



Israel Exploration Journal

VOLUME 63 • NUMBER 2
JERUSALEM, ISRAEL • 2013



ISRAEL EXPLORATION JOURNAL

Published twice yearly by the Israel Exploration Society and the Institute of Archaeology of the Hebrew University, with the assistance of the Nathan Davidson Publication Fund in Archaeology, Samis Foundation, Seattle WA, and Dorot Foundation, Providence RI

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ISSN 0021-2059

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ABBREVIATIONS

- AASOR Annual of the American Schools of Oriental Research
ADAJ Annual of the Department of Antiquities of Jordan
AJA American Journal of Archaeology
AfO Archiv für Orientforschung
ANET Ancient Near Eastern Texts Relating to the Old Testament³, ed. J.B. Pritchard, Princeton, 1969
BA The Biblical Archaeologist
BASOR Bulletin of the American Schools of Oriental Research
BT Babylonian Talmud
CAD Chicago Assyrian Dictionary
CIS Corpus Inscriptionum Semiticarum
DJD Discoveries in the Judaean Desert
DSD Dead Sea Discoveries
EI Eretz-Israel: Archaeological, Historical and Geographical Studies
ESI Excavations and Surveys in Israel
IAA Reports Israel Antiquities Authority Reports
IEJ Israel Exploration Journal
JAOS Journal of the American Oriental Society
JBL Journal of Biblical Literature
JCS Journal of Cuneiform Studies
JEA Journal of Egyptian Archaeology
JNES Journal of Near Eastern Studies
KAI W. Donner and W. Röllig: *Kanaanäische und aramäische Inschriften* 1–3, Wiesbaden, 1962–1964; 1^s, 2002
NEAEHL The New Encyclopedia of Archaeological Excavations in the Holy Land (English Edition), Jerusalem, 1993
PEQ Palestine Exploration Quarterly
PT Palestinian Talmud
QDAP Quarterly of the Department of Antiquities in Palestine
RA Revue d'Assyriologie et d'Archéologie Orientale
RB Revue Biblique
RE Pauly-Wissowa's Realencyclopädie der classischen Altertumswissenschaft
RQ Revue de Qumran
VT Vetus Testamentum
ZA Zeitschrift für Assyriologie
ZDPV Zeitschrift des Deutschen Palästina-Vereins

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Triglyphs and Recessed Doorframes on a Building Model from Khirbet Qeiyafa: New Light on Two Technical Terms in the Biblical Descriptions of Solomon's Palace and Temple*

YOSEF GARFINKEL MADELEINE MUMCUOGLU
The Hebrew University of Jerusalem

In memory of Avigdor (Victor) Hurowitz

ABSTRACT: A unique building model from the early tenth century BCE, excavated at Khirbet Qeiyafa, Israel, presents new data on royal construction in the days of David and Solomon. A combination of triglyphs and a recessed doorframe appears on the model façade. This indicates that aspects of royal architecture typical of the Iron Age Levant, known archaeologically from the ninth–seventh centuries BCE, developed 150 years earlier than previously thought and suggests a Near Eastern origin for the triglyph of classical Greek architecture. The model serves as the basis for identifying two obscure technical terms in the biblical texts describing King Solomon's palace and temple in Jerusalem.

1. INTRODUCTION

THE Bible attributes large public construction projects to King Solomon, including the fortification of cities in the kingdom periphery and the royal palace and temple in Jerusalem. The biblical descriptions of the temple and the main palace include numerous technical terms; the original meanings of many of these are uncertain. In this study we discuss two such terms in light of a building model uncovered during the 2011 excavation season at Khirbet Qeiyafa, a late eleventh–early tenth-century BCE site in Judah.

Khirbet Qeiyafa is a 23 dunam site located on the northern border of the ʿElah Valley, c. 30 km. south-west of Jerusalem. The site contains the remains of a fortified Iron Age city, radiometrically dated by 10 olive pits to between the late eleventh and the beginning of the tenth century BCE, the period attributed to King

* We wish to thank several scholars who helped us in this research. Ruhama Bonfil drew our attention to the recessed doorframes of the palaces of Mari and Alalakh. Prof. Pierre de Miroschedji provided the references regarding the exchange of architects in the ancient Near East. Prof. Tal Ilan assisted us with the Greek translation of the Bible. Dr. Daniel Vainstub offered help with some of the biblical references to the Solomonic Temple. Several anonymous reviewers added valuable comments as well.

David (Garfinkel and Ganor 2009; Garfinkel, Ganor and Hasel 2010; 2012a; 2012b). Thus far, an area of *c.* 4,000 m.² of the site has been excavated. The expedition uncovered a massive city wall, two city gates, two gate piazzas and seven Iron Age buildings. In a shrine inside Building C10, near the southern city gate (area C), two building models were found, one of clay and the other of limestone, uncovered in room G of Building C10 in area C (Garfinkel, Ganor and Hasel 2012b: figs. 59–64). For the purpose of clarifying technical terminology in the biblical description of Solomonic royal construction, we focus here mainly upon the limestone model, while only briefly referring to the pottery model.

2. THE CONTEXT

Building C10 is the first building in area C to the west of the gate. Located *c.* 20 m. from the gate, after the inner piazza, it includes the fourth, fifth and sixth casemates built west of the gate. The building (*c.* 17×20 m. on a north–south axis; *c.* 16×19 m. on an east–west axis; total area: *c.* 300 m.²; figs. 1–2) is divided into 16 architectural units, arranged in two main wings. The eastern wing has ten architectural units: a central courtyard, a corridor, six rooms and two city-wall casemates. The western wing has six architectural units: a central courtyard, a corridor, three rooms and one city-wall casemate. The cultic activity here was concentrated in the south-eastern corner of the building, mainly in room G (fig. 3), but also in the areas nearby the room: in courtyard E, room F, city-wall casemate H and room K, which are described here in order to present a comprehensive picture of the cultic activity in the building.

Courtyard E

This large courtyard (inner dimensions: *c.* 6×5.5 m.; area: *c.* 33 m.²) is located in the centre of the building. Three cooking installations were found on the floor, along the periphery of the courtyard: a *tabun* in the north-east corner, another *tabun* nearby and a hearth adjacent to the southern wall. The courtyard also contains a large rectangular stone, which could have been a pillar base, and, adjacent to it, a rounded shallow pit, dug from the floor level to a depth of *c.* 0.40 m. The floor and the debris above it were rich in finds, including a large amount of restorable pottery vessels, fragments of a fenestrated stand, two seals and a broken basalt altar, similar in size and shape to the basalt altar uncovered in another shrine at the site.

A rounded basin (outer diameter: *c.* 0.80 m.), sunk into the floor in the south-eastern corner of the courtyard, was constructed of flat stone slabs placed on their narrow side, with a large flat stone as the floor. This installation is located in front of the entrances to rooms F and G; one could not have entered these rooms without encountering the basin. A drain begins under the basin and runs to the south into room G.



