



Endnotes for *Home Construction in Jesus' World*

Fall 2015 *Bible and Spade*

¹ Yizhar Hirschfeld, *The Palestinian Dwelling In the Roman-Byzantine Period* (Jerusalem: Franciscan Printing Press, 1995), 118.

² Areas such as the Trans-Jordan and the Mediterranean plain, where stones were scarce, used a few courses of stones for a foundation and then subsequent courses were built using mud bricks. This type of construction lacked durability and few houses have survived with the exception of the portions left buried. Mud bricks that were baked as opposed to being sun dried did survive much longer.

³ Ronny Reich, "Building Materials and Architectural Elements in Ancient Israel," in *The Architecture of Ancient Israel from the Prehistoric to the Persian Periods*, ed. Aharon Kempinski and Ronny Reich (Jerusalem: Israel Exploration Society, 1992), 1–16 at 1, 5.

⁴ Hirschfeld, *Palestinian Dwelling*, 120; T. Canaan, *The Palestinian Arab House Its Architecture and Folklore* (Jerusalem, Syrian Orphanage Press, 1933), 22. Canaan's work was originally published in two parts in *JPOS* 12 (1932): 223–47; idem, *JPOS* 13 (1933): 1–83.

⁵ It is very hard to distinguish silos from cisterns in this region of Israel. The presence of cisterns lined with lime-based plaster does not always mean that other "silos" were not used for water storage. Lawrence Stager, "The Archaeology of the Family in Ancient Israel," *BASOR* 260 (1985): 1–36 at 10, notes that at nearby Et-Tell and Raddana cisterns were unlined "because the bedrock of this region—Cenomanian limestone intercalated with chalks and marls—is impermeable." Stager (10) points out that lime-based plaster on cistern walls appears in the archaeological record as early as the Late Bronze Age as evidenced at Hazor and Taanach.

⁶ Cf. also comments by Gabriel Horowitz, "Town Planning of Hellenistic Marisa," *PEQ* 112, no. 2 (1980): 93–111 at 94.

⁷ Reich, "Building Materials," 1, points out that building in ancient Israel often depended on the owner's "technical and organizational ability."

⁸ Hirschfeld, *Palestinian Dwelling*, 230.

⁹ *Ibid.*, 113–15.

¹⁰ On this topic see part 2 of this article in the next issue of *Bible and Spade*.

¹¹ *Ibid.*, 289.

¹² *Ibid.*, 117.

¹³ This design was typical of the Hellenistic and Roman periods. For comments on the Hellenistic period, see Horowitz, "Town Planning," 107–12. Horowitz (108) notes that the Hellenistic house, the four-room Israelite home, and the Canaanite house were all variants of the same central courtyard plan. Horowitz concludes that at Marisa, the basic town architecture (including homes) followed eastern (i.e., Israelite and earlier) construction patterns.

¹⁴ Hirschfeld, *Palestinian Dwelling*, 120.

¹⁵ Ibid., 117, 120. Canaan, *The Palestinian Arab House*, 25–26, notes that because bedrock is close to the surface in the hill country, foundation trenches are usually shallow. On the other hand, in the old city of Jerusalem, these trenches can be 5–10 meters deep. Stager, “Archaeology of the Family,” 4, notes that the average depth of top soil in the highland is 0.5 m.

¹⁶ For different types of foundations see, Ehud Netzer, “Massive Structures: Processes in Construction and Deterioration,” in *The Architecture of Ancient Israel from the Prehistoric to the Persian Periods*, ed. Aharon Kempinski and Ronny Reich (Jerusalem: Israel Exploration Society, 1992), 17–27 at 17–20.

¹⁷ Canaan, *The Palestinian Arab House*, 26. During the Byzantine period the fill between the courses was made of a lime-based mortar which would last for centuries as opposed to the mud-based fill/core which quickly deteriorated when exposed to the elements (cf. Hirschfeld, *Palestinian Dwelling*, 234).

¹⁸ Canaan, *The Palestinian Arab House*, 27.

