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Khirbat al-Batrāwī 2015–2019: The Four-Lines Defensive System and the Entrance Hall of the “Palace of the Copper Axes”

Introduction

The site of Khirbat al-Batrāwī, the previously unknown city of the 3rd millennium BC discovered in 2004, has been systematically explored by the Expedition to Palestine and Jordan of Sapienza University of Rome since 2005 (Nigro 2006a, 2006b, 2007, 2008, 2009, 2010a, 2010b, 2012a; 2012b, 2011; 2013a; 2013b; 2014a; 2016a; 2016b; 2017a; Nigro and Sala 2009; 2010; 2011; Nigro *et al.* 2008). Archaeological investigations and restoration works were carried out under the aegis of the Department of Antiquities of the Hashemite Kingdom of Jordan, with the support of the Italian Ministry of Foreign Affairs and International Cooperation and the Italian Ministry of University and Scientific Research.

The present paper focuses on the discoveries of the 11th–15th seasons (2015–2019), which were devoted to the exploration of 1.) the northern slope of

the site where the westernmost stretch of the impressive fortification system was completely brought to light, and 2.) the “Palace of the Copper Axes”, with the extension of the public building towards the west with a monumental Entrance Hall.

Khirbat al-Batrāwī: An Early Bronze Age City at the Centre of the Ancient Routes across Jordan, Syria, Egypt, and Mesopotamia

Al-Batrāwī (32° 05'12.74" N, 36° 04'16.41" E) is located in the Upper Wādī az-Zarqā' Valley, the easternmost affluent of the Jordan (FIG. 1). At the beginning of the 3rd millennium BC, a major fortified city was founded on the top of the steep rocky hill dominating a ford through the upper course of the river, giving access to a shortcut and connecting the az-Zarqā' and the Jordan Valleys (Nigro 2006a: 16–22, 2006b: 233–5, fig. 1; 2011; 2012c: 610). Upper Wādī az-Zarqā' Valley offered



1. View of the rocky hill of Khirbat al-Batrāwī with the impressive northern defensive system, seen from the north.

a relatively wide cultivable land, with the possibility for intensive cultivation along the riverbanks, while the surrounding western hills were suitable for the cultivation of olive trees, lentils, and chickpeas (Nigro 2006a: 5–8, 2012c: 612; 2017a).

Al-Batrāwī was founded as the outcome of a synoecistic process that characterized the early urban phenomenon in the southern Levant.¹ The population formerly living along the river, and nomads living in the nearby steppe, were attracted to the new city and settled a series of small unfortified villages which became the production centres at the base of the economy of the newly formed city (Douglas 2006; Nigro 2009; 2010b; 2012c: 611–2; 2013b: 191–2).

¹ On the urbanisation process and urban status of the southern Levantine ‘cities’, see: Falconer 1994; Philip 2001, 2003; Prag 2001; Rast 2001; Greenberg 2002; Chesson and Philip 2003; Harrison and Savage 2003; Savage *et al.* 2007; Genz 2010; Kafafi 2011; Chesson and Goodale 2014; Paz and Greenberg 2016.

The EB II–III (3000–2300 BC) city was in a strategic position, at the same time, for the exploitation of cultivable land, water resources, and a long-distance trade network connecting the site of al-Batrāwī with the main urban civilisations of the 3rd millennium BC. The discoveries in the “Palace of the Copper Axes” revealed the central role played by the fortified city of al-Batrāwī at the junction of the east-west route which crosses the Syro-Arabic Desert to Mesopotamia and the Arabian Peninsula and the south-north main route, later on named ‘King’s’ Highway’, running upon the Jordanian Highlands from the Sinai, the Gulf of al-‘Aqabah, and Wādī ‘Arabah (Nigro 2012c: 611; 2014b). This overland track allowed a direct connection with pharaonic Egypt, whose mining activities in the Sinai took place in the same period. Contact with Egypt played an important role in the life of the city of al-Batrāwī, as finds from the palace testify (Nigro 2010a; 2012d; 2014c;



2. Map of the Eastern Mediterranean illustrating supply points of gemstones, copper and other precious materials, and trade routes involving the city of al-Batrāwī during the 3rd millennium BC.