Fig. 1. Aerial view of Building C10 at the end of the 2012 excavation season (photo by Sky View)

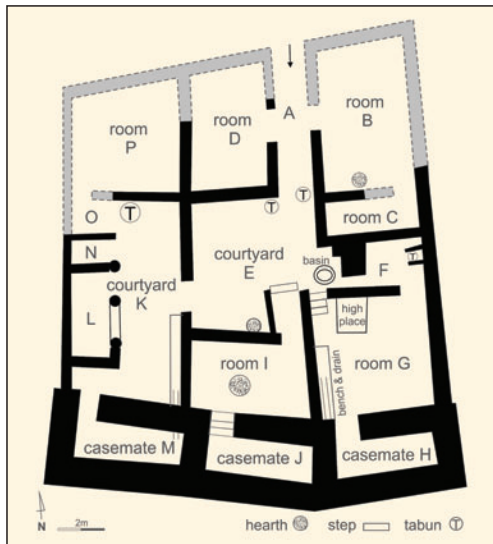


Fig. 2. Building C10: schematic plan

Room F

This room (inner dimensions: *c.* 2.5×2 m.; area: *c.* 5 m.²), located in the centre of the eastern side of the building, opposite courtyard E, has two entrances: one in the west, from the courtyard, and the second in the south-east corner, leading into room G. *Tabun* C6879 was built adjacent to wall C6607 on the eastern side, with large quantities of ash found near it. Various pottery vessels were found on the floor or in the destruction debris above it. An outstanding object is a giant libation vessel, composed of two parts, of the form known as ‘cup-and-saucer’.

Another very large cup-and-saucer vessel was found in room K, located west of courtyard E. Thus, both vessels of this type are associated with the cultic activity in Building C10. The items uncovered at Khirbet Qeiyafa are three times larger than the average cup-and-saucer and each has three handles, also a unique feature on such a vessel. The only known parallel to the Khirbet Qeiyafa vessels is a broken item that came from the antiquities market (Weinberg 1979).

Room G (fig. 3)

This room (inner dimensions: *c.* 5×5 m.; area: *c.* 25 m.²), located in the south-eastern corner of the building, functioned as the core of the cultic activity in this complex. Its main entrance is in the north-western corner of the room, leading from courtyard E. The entrance included a well-built staircase with four steps, leading down from the courtyard.

The room has two other entrances: one leading to room H (a city-wall casemate) in the south-western corner and the other to room F in the north-eastern corner. The floor is composed of beaten earth, with levelled bedrock in the north-western part of the room. A number of installations were found in room G:

1. *Bench and drain.* — Adjacent to the western wall of the room, a bench was built over a drain, running along a north-south line and consisting of a wide trench covered by well-made and relatively large flat stone slabs. The trench drained liquids from the basin in courtyard E near the room entrance and is clearly visible under the staircase. A similar installation was uncovered in room K.

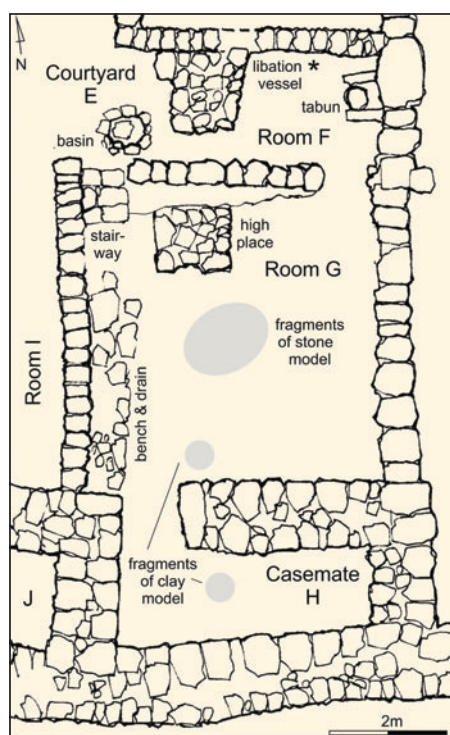


Fig. 3. Map of room G, showing find spots of fragments of limestone and clay models

2. *Bamah*. — A square-shaped stone platform (a *bamah*; c. 1.30×1.30 m.) was built adjacent to the northern wall of the room. Only one course was preserved. This element is unique in all of the over 60 excavated rooms.

3. *Cup-mark*. — An irregular cup-mark, cut into the bedrock in the north-western part of the room, near the *bamah*, was found covered with a flat stone.

4. *Grinding installation*. — A massive lower grinding slab was found on the floor, tilted on its side.

This room is also notable for the rich destruction debris which accumulated on its floor, including cultic paraphernalia and a large amount of pottery vessels, as follows:

1. *Limestone shrine model* (see below).

2. *Clay shrine model* (see below).

3. *Large decorated bowls*. — Massive shallow bowls, very rare at the site, were found in room G, some decorated with red slip and irregular hand burnish.

4. *Large pilgrim flask*. — The only large flask to be found at Khirbet Qeiyafa was uncovered in room G.

Room H

This is the fourth casemate in the city wall, west of the gate in area C. Its one entrance, from room G, is located in its north-western corner (fig. 3). The casemate room (inner dimensions: c. 4.2×1.5 m.; area: c. 6.5 m.²) had a beaten-earth floor that contained various finds, including several storage vessels and several fragments of the portable clay shrine of room G. A bench on the western side of the casemate, adjacent to the western wall, was built of medium-sized stones and reached a height of c. 0.25 m. above the floor. An Egyptian scarab was found in this room.

Courtyard K

This unit, west of courtyard E, seems to be part of a dwelling quarter, together with rooms L–O. Although this room was not part of the cultic area, fragments of a gigantic cup-and-saucer vessel were found here. It could either have been stored in courtyard K or dumped there when the entire building was destroyed.

The cultic nature of the south-east corner of Building C10 is evident from its architecture (the only basin and *bamah* to have been uncovered at the site, the bench and an exceptional number of cooking installations) and the small finds (seals, a basalt altar, fragments of a pottery stand, two unique gigantic cup-and-saucer vessels, the stone model and the clay model).

From a stratigraphic point of view it should be noted that no later remains were found in this part of area C. The excavations began with the removal of the topsoil, and immediately below it the Iron Age architecture was found, with the top of the walls and collapsed debris. Inside room G the collapsed debris was over 1 m. thick above the floor. In the nearby city-wall casemate (H), where a few fragments of the clay shrine were found, the collapsed debris above the floor was nearly 2 m. thick. The two models, along with the other cultic paraphernalia, belong to the Iron Age city of Khirbet Qeiyafa, and in accordance with 10 radiometric measurements made on olive pits, are dated to the first half of the tenth century BCE (Garfinkel *et al.* 2012).

3. THE STONE MODEL (figs. 4–6)

This building model was uncovered during the 2011 excavation season within room G of Building C10, immediately behind a gate piazza, on a floor covered with a thick layer of destruction debris (Garfinkel, Ganor and Hasel 2012b: figs. 61–64). Although building models of the Bronze and Iron Ages have been uncovered in the ancient Near East, most are of clay (Bretschneider 1991; Muller 2002; Kletter, Ziffer and Zwickel 2010), whereas the one under discussion was carved from a single block of soft limestone. The model (figs. 4–5; 21 cm. wide; 26 cm. long; 35 cm. high) was painted red. The sides and back are simple walls, whereas the façade is elegantly profiled. In the centre of the façade there is a large rectangular doorframe (10 cm. wide; 20 cm. high), portrayed as three interlocking frames. The outer frame is the largest; the middle frame is smaller and set back from the first toward the interior of the model; and the inner frame is the smallest, again set back from the first two. This triple-recessed doorframe forms three rows of lintels above the door and three rows of doorposts on either side. A fourth frame, extending to the top of the structure, apparently represents the edge of the building, but may, alternatively, indicate a fourth, outer, doorframe.