¹⁹ Netzer, “Massive Structures,” 21.

²⁰ See more Ibid., 21–22.

²¹ Of course the cornerstones are the most important part of the wall because they give stability to the weakest part of the house. Cf. Canaan, *The Palestinian Arab House*, 30; Netzer, “Massive Structures,” 22–23. See also their use in the Bible, Matt 21:42; Acts 4:11; 1 Peter 2:6; Eph 2:20; Ps 118:22; Isa 28:16.

²² Reich, “Building Materials,” 1–2.

²³ Ibid., 1. Other than several *mizzi yahudi* limestone socket stones found at the site, this is the only piece of clearly worked *mizzi yahudi* limestone that we have found to date.

²⁴ Ibid., 4. See further, A. C. Dickie, “Stone Dressing of Jerusalem, Past and Present,” *Palestine Exploration Fund, Quarterly Statement* (1897): 61–67.

²⁵ Canaan, *The Palestinian Arab House*, 28. Hirschfeld, *Palestinian Dwelling*, 121, 291, notes the use of both dressed ashlar and roughly hammered field stones. At Maqatir, very few worked stones have been found in walls that remain. Any stones that do show evidence of working appear as thresholds or possibly at door openings.

²⁶ This mixture of topsoil and cobbles is known later as *djabsheh* (Arabic) or *debesh* (Hebrew) and usually consisted of lime/clay mortar and undressed stones. Earlier construction practices involved undressed stones being bonded with a weak mud-based mortar (Canaan, *The Palestinian Arab House*, 73). Maqatir has a high level of clay concentration in its topsoil and makes for an excellent mortar material.

²⁷ Canaan, *The Palestinian Arab House*, 27, notes however, that once this mortar is exposed to the elements it loses its bonding qualities. Therefore, yearly parging with mud mortar was required.

²⁸ Ibid., 31.

²⁹ Ibid., 29.

³⁰ Hirschfeld, *Palestinian Dwelling*, 121. Horowitz, “Town Planning,” 99, notes that this pattern of bricks was found on one of the exterior walls at Hellenistic-era Marisa.

³¹ During the 2015 season my team had to move a lintel stone out of our square that was the largest we have found yet. It took six men just to roll and slide the stone out of the way. We could in no way lift it clear of the ground.

³² See further, Reich, “Building Materials,” 5–7.

³³ During the 2014 dig season, in P22 we found the largest ashlar lintel to date on our site measuring 1.6 m x 0.8 m x 0.4 m. One edge showed signs of being worked.

³⁴ Netzer, "Massive Structures," 26.

³⁵ Canaan, *The Palestinian Arab House*, 34. Hirschfeld, *Palestinian Dwelling*, 122, notes that the threshold stones were at least 20 cm high and that older houses (from the Ottoman period and before) used the larger monolithic stone lintels.

³⁶ Hirschfeld, *Palestinian Dwelling*, 250–51.

³⁷ Iron Age homes and earlier apparently had few if any windows. Cf. Reich, "Building Materials," 13–14.

³⁸ Cf. Acts 9:25 and Hebrew Bible, Josh 2:15; 1 Sam 19:12; 2 Chr 11:32.

³⁹ The height of this door opening was about 1.5 m. While this seems very low, it is typical of openings to stables especially in the earlier Iron I four-room Israelite house. Cf. Stager, "Archaeology of the Family," 11.

⁴⁰ *Ibid.*, 14. See also V.C. Corbo, *Cafarnao I*; *Studium Biblicum Franciscanum* 19 (Jerusalem: Franciscan Printing Press, 1975), 184, 193, as noted by Stager.

⁴¹ G. Dalman, *Das Haus. Arbeit und Sitte in Palästina, Das Haus. Vol. 7. Arbeit und Sitte* (Giitersloh: C. Bertelsmann, 1942), 57, 121–30, 150, as noted by Stager, "Archaeology of the Family," 14.

⁴² *Ibid.*, 15.

