a projection of about 60 mm from the joint to the edge of the frame.

The survey of Shivta revealed about 170 wealthy dwellings with niches built into the walls (Hirschfeld 2003: 402-403). In a field study recently conducted by one of the authors (YS), dozens of wall niches of two types were counted. The small ones were usually located high on the wall and were probably used for lighting. The larger niches, intended for storage, are about 800 mm high and 600 mm wide with depths of up to 600 mm. These niches include grooves in both sides that allow the insertion of a wooden shelf. Each niche was also seen to have a small depression in all four corners. As the projection of our worked piece fits the average size of the depressions, we believe that these projections were designed to affix a frame of a wooden door to the wall. Wall niches were common in typical ancient local houses (Hirschfeld 1987: 144). They were usually equipped with a wooden shelf and had a wooden door that could be also locked. The item was made of *Tamarix* sp., a common desert tree in the vicinity of Shivta and practically ubiquitous within many of Israel’s vegetation zones. Its measurements are: L 230 mm; W 85 mm, Th 20 mm.

11. Thin decorated board (Inv. no. 1955-1101) (Fig. 4.2)
A board decorated on the front by well-executed straight grooves. The lower side is concave while the upper side is straight. The back side of the board reveals traces of planing. The board has two holes bored through it so that it could be fastened with nails to furniture. The holes are 5 mm in diameter, each widening at the front to 12 mm to fit the nail head. One of the holes still holds part of an iron nail. The item was made of *Ziziphus* sp. (jujube) and its measurements are: L 310 mm; W 50 mm; Th 16 mm.

12. Round frame (Inv. no. 1955-1102) (Fig. 4.3)
A board cut into a curved arch, one of six similar boards that completes a perfect circle of about 560 mm in diameter. Both sides of the board have a diagonal cut of 155°, each of which would probably fit into the next board, which would have been cut at 25°, an angle that completes to 180° so as to follow the precise contour of the round frame. The boards were fastened to each other by means of perforating dowels, of which two survived. The board was well worked and finished on the front. The back shows traces of gentle sawing, but the inner and outer sides were not finished after being sawed. Though we suggest that this object was part of a medallion frame, its function still requires further study. It was made of *Fagus* sp. (beech), a genus of tree that is not native to the southern Levant and was probably brought to Shivta from the northern Mediterranean regions. The item's measurements are: W 25.4 mm; Th 18.5-20.0 mm.
13. Flat decorated board (Inv. no. 1955-1110) (Fig. 5.1)
A board broken on all sides, decorated on the front by grooves, similar to those in item No. 14. The board was made from the luxurious imported cedar of Lebanon (*Cedrus libani*) (Liphschitz 2007; Roth *et al.* in press), and its measurements are: L 270 mm; W 80 mm; Th 10.5 mm.

14. Thin-worked board (Inv. no. 1955-1108) (Fig. 5.2)
A broken board, worked along its front by sawed grooves. At one of its sides is a 5-mm, step-like reduction, with no evidence of a panel. The item might have been used as a small frame or a furniture decoration. This item was prepared from *Cupressus sempervirens* (Italian cypress), a member of the Mediterranean vegetation zone in Israel. During the Classical periods, cypress wood was used for a variety of purposes, including the manufacturing of boxes, coffins, furniture and for carving images (e.g., Meiggs 1982). The qualities of Italian cypress timber in the context of woodworking were specifically addressed by authors of the Classical periods. Theophrastus described this tree as the only wood able to take a fine polish and that, for this reason, it was used for making valuable objects (*Hist. Pl.* 5.4.2). Pliny the Elder mentions that this conifer tree is resistant to rot and woodworms (*HN* 16.81.223). The measurements of the item are: L 275 mm; W 25 mm; Th 17 mm.

15. Worked board (Inv. no. 1955-1111) (Fig. 5.3)
A broken board decorated on its front by sawed cuts. Traces of sawing and chipping by chisel were also recognized. Abnormal fiber growth is observed at one point along the board, while at another point the bud of a branch can be seen. Therefore, it seems that the board originated from a knotty part of the tree. As in the case of the previous item, this item as well was made of *Cupressus sempervirens* wood. Its measurements are: L 220 mm; W 15 mm; Th 6.7-7.0 mm.