A row of protruding rectangular elements was carved between the doorframe and the roof of the model, each element divided by deep incisions into three smaller parallel rectangles



Fig. 4. Stone building model uncovered at Khirbet Qeiyafa (photo by G. Laron)



Fig. 5. Façade of stone building model: a) after restoration (photo by O. Cohen); b) after reconstruction (photo by G. Laron)



Fig. 6. Close-up of upper part of stone building model; wooden beams represented in groups of three, like triglyphs in classical Greek architecture (photo by G. Laron)

(fig. 6). Four such protruding rectangles were fully preserved, and evidence of three others is visible. This is a common architectural element in classical architecture.

4. THE TRIGLYPH AND CLASSICAL GREEK ARCHITECTURE

The triglyph is a well-known element in the frieze of the Doric architectural order, which consists of alternating triglyphs and metopes. As early as Roman times, the architect Vitruvius interpreted this element as an imitation of the protruding ends of wooden roof beams, an interpretation adopted by most modern scholars of classical architecture (Washburn 1919; Bowen 1950; Cook 1951; Jones 2002). The Khirbet Qeiyafa model is the earliest known example of stone-carved rectangular

triglyphs. In this early case, unlike the classical Doric triglyphs, they are hanging without support — the *taenia* with *regula* and *guttae* below.

Earlier depictions of protruding roof beams include several Late Bronze clay models from Upper Mesopotamia found at Emar (fig. 7:1), Tell Mumbaqa (fig. 7:2) and Tell Fray (Muller 2002: figs. 57, 60, 64, 73, 83, 88, 116–118). These examples, however, bear rounded — not rectangular — button-like elements, incised with short parallel vertical lines, appearing irregularly around the roof.

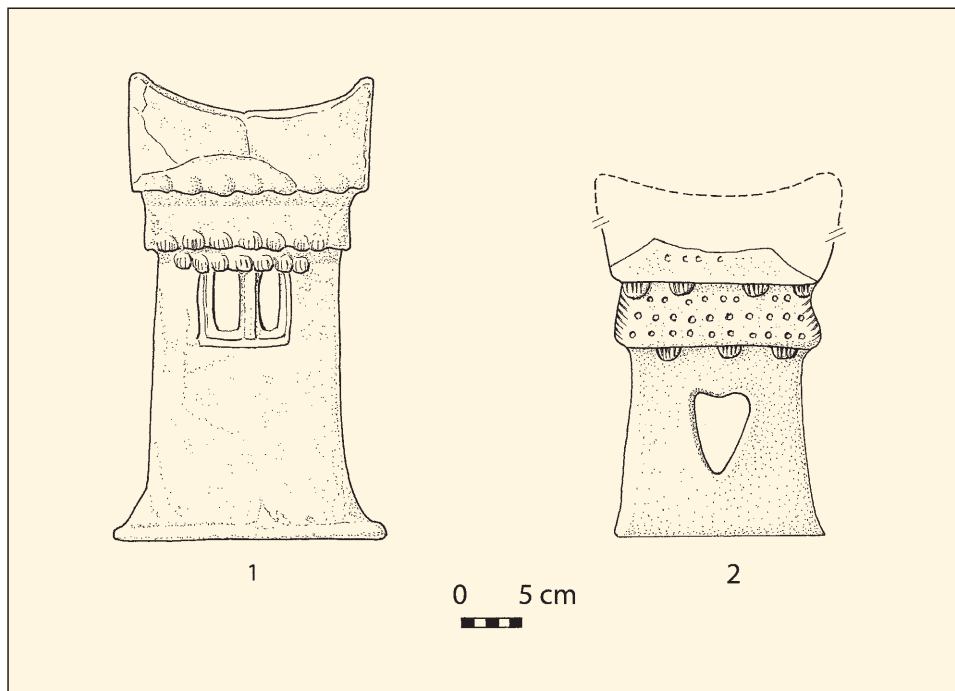


Fig. 7. Clay building models from Emar (1) and Tell Mumbaqa (2) in Mesopotamia, with rounded and incised button-like elements scattered around the roof (after Muller 2002: figs. 60e, 116a)

Similar rounded features are also found on the clay building model uncovered at Khirbet Qeiyafa in 2011 (Garfinkel, Ganor and Hasel 2012b: figs. 59–60). The façade of that building model bears 11 rounded and incised button-like elements in two rows above the door (figs. 8–9); they apparently represent the protruding ends of roofing beams, running from the façade of the building to its rear side (Garfinkel, Ganor and Hasel 2012b).

In sum, two types of triglyphs appear on the two Khirbet Qeiyafa building models: rounded ones on the clay model and rectangular ones on the stone model. The Khirbet Qeiyafa models thus depict in detail roof beams organised in groups of three, while at other sites plain cubical protrusions are sometimes seen, as in



Fig. 8. Clay building model uncovered at Khirbet Qeiyafa (photo by G. Laron)



Fig. 9. Close-up of upper part of clay building model, with representation of three wooden beams and 11 rounded and incised button-like elements scattered around the roof (photo by G. Laron)

Yavneh (Kletter, Ziffer and Zwickel 2010: nos. 50–51) and in Tamassos Royal Grave 5 (Shiloh 1979: pl. 18:1).

For millennia, classical Greek architecture has been considered among the highest achievements of human aesthetics. The stone model from Khirbet Qeiyafa indicates that one of its characteristic features, the row of rectangular triglyphs forming the Doric frieze, originated in the Levant. Dated to the early tenth century BCE, the triglyphs at Khirbet Qeiyafa are nearly 400 years earlier than the earliest stone-carved triglyphs of Greek Doric temples, which are dated to the early fifth century BCE (Barletta 2001: 66–70).

5. RECESSED DOORFRAMES

Decoration of doorways with double- or triple-recessed doorframes is well known in the ancient Near East in elite architectural structures — mainly temples, but also palaces and tombs. This motif appeared as early as the fifth millennium BCE in the temple of Layer XIII at Tepe Gawra (Ubaid Culture), dated to *c.* 4500 BCE. Many later examples are known from the fourth, third, second and first millennia BCE (for selected examples, see table 1). This list includes well-known sites such as Tepe Gawra, Khafajah, Tell Asmar, Tell Brak, Ur, Mari, Alalakh, Tell Tayinat and Persepolis. In keeping with its significance, this type of doorframe was depicted on cylinder seals and plaques, and appears on a temple plan in one of the statues of Gudea king of Lagash, a god throne, schematic temples on Kudurru border stones, Hathor-headed capitals and dedicatory stelae (table 2). Windows were also decorated with recessed frames, as indicated by depictions on ivories and stone stelae (table 2).

Three main phases occur in the history of the recessed doorframe. At first it appeared in temples only. In the second phase, it was integrated into palace architecture, and in the third phase, it occurred in royal tombs and eventually in simple tombs as well. During the Iron Age, recessed doors can be found simultaneously in all types of construction: temples, palaces and tombs.¹

The recessed wall is a similar phenomenon, used quite extensively in monumental architecture of the ancient Near East. It too appeared for the first time as early as the fifth millennium BCE in the temple of Layer XIII at Tepe Gawra of the Ubaid Culture of Mesopotamia (Tobler 1950: fig.12, pl. XXXIX). Many later examples are known from the fourth, third, second and first millennia BCE. One example of a recessed wall, designated by the excavators as a ‘rabbeted corner’, was unearthed at MB Ashkelon near the city gate (Stager, Schloen and Master 2008: fig. 14.12). Recessed walls were found at LB Hazor in three large public buildings: two in area A and one in area H (Yadin *et al.* 1989: pl. XXXIX; Ben-Tor

¹ The appearance of recessed openings in classical architecture and later in Gothic architecture is beyond the scope of our current presentation.