⁴³ *Ibid.* See also Gary Byers, "The Search for Joshua's Ai at Khirbet el-Maqatir, 2011," *Bible and Spade* 25 (2012): 32–36; and Kenneth Bailey, "The Manger and the Inn," ABR online (Nov. 8, 2008) <http://www.biblearchaeology.org/post/2008/11/08/The-Manger-and-the-Inn.aspx>

⁴⁴ Hirschfeld, *Palestinian Dwelling*, 121.

⁴⁵ Stager, "Archaeology of the Family," 12, 13, notes that earlier Iron I Israelite houses had flagstone floors in their stable areas. This may be the case with the "stable" in the Maqatir house; however, the silo in the corner of the room (see Fig. 18) would have to have been filled in prior to its use as a stable.

⁴⁶ Later, Arab houses used any combination of sand, ash, pottery shards, and lime to make their plaster. Cf. Canaan, *The Palestinian Arab House*, 51. During earlier periods, poorer people even used manure-based mortar/parging (*ibid.*, 72). C. Dauphin, "Shelomi," *IEJ* 26 (1976): 140–41, notes that at one Byzantine (5-6th century) house, the walls had pottery sherds mixed in with the basecoat of plaster.

⁴⁷ Netzer, "Massive Structures," 23.

⁴⁸ The widespread use of lime-based plaster and mortar started in the Hellenistic period (however cf. Deut 27:2; Isa 33:12; Amos 2:1). Lime came from burning limestone and then taking the dust and combining it with water to make "slaked lime," which was then mixed with sand and aggregate. Cf. Reich, "Building Materials," 9. At least one lime kiln has been found at Maqatir.

⁴⁹ Indeed, Canaan, *The Palestinian Arab House*, 53, notes the use of clay and mud for this purpose, which required yearly maintenance.

⁵⁰ Hirschfeld, *Palestinian Dwelling*, 123.

⁵¹ Canaan, *The Palestinian Arab House*, 57. Having been influenced by Roman construction techniques, it is possible that some of the last phase of houses at Maqatir may have had vaulted roofs. However, this type of construction was expensive and required professional artisans. Cf. Netzer, "Massive Structures," 25–26.

⁵² Stager, “Archaeology of the Family,” 5, estimates that during the Roman-Byzantine period more than half of the hills were cleared of trees for terraced farming, a trend that started in the Iron I period.

⁵³ Hirschfeld, *Palestinian Dwelling*, 238; and Reich, “Building Materials,” 7–8.

⁵⁴ Netzer, “Massive Structures,” 24. See also Stager, “Archaeology of the Family,” 15–16, for comments about beam sizes in ancient roof construction of the Iron Age.

⁵⁵ One building in particular that remains to be excavated at Maqatir, which has been dubbed the “synagogue,” is well over five meters in width and no doubt had central columns supporting the roof. According to Netzer, “Massive Structures,” 25, a room 4 m wide would require beams 15–18 cm in diameter and an 8 m wide span would require beams 25–30 cm in diameter. These were very expensive and rare in Israel.

⁵⁶ Canaan, *The Palestinian Arab House*, 54–55.

⁵⁷ *Ibid.*, 53; and Hirschfeld, *Palestinian Dwelling*, 123–24 note that this was the typical roof construction in the ancient period. Cf. further C.H. Kraeling, *Gerasa. City of the Decapolis* (New Haven: American Schools of Oriental Research, 1938), 272.

⁵⁸ Canaan, *The Palestinian Arab House*, 48, 55.

⁵⁹ Hirschfeld, *Palestinian Dwelling*, 222.

⁶⁰ Netzer, “Massive Structures,” 25.

⁶¹ Hirschfeld, *Palestinian Dwelling*, 238. Note, the term can also denote an “elevated room/architectural feature” that is possibly a throne room (personal communication with Henry Smith).

⁶² Netzer, “Massive Structures,” 24.

⁶³ Hirschfeld, *Palestinian Dwelling*, 247.