16. Joint (Inv. no. 1955-1114) (Fig. 5.4)
Part of a frame joint based on mitered mortise and tenon system, 32 mm in width. The front is cut precisely at a 45° angle. The thickness of the tenon is 7 mm and the thicknesses of the two mortises are 6 mm and 23 mm (Pl. 5.1 and 5.1/a). The other (missing) board involved in the joint would have been designed as the negative form of the first board (Pl. 5.1/b), to complete a double tenon and mortise front-angled frame joint¹² (Kidron 1966: 8 and Fig. 75; Flocken and Walkeling 1979: 127-128, Fig. 280). Such a complicated hidden joint is designed to be strong and stable while still displaying a fine appearance. The front is decorated with grooves made by sawing, very similar to the technique we noticed in other items. The item was made of the common desert tree *Tamarix* sp.
Fig. 5: Parts of furniture and joints – continued.
5.1: Flat decorated board (Inv. no. 1955-1110); 5.2: Narrow-worked board (Inv. no. 1955-1108); 5.3: Worked board (Inv. no. 1955-1111);
5.4: Joint (Inv. no. 1955-1114); 5.5: Thin slat (Inv. no. 1955-1107).
(photo by S. Flit; drawing by Y. Gottlieb, and I. Ben-Ezra).
17. Thin slat (Inv. no. 1955-1107) (Fig. 5.5)
Small, thin wooden slat with two holes probably used in a secured slat joint in a very delicate item. The slat is very thin, and therefore might have fit into a narrow slit made by a suitable sawblade. The two holes serve to receive two perforating dowels to secure the joint. The item was prepared from the luxurious imported tree *Buxus sempervirens*. Its measurements are: L 46 mm; W 15 mm; Th 2 mm; D holes 4 mm.

**Miscellaneous**

18. Bolt case? (Inv. no. 1955-1115) (Fig. 6.1)
This item was probably reused, thereby changing its original shape. On one side there is a perforated hole about 7 mm in diameter, while a damaged hole is symmetrically located on the opposite side. If our reconstruction is correct, this item seems to resemble a bolt case, which would be nailed to a doorpost to receive the bolt of an ancient wooden lock. Similar items of the same locking system, dated to the Roman period, were found at Moyat ‘Awad (Sitry 2014: 55-56) and in Khirbet Qumran (Sitry and Lev-Yadun forthcoming). This locking technology was widespread throughout Roman Egypt (Petrie 1917: 59 Pl. LXXVI). A few locking systems of the same type dating to the third century CE were also discovered in Karanis, Egypt (Gazda 2004: 24 Fig. 38; Wilfong 2014: 78-80). The item was prepared from the prestigious imported timber *Cedrus libani* and its measurements are: L 105 mm; W 36 mm; Th 35 mm.

19-20. Two unidentified thin round objects (Inv. nos. 1955-1116 and 1955-1117) (Figs. 6.2, 6.3)
Two fragments of round, thin objects. Unfortunately, both items are very small and lack their centers, making it impossible to identify their function (Figs. 6.2, 6.3). As both items were made of *Cupressus sempervirens* and are approximately the same size, we believe that they operated together as a pair. Both items were turned on a lathe in the face direction and are slightly concave on both sides. They may have been used as wheels for a child’s toy. Their measurements are: D 115 mm and 116 mm; W 8 and 10 mm.

21. Raw material (Inv. no. 1955-1105) (Fig. 6.4).
A trapezoidal piece of wood taken from the trunk of a *Tamarix* sp. with a diameter of at least 150 cm. The piece has clear traces of saw cuts on all sides, a fact that supports our suggestion that it is unworked material. Its measurements are: L 107 mm; W(a) 64-79 mm; W(b) 36-42 mm; Th 43-45 mm; volume ~250 cm$^3$; Wt 140 gr; Specific gravity 0.55.
Fig. 6: Various.
6.1: Bolt case? (Inv. no. 1955-1115); 6.2 and 6.3: Two unidentified thin, round objects (Inv. nos. 1955-1116 and 1955-1117);
6.4: Raw material (Inv. no. 1955-1105).
(photograph by S. Flit; drawing by Y. Gottlieb, and I. Ben-Ezra).
Discussion and Summary

The wooden objects discussed here came from a random group whose exact context within the site is uncertain (see Tepper, this volume). Therefore they cannot be discussed as a coherent assemblage. Despite this limitation, the objects nonetheless reflect a typical assemblage of a site of that period, meaning a mixture of household craft and daily use objects.