Table 1. Selected examples of buildings with recessed doorframes or windowframes

Site	Period	Type	References
Tepe Gawra XIII	Fifth millennium BCE	Northern Temple	Tobler 1950: fig.12, pl. XXXIX
Tepe Gawra VIII	Fourth millennium BCE	Temple	Speiser 1935
Khafajah	Third millennium BCE	Sin temple VIII	Delougaz and Lloyd 1942: pl. 10
Khafajah	Third millennium BCE	Small shrine	Delougaz and Lloyd 1942: fig. 105
Tell Asmar	Third millennium BCE	Abu temple	Delougaz and Lloyd 1942: pl. 23:a,c
Ur	Third-second millennium BCE	Ziggurat	Woolley 1939: pls. 68-73
Tell Brak	2200 BCE	Temple	Oates, Oates and McDonald 2001: figs. 21, 64
Tell Harmal	1900 BCE	Temple	Baqir 1946
Mari	1800 BCE	Palace	Parrot 1958: pl. XXXI
Alalakh/Atchana	1800 BCE	Palace	Woolley 1955: pl. XII:c
Ischali	1800 BCE	Temple	Hill, Jacobsen and Delougaz 1990: pls. 5b, 7b
ʿAin Dara	1300*-740 BCE	Temple windows	Abu Assaf 1990: pl. 42
Tell Tayinat	Eighth century BCE	Temple	Haines 1971: pl. 100
Tell Tayinat	Eighth century BCE	Gateway III	Haines 1971: pls. 86, 111
Urartu	Eighth century BCE	Temples	Stronach 1967
Tamassos	Eighth-seventh century BCE	Tombs	Shiloh 1979: pl. 18:1
Ur	Seventh century BCE	Temples	Woolley 1962: pls. 68-69
Persepolis	Fifth-fourth century BCE	Palace	Ghirshman 1964: fig. 241
Naqah-I Rostam (Persepolis)	Fifth-fourth century BCE	Royal tombs	Ghirshman 1964: figs. 279-280
Iraq al Amir	Fifth-fourth century BCE	Noble tomb	Rosenberg 2006: fig. 34
Umm el-ʿAmed	Fourth-third century BCE	Temple	Dunand and Duru 1962: fig. 15
Near Umm el-ʿAmed	Fourth-third century BCE	Rock-cut chapel	Dunand and Duru 1962: fig. 77

* According to the excavator, the ʿAin Dara temple existed from 1300-740 BCE and underwent three phases in its construction. However, the building does not exhibit Late Bronze characteristics and thus was probably built in the Iron Age.

2008: 1770). The recessed wall, however, is apparently a different architectural tradition: recessed doorframes and recessed walls were not necessarily constructed in the same buildings. Indeed, recessed walls are not depicted on the Khirbet Qeiyafa stone model and thus are beyond the scope of the current article.

As the focus is the Iron Age, we present three examples of recessed openings

Table 2. Selected examples of artistic depictions of recessed doorframes and windowframes

Site	Period	Type	References
Uruk	Late fourth millennium BCE	Temple depicted on cylinder seal	Amiet 1961: pl. 11:203A
Mesopotamia	Late fourth–early third millennium BCE	Temple depicted on cylinder seal	Frankfort 1939: pl. 7:d
Tell Agrab	Late fourth–early third millennium BCE	Temple depicted on cylinder seal	Delougaz and Lloyd 1942: fig. 180
Ur	Third millennium BCE	Temple depicted on plaque	Pritchard 1954: fig. 603
Lagash	2300 BCE	Temple plan in lap of Gudea (six gates)	Pritchard 1954: fig. 749
Babylon (uncovered in Susa)	1700 BCE	God sitting on schematic temple, Hammurabi stela	Pritchard 1954: fig. 515
Southern Mesopotamia	Late second millennium BCE	Over 20 schematic temples on Kudurru border stones	King 1912: pls. 1, 3–4, 43–44, 46, 48, 50, 63–65; Seidl 1989
Khirbet Qeiyafa	Early tenth century BCE	Stone model	Garfinkel, Ganor and Hasel 2012b
Arslan Tash	Ninth century BCE	Window depicted on ivory	Thureau-Dangin <i>et al.</i> 1931
Samaria	Eighth century BCE	Window depicted on ivory	Crowfoot and Crowfoot 1938
Nimrud	Eighth century BCE	Window depicted on ivory	Barnett 1975
Khorsabad	Eighth century BCE	Window depicted on ivory	Barnett 1975
Kourion, Cyprus	Eighth–seventh century BCE	Window depicted on stone stele	Karageorghis 1970: fig. 80
Achziv	Fifth century BCE	Dedication stele	Stern 1977: fig. 15
Amathus and Larnaca, Cyprus	Fifth–fourth century BCE	Hathor-headed capitals	Hermayr 1985
Carthage	Fifth–fourth century BCE	Dedication stelae	Moscatti 1988: 308
Sardinia	Fifth–fourth century BCE	Dedication stelae	Moscatti 1970

dated from the ninth–seventh centuries BCE. These include both recessed doorframes and recessed windowframes:

1. *The Tell Tayinat temple entrance.* — This temple has a large porch, paved with stone slabs. The building's entrance was adorned with a recessed doorframe (Haines 1971: pl. 100). Another elaborate gateway was uncovered at the site, but its architectural context is unclear (Haines 1971: pls. 86, 111). In this case there are recessed stone foundations at the edges of the walls on both sides of the entrance (fig. 10).

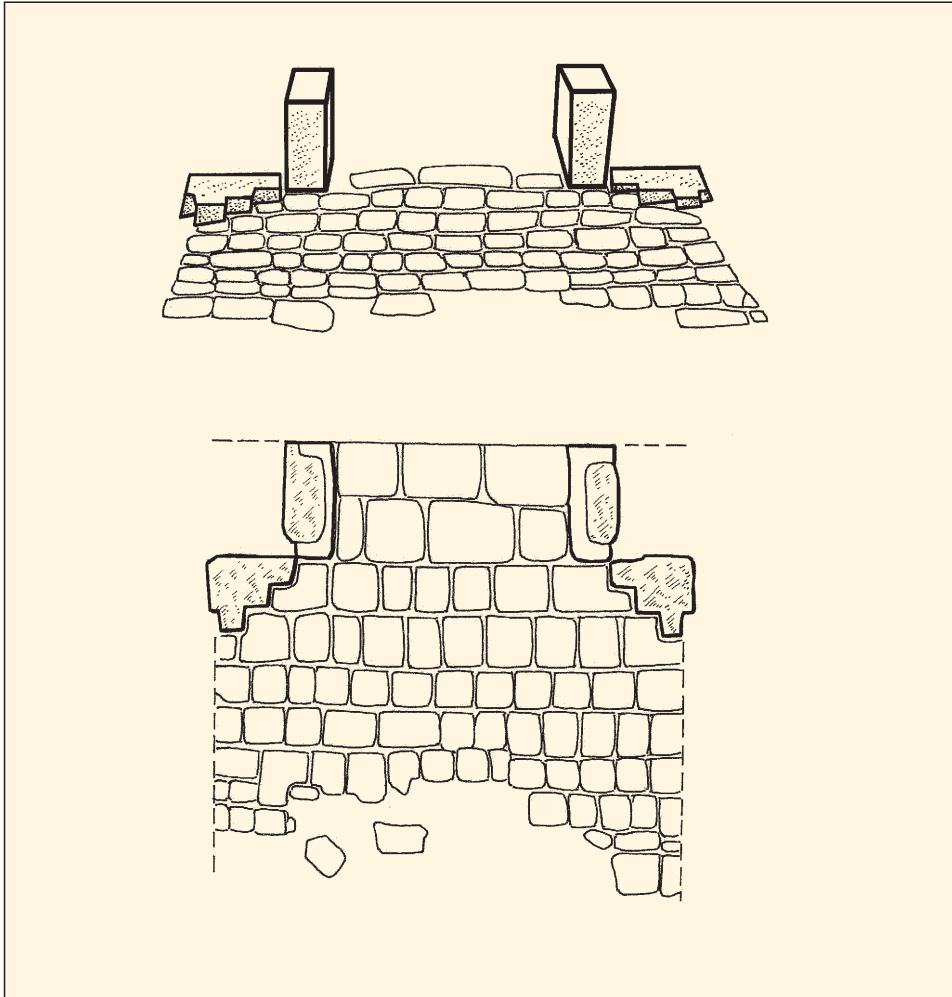


Fig. 10. Tell Tayinat gateway III with recessed stone foundations at the edges of the walls on both sides of the entrance (after Haines 1971: pls. 86, 111)

2. *The 'woman in the window' motif on ivories.* — Many Iron Age ivories are decorated with the motif of a woman looking through a window. Such ivories have been found in royal palaces at Arslan Tash, Nimrud and Khorsabad in Mesopotamia and at Samaria, the capital of the biblical Kingdom of Israel (Thureau-Dangin *et al.* 1931: pls. XXXIV–XXXV; Barnett 1975: 98–99, 145–151, pl. IV; Crowfoot and Crowfoot 1938). The window is depicted with a triple windowframe (at the top and sides). Recessed frames around window openings are also known from the Iron Age on a pottery cultic stand from Yavneh (Kletter, Ziffer and Zwickel 2010: pl. 75:2–3) and from Cyprus (Washbourne 1999).

3. *Royal tombs 5 and 12 at Tamassos, Cyprus.* — Two stone façades of burial chambers in these tombs, dated to the eighth–seventh centuries BCE, were built with recessed doorframes (Buchholz and Untiedt 1996; Walcher 2005). Tomb 5 includes a representation of wooden beams protruding below the roof (fig. 11). These resemble the triglyph motif on the Khirbet Qeiyafa stone model, located in exactly the same position below the roof, albeit presented more schematically. As early as the late nineteenth century CE it has been suggested that these tombs were intended to imitate wooden construction (see discussion in Shiloh 1979: 43 and n. 126).

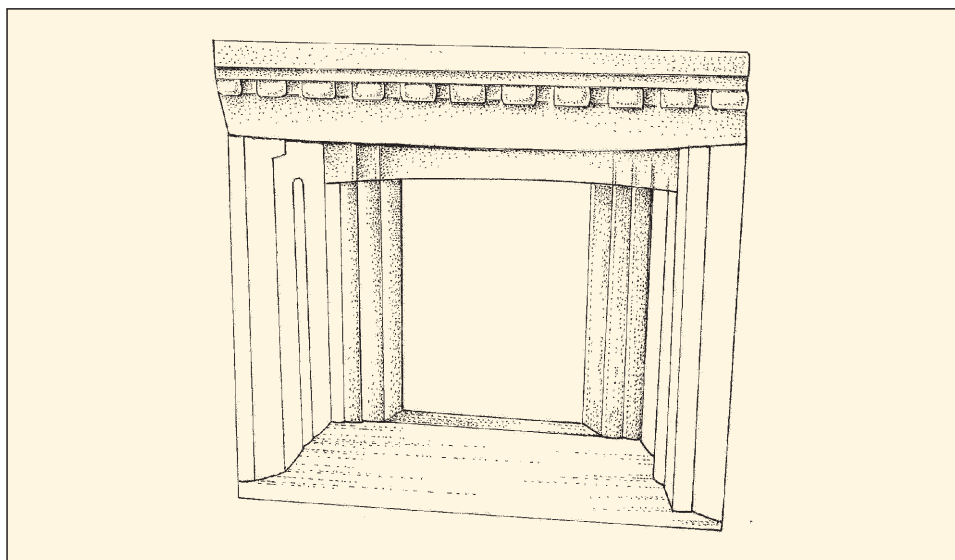


Fig. 11. The façades of a burial chamber in royal tomb 5 at Tamassos, Cyprus (Buchholz and Untiedt 1996); note recessed doorframe and representation of wooden beams below the roof (after Shiloh 1979: pl. 18:1)

The known examples of recessed doorframes and windowframes, from over 30 sites (tables 1–2), are associated with elite architecture and range in date from the fifth to the first millennia BCE. The Khirbet Qeiyafa stone model is an example of this building style. In the context of Iron Age architecture, this stone model is 150–300 years earlier than the examples discussed above. The architectural developments reflected in the stone model are associated with a heavily fortified city, urban planning, trade connections with remote areas (Cyprus and Egypt) and knowledge of writing, seals and administration (Garfinkel and Ganor 2009; Garfinkel, Ganor and Hasel 2010; 2012a; 2012b). All these reflect social and economic changes that took place during the Iron Age I–II transition: urbanism, state formation and the emergence of a ruling elite.

We have shown that triglyphs and recessed doorframes and windowframes

were well known in the royal architecture of Mesopotamia and the northern Levant throughout the Bronze and Iron Ages. In addition, the stone building model uncovered at Khirbet Qeiyafa clearly indicates that these architectural elements were known in Judah as early as the beginning of the tenth century BCE. Thus, it should come as no surprise that the same elements are mentioned in the biblical descriptions of the palace and temple built by Solomon in Jerusalem.

6. THE BIBLICAL DESCRIPTION OF SOLOMON'S PALACE

Before relating to parallels between the Khirbet Qeiyafa stone model and the biblical description of Solomon's palace, let us note that while some scholars have proposed that the stepped stone structure, the large stone building in Area G and a city wall in the Ophel should be dated to the tenth century BCE (e.g., Shiloh 1984; Mazar 2006; Mazar 2007; 2011; Naʿaman 2012), others date them to later in the Iron Age (e.g., Ussishkin 2003a; 2003b). To date, we cannot unequivocally identify any excavated remains with Solomon's palace in Jerusalem. Nor is there any consensus on the accuracy of the description of Solomon's Temple in the Book of Kings (see, e.g., Thenius 1849; Benzinger 1899; Kittel 1900; Burney 1903; Montgomery and Gehman 1951; Busink 1970; Gray 1970; Würthwein 1984; Hurowitz 1992; 2010; Buis 1997; Zwickel 1999; Cogan 2000; Herzog 2000; Sweeney 2007; and others).

The biblical tradition attributes large public constructions, including royal palaces and a temple in Jerusalem, to King Solomon. The historical relevance of these traditions has been extensively debated by modern scholars (see, e.g., Van Seters 1997; Miller 1997; Hurowitz 2010: 281–282). The preserved text includes technical terms that must have been comprehensible at the time of writing — whether that was during the tenth century BCE or centuries later — although the meaning of several of these terms has eluded scholars. 1 Kings 7:1–6 gives an account of an elaborate palatial hall, 100 cubits long and 50 cubits wide, nicknamed the 'house of Lebanon'. In table 3 the Hebrew Massoretic text is presented alongside four well-known English translations: the King James Version (1611), the Revised Standard Version (1901), the Jerusalem Bible (Jones 1966) and the Anchor Bible (Cogan 2001). In a final column we present a translation that draws upon our insights.