Two unique objects should be highlighted: a fragment of a niche frame to a door (No. 10) and a curved-cut board belonging to a round frame (No. 12), which may have been used for a portable icon. It is also interesting to acknowledge the simple and strictly austere decorative style of most of the furniture fragments. It is typical of local homemade, unprofessional craftsmanship, a suggestion that is in accordance with the mixture of wood species used, as presented in this study based on the dendroarchaeological investigation. Some small furniture fragments (Nos. 13, 14 and 15) may have originated from the same object, as their decoration is identical.

As for the carpentry, it is quite easy to identify a mixture of both high-level woodworking technology, such as the use of a half-hidden joint (No. 16) and the turning in face direction, alongside poorer-quality craftsmanship, as is seen in some of the careless decorations (Nos. 10, 13, 14 and 15). This is a common phenomenon at many sites (Sitry 2012: 325, 2014: 41), as is the use of varied timber species and qualities of wood. The use of local desert species, such as tamarisk, and the occurrence of a piece of tamarisk raw material on site, indicate the existence of a local carpenter’s workshop. A third of the assemblage is composed of Mediterranean species native to Israel (cypress and oak) while another third is mainly composed of luxurious imported timber (cedar, boxwood and beech). Taken altogether, the assemblage therefore seems to indicate a relatively complex and coordinated timber trade with Shivta during the Byzantine period.

Acknowledgments

We wish to thank Dr. Yotam Tepper from the University of Haifa for introducing us to the Colt wood collection and to Dr. Naama Sukenik from the Israel Antiquities Authority for gathering the items and preparing them for our investigation. Mordechay Benzaquen and Mark Cavanagh from the Laboratory of Archaeobotany and Ancient Environments, Institute of Archaeology, Tel Aviv University, are acknowledged for wood anatomy identification. Thanks also to Sasha Flit for photography and Yulia Gottlieb and Itamar Ben-Ezra for drawing the items (Institute of Archaeology, Tel Aviv University). Dr. Dafna Langgut acknowledges the support of the Israel Science Foundation grant No. 2141/15.
Notes

1. The work piece was placed on the lathe with its fibers perpendicular to the lathe axis. The direction of turning depended on a few parameters, such as the size, shape and function of the object. It may teach us about the professional skills of the craftsman.

2. In the case of items prepared from imported trees, it is not clear whether the raw material or the object itself was brought to the site.


4. This type is often incorrectly identified as whorl.


6. For similar bone objects outside of Israel see Ayalon 2003: 63.

7. Some houses have 2 to 3 niches; niches seems to have been the common means of storage in all houses at Shivta.

8. The measurements of the depressions vary from one to the other, but the average is 70-80 mm in height, 30-60 mm in width and a depth ranging from 30 to 80 mm.

9. Most niches in Shivta had one shelf but we found at least two niches that had three shelves. Niches with wooden shelves were also found in Nessana (Colt 1962: 39, Pl. VIII).

10. Niches with wooden doors found in Jerusalem (Geva 2006: 48-51) and other sites (Hirschfeld 1987: 144). A small niche with its contents and remnants of a wooden door were found in Herculaneum (Mols 1999: 212-213).

11. It should be noted that although several species of Tamarix exist in Israel, their similarities both anatomically and biologically rendered identification at the species level difficult.

12. A joint suitable to create a frame of both narrow and thin wood boards. The front is mitered to maintain a fine look but the tenon and mortise behind it ensure its strength. See Fig. 5.4.

13. For details about the locking system see Sitry 2014: 55-56.


15. The size of the trunk was able to be estimated due to the identification of the pit location and the yearly rings.

Primary Sources

References


 המחקר הזה עוסק ביעדים ושחחים Reached בראשית תקופת הקדום של כל אתר מרכזי, ו俱합니다
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 מחירים יקרים בברית logically, שלוש או ארבע akh בעתינו חלב התמנון חללם בין
 באראם, כנון בחר את, אוות המאסר ברוקס משימי מימוני מיצוגי מימי מציאת (אשכנז, נהга הלוב
 או שתייה). היות שעכון של המאסר ממעטים ביארכט המחודש עד המתנשא והפעוטות ל久しぶり
 בושל הגיוון поскנותמי הגה (שימים בעיגון מחיריםיהם ולצומח מימי), הם מציינים כי
 חלוק מחירים inducד לאטר מפעוט קפר. הואמכים עדוע מאיתכמס כדי מסתכל
 בעד בפריים עם融创 רכוב לכל תראה עליד נגר מחירים. המיתוגות תומך תנועה עליigious פיסת אשלי
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