Verse 3 refers to 'ribs' (צלעות) and pillars. There are 45 'ribs' or pillars forming 15 rows (thus, they were organised in groups of three). The various translations interpreted these 'ribs' to refer to beams, chambers, or roofing planks, but do not suggest how they were arranged. The King James Version and the Revised Standard Version understood the number 45 to relate to three rows of 15 pillars inside the palace. However, verse 2 mentions four (not three) rows of pillars. The Khirbet Qeiyafa stone model exhibits seven groups of roof beams, each formed by three adjacent planks. This suggests that the biblical text is describing 15 rows of

Table 3. Translations of 1 Kings 7:1–6

V.	Hebrew Massoretic Text	King James Version (1611)	Revised Standard Version (1901)	The Jerusalem Bible (Jones 1966)	Anchor Bible (Cogan 2001)	Our Translation
1	ואת ביתו בנה שלמה שלש עשרה שנה ויכל את כל ביתו.	But Solomon was building his own house thirteen years, and he finished all his house.	Solomon was building his own house thirteen years, and he finished his entire house.	As regards his palace, Solomon spent thirteen years on it before the building was completed.	And it took Solomon thirteen years to build his house. Thus he completed his entire house.	
2	ויבן את בית יער הלבנון מאה אמה וארבעה עשר ושלשים אמה ושלושים אמה קומתו, על ארבעה טורי עמודי ארזים, וכרתת ארזים על העמודים.	He built also the house of the forest of Lebanon; the length thereof was a hundred cubits, and the breadth thereof fifty cubits, and the height thereof thirty cubits, upon <u>four</u> rows of cedar pillars, with cedar beams upon the pillars.	He built the House of the Forest of Lebanon; its length was a hundred cubits, and its breadth fifty cubits, and its height thirty cubits, and it was built upon <u>three</u> rows of cedar pillars, with cedar beams upon the pillars.	He built the Hall of the Forest of Lebanon, a hundred cubits long, fifty cubits wide, and thirty cubits high, on <u>four</u> rows of cedar wood pillars with cedar capitals on the pillars.	He built the House of the Forest of Lebanon, one hundred cubits long and fifty cubits wide and thirty cubits high, with <u>four</u> rows of cedar columns, and cedar beams on the columns;	
3	וספן בארז ממעל על הצלעות אשר על העמודים, ארבעים וחמישה, חמישה עשר הטר.	And it was covered with cedar above upon the <u>beams</u> , that lay on forty five <u>pillars</u> , fifteen in a row.	And it was covered with cedar above the <u>chambers</u> that <u>pillars</u> were upon the forty-five, fifteen in each row.	It was paneled in cedar on the upper part as far as the <u>planks</u> above the pillars. There were three rows of <u>architraves</u> , forty-five in all, that is fifteen in each row, facing one another from three sides.	and it was roofed with cedar from above, over the <u>planks</u> that were on the <u>columns</u> , forty-five (in number), fifteen to a row;	and it was roofed with cedar above the <u>planks</u> , which were placed on top of pillars, 45 <u>planks</u> in 15 groups (3 in each group, like triglyphs).
4	ושקפים שלשה טורים ומחזה אל מחזה שלש פעמים.	And there were <u>windows</u> in three rows, and light was against light in three ranks.	There were <u>window frames</u> in three rows, and window opposite window in three tiers.		And splayed (<u>windows</u>), (in) three rows, facing each other, three times;	And the <u>lintels</u> were organised in three rows, and doorjamb to doorjamb three times.
5	וכל הפתחים והמזוזות רבעים שקף ומול מחזה אל מחזה שלש פעמים.	And all the doors and posts were square, with the <u>windows</u> : and light was against light in three ranks.	All the doorways and <u>windows</u> had square frames, and window was opposite window in three tiers.	All the doors and uprights were of rectangular design, facing one another from three sides.	And all the entrances and doorposts had squared <u>frames</u> , and opposite, facing each other, three times.	And all the openings and the side door were square in shape (not rounded) with <u>triple-recessed doors</u> .

V.	Hebrew Massoretic Text	King James Version (1611)	Revised Standard Version (1901)	The Jerusalem Bible (Jones 1966)	Anchor Bible (Cogan 2001)	Our Translation
6	<p>וְאֵת אֲוֹלָם הָעַמֻּדִים עָשָׂה חֲמִישִׁים אָמָה אֲרָכּוֹ וְשְׁלִשִׁים אָמָה רְחִבּוֹ וְאֲוֹלָם עַל פְּנֵיהֶם וְעַמֻּדִים וְעַב עַל פְּנֵיהֶם.</p>	<p>And he made a porch of pillars; the length thereof was fifty cubits, and the breadth thereof thirty cubits: and the porch was before them: and the other pillars and the thick beam were before them.</p>	<p>And he made the Hall of Pillars; its length was fifty cubits, and its breadth thirty cubits; there was a porch in front with pillars, and a canopy before them.</p>	<p>And he made the Hall of Pillars, fifty cubits long and thirty cubits wide... with a porch in front.</p>	<p>He made the porch of columns, fifty cubits long and thirty cubits wide, and a porch was in front of them, and columns with a canopy was in front of them.</p>	

roof beams, each formed by three adjacent planks, as attested by the triglyph motif. Fig. 12 provides a schematic cross-section of Solomon’s ‘house of Lebanon’, showing two side-walls and four rows of pillars. In each of the five spaces (or aisles) created we have inserted three groups of planks (like three groups of triglyphs). Each group contains three planks, thus yielding a total of 45 planks —

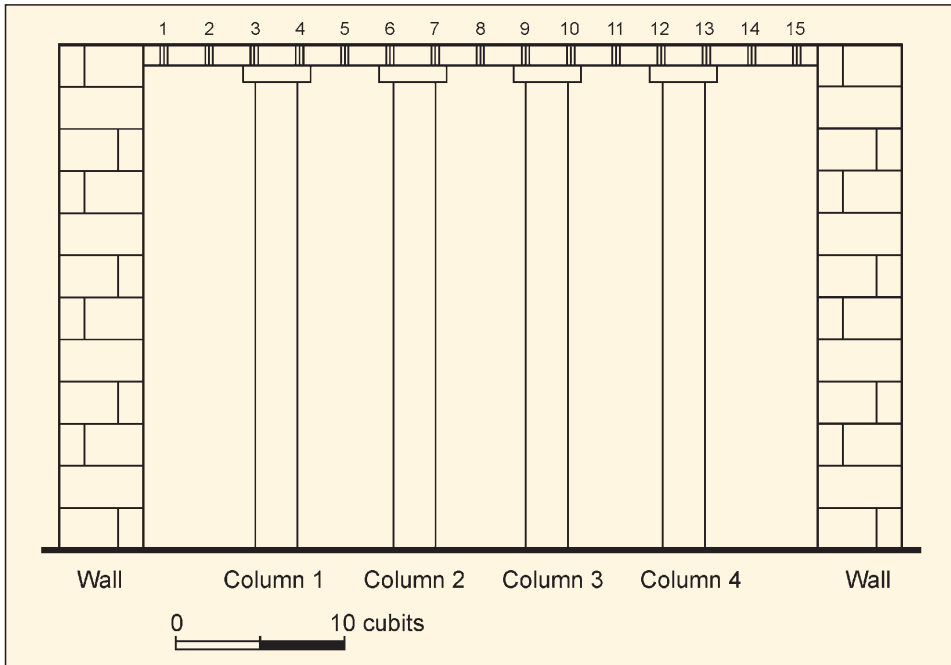


Fig. 12. Cross-section of Solomon’s ‘House of Lebanon’ palace with side-walls, four rows of pillars and 45 planks

in keeping with the biblical text. This is a novel suggestion that runs counter to all previous reconstructions.

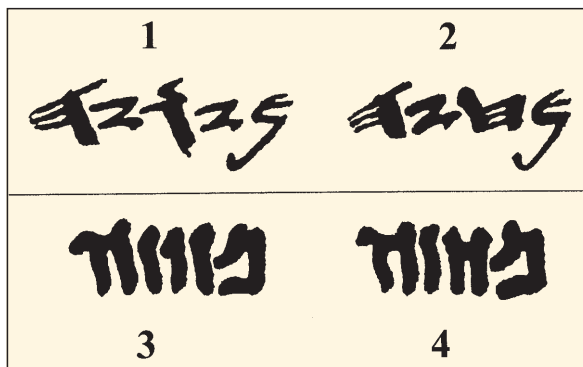
1 Kings 7:4 and 7:5 mention שְׁקָפִים, a term of unclear meaning; these were arranged in three rows of three, yielding a total of nine (the upper, left and right sides of the opening?). This term has been translated as ‘windows’ (King James Version, Anchor Bible), ‘window frames’ (Revised Standard Version) and ‘architraves’ (The Jerusalem Bible), but in light of the Khirbet Qeiyafa stone model, we understand it to refer to the posts and lintels of a doorway. The interpretation of שְׁקָפִים as lintels is supported by epigraphic finds dating from the fourth–sixth centuries CE. A large stone lintel from the ancient synagogue of Bar‘am is inscribed with the text: ...יֹסֵה הַלֵּוִי בֶן לֹוִי עָשָׂה הַשְּׁקוֹף הַזֶּה... (Naveh 1978: 19–20). The English translation of the inscription should read: ‘... Yosa the Levite, son of Levi, made this lintel (שְׁקוֹף)...’. Medieval Jewish commentators, like Rashi and Radak, also understood שְׁקָפִים to refer to lintels (Cohen 1995: 44).

The Septuagint in this case uses the term μέλαθρα (*melathra*) (1 Kings 7:4), referring to a main beam in the superstructure of a building. The same term appears in Hebrew as מלתראות in the description of the doorframe of the Second Temple, where it is clearly associated with a triple-recessed door (M. *Middot* 3:7). On these grounds, one should interpret the biblical text of 1 Kings 7:4 as referring to an elaborate triple-recessed opening, the main door of the building, and not to nine windows. Similarly, 1 Kings 7:5 indicates that all the other openings in the building were decorated with triple-recessed doorways.

It should be borne in mind that the term מחזה, which appears four times in 1 Kings 7:4–5, is not clear, and the various commentaries do not present convincing explanations for it. It seems to us that this case should be considered as a scribal error, in which the original letters ז and ו were combined to form the letter ח. If this is the case, the original Hebrew word in these four cases would have been מזוזה (*mezuzah*). The same scribal error occurred in the word מזוזות in 1 Kings 7:5, which was translated in one of the Septuagint manuscripts as καὶ αἱ χάρααι (‘districts’). The Hebrew word in this case was מחוזות. This is clearly another example of ז and ו combined to create the letter ח. Indeed, various scholars noticed this type of scribal error, known as ‘ligatures’, in which two letters were combined to create another letter (see, e.g., Weiss 1963; Tov 1992: 249). As is evident in fig. 13, the written forms of these two words bear a strong resemblance. From a chronological point of view this similarity did not exist during the Iron Age, when the Phoenician/Palaeo-Hebrew alphabet script was used, but fits the Jewish script of inscriptions of the Hellenistic period (Naveh 1982: 113). In the Septuagint the term מחזה was already used. Indeed, the phenomenon of the ח appearing like the combination of two other letters is specifically mentioned in Tractate Shabbat 12:5: ‘or if he intended to write a *heth* and wrote two *zains*’. In this example the effect is created by writing the letter ז twice, but if one writes ז and ו one after the other the same effect is created (fig. 13). According to this new reading, 1 Kings

7:4 should be translated as: ‘And the lintels were organised in three rows, and doorjamb to doorjamb three times’. For the usage of the term מזוזה in the context of recessed doorframes in the description of the temple, see below.

Fig. 13. The terms מזוזה and מזוזה presented in First Temple script (upper line) and in Second Temple script (lower line); it is clear that the ligature, the combination of the letters ז and ו to create the letter ז, can easily occur in Second Temple script (drawing by Dr. Ada Yardeni)



Based upon the text of 1 Kings 7:3–5, we believe that there was a line of beams with triglyphs on the palace façade above the columns and a triple-recessed doorframe at the entrance. These are precisely the architectural elements that appear on the façade of the Khirbet Qeiyafa stone model and the royal tombs of Tamassos. The biblical account thus focuses upon architectural elements that were considered characteristic and meaningful symbols of elite construction.

7. THE BIBLICAL DESCRIPTION OF SOLOMON’S TEMPLE

The Bible provides a detailed account of the Solomonic temple: the building, its architectural elements and its paraphernalia. These have been discussed at length by many scholars (e.g., Möhlenbrink 1932; Vincent 1957; Busink 1970; Hurowitz 1992; 2010; Zwickel 1999; Monson 1999; 2000; 2006; Dever 2006; Smith 2006). We therefore concentrate here on only two aspects elucidated by the Khirbet Qeiyafa building model.

1. The Doorframe

The temple is divided into three main rooms, arranged one behind the other: אולם (*ʿulam*), היכל (*hekhal*) and דביר (*debir*). The door leading to the *debir* is described as מזוזה חמשית (1 Kings 6:31), and the door leading to the *hekhal* is described as רבעית מזוזה (1 Kings 6:33) (table 4). These terms have been explained in various ways (as summarised by Millard 1989). Some medieval Jewish commentators, probably based upon M. *Middot*, proposed that they were openings with five and four recessed doorframes, a proposal adopted by some modern scholars (e.g., Yeivin 1965; Noth 1968: 126–127; Hurowitz 1992). The King James Version translated these terms as fifth and fourth parts of the door, while the Revised

Standard Version translated the terms as referring to the shape of the doorframe: pentagonal or square. Cogan has summarised the difficulties: “‘*hāmiššît*’ is mostly taken as a pentagonal door jamb, a strange structural feature indeed. The suggested recessed frame (five indented sections) is based on an unsupported textual emendation, though archaeological examples of such frames have been pointed out’ (Cogan 2001: 246). The new Khirbet Qeiyafa stone model, coupled with our awareness that recessed doorframes were widespread in temple architecture (tables 1–2), gives rise to the interpretation that the Solomonic temple doors were decorated with quadruple- and quintuple-recessed doorframes.

It is noteworthy that the main door of the Second Temple was 20 cubits wide and 40 cubits high, while other openings were 10 cubits wide and 20 cubits high (*M. Middot*) — in other words, with similar proportions. The door of the Khirbet Qeiyafa stone model — 10 cm. wide and 20 cm. high — is of precisely the same proportions. While this may be a coincidence, it is possible that it reflects an architectural concept of entrances to temples and palaces in the ancient Near East.

Table 4. Translations and interpretations of 1 Kings 6:31 and 6:33

Verse Number	Hebrew Massoretic Text	Rashi (eleventh century CE)	King James Version (1611)	Revised Standard Version (1901)	Anchor Bible (Cogan 2001)
6:31	ואת פתח הדביר עשה דלתות עצי שמן האיל מזוזות חמשית.	‘Hamissit mezouzot’ means there were five sides to each of the door posts.	And for the entering of the oracle he made doors of olive tree: the lintel and side posts were a fifth part of the wall.	For the entrance to the inner sanctuary he made doors of olive-wood; the lintel and the doorposts formed a pentagon.	As for the entrance to the shrine, he made doors of pine-wood; the jamb (and) the doorposts were a fifth (of the wall).
6:33	וכן עשה לפתח ההיכל מזוזות עצי שמן מאת רבעית.		So also made he for the door of the temple posts of olive tree, a fourth part of the wall.	So also he made for the entrance to the nave doorposts of olivewood, in the form of a square.	Similarly, for the entrance to the main hall, he made doorposts of pinewood, a fourth (of the wall).

2. The Roof

The nature of the roof of the Solomonic Temple described in 1 Kings 5–9 is unclear. 1 Kings 6:5 may provide information concerning the roof (table 5). This verse mentions צלעות (‘ribs’) arranged around the building. While the Jerusalem Bible translated this term as ‘side tiers’, the other three translations interpreted them as ‘chambers’.

The enigma of the ‘ribs’ in Solomon’s temple may perhaps be resolved by comparing the Solomonic Temple to the temple description in Ezekiel 40–43, which includes numerous technical terms, the original meaning of many of which

Table 5. Translations of 1 Kings 6:5

Hebrew Massoretic Text	King James Version (1611)	Revised Standard Version (1901)	The Jerusalem Bible (Jones 1966)	Anchor Bible (Cogan 2000)	Our Translation
ויבן על קיר הבית יציע סביב את קירות הבית סביב להיכל ולדביר ויעש צלעות סביב.	And against the wall of the house he built chambers round about, against the walls of the house round about, both of the temple and of the oracle: and he made chambers round about.	He also built a structure against the wall of the house, running round the walls of the house, both the nave and the inner sanctuary; and he made side chambers all around.	He also built an annex against the temple wall, round the Hekal and the Debir, and he made side tiers all round.	He built an extension on the walls of the House, that is, the walls of the house around the main hall and the shrine; he made side-chambers all around.	And against the wall of the house he built an extension round the main hall and the shrine; and he made planks (roof beams) around.

Table 6. Translations of Ezek. 41:6

Hebrew Massoretic Text	King James Version (1611)	Revised Standard Version (1901)	The Jerusalem Bible (Jones 1966)	Our Translation
והצלעות צלע אל צלע שלוש ושלושים פעמים ובאות בקיר אשר לבית לצלעות סביב סביב להיות אחוזים ולא יהיו אחוזים בקיר הבית	And the side chambers were three, one over another, and thirty in order; and they entered into the wall which was of the house for the side chambers round about, that they might have hold, but they had not hold in the wall of the house.	And the side chambers were in three stories, one over another, thirty in each story. There were offsets all around the wall of the temple to serve as supports for the side chambers, so that they should not be supported by the wall of the temple.	The cells were one above the other, thirty of them in three stories. The supports for the surrounding cells were fixed into the Temple wall, so that the cells were not recessed into the wall of the Temple.	And the planks were organised three together, as thirty triglyph-like groups, placed on top of the wall, around all the building, without being integrated into the walls of the building.

has been lost over time. According to the description, there are 30 groups of three ‘ribs’ around the building (Ezek. 41:6). Table 6 presents the Hebrew Massoretic text alongside three English translations, most of which understood this term to mean ‘chambers’ or ‘cells’ (e.g., Kasher 2004: 805). In this respect, they repeat the interpretation of ‘ribs’ in the Solomonic Temple presented in table 5.

Haran (1984: 212), in reference to the temple described by Ezekiel, proposed a different interpretation. He considered the ‘ribs’ to be wooden walls, a suggestion that has been accepted by Hurowitz, who translates them as ‘horizontally laying boards and vertically standing boards’ (2010: 294). The descriptions of the roof in Ezekiel’s temple and Solomon’s palace share the same terminology (‘ribs’/צלעות) and the same mathematics (groups of three). Based upon the stone building model from Khirbet Qeiyafa and the description of Solomon’s ‘house of Lebanon’, it seems to us that Ezekiel described roof beams organised in a triglyph-like

arrangement. This would create 30 groups of roof beams with three individual planks in each, yielding 90 planks altogether. In the same way, the 'ribs' in 1 Kings 6:5 would describe planks around the roof of the Solomon Temple.

8. THE TRANSMISSION OF ARCHITECTURAL KNOWLEDGE

The presence of elaborate architectural elements in the Khirbet Qeiyafa model is surprising. No comparable architecture has been found in the southern Levant from the Middle or Late Bronze Age, with the exception of the recessed city gate at Ashkelon. How did this Mesopotamian and northern Levantine tradition reach the southern Levant, Khirbet Qeiyafa and the monuments in Jerusalem described in the Bible?

The Bible refers to professional architects sent from Tyre to help with the construction of David's palace (2 Sam. 5:11) and a generation later to build the Solomonic Temple (1 Kings 5:15–24). Is this explanation reasonable? It is quite possible that the Phoenician city-states of the Lebanese coast constitute the 'missing link', geographically and chronologically, between the Bronze Age building tradition of Mesopotamia/northern Levant and Iron Age Judah. (see, e.g., Busink 1970; Margueron 1981; Fritz 1987; Mendeles 1987; Cogan 2000: 232–233; Berlyn 2006). Sending specialised craftsmen from one royal court to another is well documented in the ancient Near East (Zaccagnini 1983; Durand 1997: 285–301). A delegation of several architects remaining in Jerusalem for a few months, if not a few years, would have been an outstanding event, likely to remain in the collective memory associated with the most prominent buildings in the city.

9. CONCLUSIONS

The building models uncovered at Khirbet Qeiyafa indicate that an elaborate Iron Age architectural style had developed as early as the tenth century BCE. Such construction is typical of royal activities, suggesting that state formation, the establishment of a social elite and urbanism had existed in the region in the days of David and Solomon.

We do not know when the biblical texts describing the period of David and Solomon were composed — contemporaneously with the actual period or hundreds of years later. From the Khirbet Qeiyafa stone model we can glean that the text described architectural elements that were known in that region and during that period, thus strengthening the historicity of this particular biblical tradition. This suggests that the ruling elite in Judah displayed its power through the use of prestige artefacts and the construction of elaborate architecture as early as the tenth century BCE.

10. POSTSCRIPT

Dr. Shimon Ilani of the Geological Survey of Israel conducted a petrographic analysis of the stone building model from Khirbet Qeiyafa. It was made of a hard, dense silicified yellowish limestone of the Lower Eocene age, as indicated by the diagnostic foraminifer micro-fossils: *Acarinina* (P) *pentacamerata*, *Acarinina* (P) *broedermanni*, *Cibicides* (B), *Globocassidulina* (B) *subglobosa*, *Subbotinayeguaensis*, *Subbotina* (P) *cancellata* (analysed by Lydia Grossowicz). Since Khirbet Qeiyafa is situated on rocks belonging to the Adulam Formation of Lower to Middle Eocene age, it is suggested that the raw material for producing this cult object is of local origin.

The sides of the sample are painted with thin parallel lines of a reddish colour. The colour strikes were studied under a scanning electronic microscope SEM equipped with an energy dispersive analytical system (EDS) in the Geological Survey of Israel. The colour was found to be made of iron oxides, most probably red ochre (hematite).

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