2015; Sala 2014a; FIG. 2).

The EB II–III Quadruple Fortification Lines (Area B North)

The excavation of a crucial stretch of the defensive perimeter of al-Batrāwī, at the middle of the northern side of the hill (FIG. 3), uncovered a massive and complex system organized on multiple lines of interrelated walls built in order to strengthen the westernmost spur of the site, which overlooked the underlying valley and the path approaching the city (Nigro 2006a: 153–223; 2006b: 240–6; 2007: 349–51; 2008: 65–125; 2010a: 241; 2010b: 438–9; 2012b, 41–52 plan II; 2013a: 495 fig. 7; 2016b: 136–9; Nigro and Sala 2009: 374–7).

At al-Batrāwī, multiple fortifications were built, destroyed, refurbished, and strengthened throughout the whole EB II–III

periods. The fortifications represent a cycle of destruction and reconstruction, illustrating the main historical-archaeological periods of the site, which neatly epitomise the early urbanisation of the southern Levant (Nigro 2008: 66–76; 2012b: 14–30).

The EB II–III Main Inner Wall, Northern Bastion T.830 and Gate L.860

Among the main goals of the last five seasons of excavations at Khirbat al-Batrāwī was the complete understanding of the northern fortifications, with a special focus on the investigation of the Main Inner City-Wall (MIW) in the stretch where the huge Northern Bastion T.830 flanks it for more than 20 m (FIG. 4).

The main city-wall was erected in the EB II encircling the entire *khirbah*; it consisted of a mudbrick superstructure built upon a solid foundation of monolithic blocks and



3. General view of the northern multiple fortifications of Area B North at the end of the 14th season (2018) of excavations and restorations, seen from the north-east.



4. View of Northern Bastion T.830 and Gate L.860 inside it, seen from the east (after the restoration of the outer wall of the Bastion).

boulders (Nigro 2006a: 26–36; 2007: 349–52; 2008: 83–8; 2009: 663–4; 2012b: 32–7). At the end of the period, the structure was damaged by a violent earthquake (Nigro 2007: 357–8; 2008: 87, 245–68 fig. 3.37; 2009: 666–7; 2010b: 437; Gallo 2014: 150 fig. 4), following which the city-wall was reinstated and the defensive system reinforced in the EB III with the progressive addition of external fortifications.

During this second major period, a massive defensive work, Northern Bastion T.830 (Nigro 2016b: 138), was added to the Main Inner City-Wall due to a huge breach in this structure, possibly caused by an earthquake. The Northern Bastion reinforced this segment of the fortifications by letting the massive tower abut from the line of the MIW. The Northern Bastion was, thus, erected by setting its foundations into the bedrock and using large roughly cut

limestone boulders in the lowest courses. The Bastion was excavated to the west after a careful restoration of its northern and eastern walls. It is characterised by a distinguished building technique with a perimeter wall made of big roughly cut limestone boulders 1.05 m long/0.52 m high (2×1 cubits) on the lowest two courses, many of which still preserve the original yellowish clay mortar and plaster. The size of blocks in the wall gradually reduces in the upper courses and they are carefully set and fastened by stone wedges and chops. It was 1.65–2.2 m wide, and it is preserved up to a height of 2.5 m for a length of more than 25 m. Inside the bastion, a huge rectangular room was filled up with big stones leaning against the northern face of the Main Inner Wall. Excavations within this blind room during the 2016 season exposed the northern outer face of the MIW where a



5. View of Gate L.860 inside the Northern Bastion T.830 and in the background Gate L.160, seen from the north-west.



6. The external fortification lines with Exterior Wall W.827 (on the left), Outer Wall W.155 (in the centre), and Northern Bastion T.830 (on the right), seen from the west.

blocked gateway was recognised.

Gate L.860 was originally opened through the MIW in the EB II, some 25 m west of Gate L.160 (Nigro 2008: 83–9, 245–68 fig. 3.37). It was 3 m wide, which is about double the width of Gate L.160 (FIG. 5). The

eastern and western jambs were reinforced by squared limestone blocks laid as headers and stretchers in the MIW. Its width made it impossible to roof the passageway with a sole capstone, and it thus suggests that a wooden ceiling or a mudbrick vault

was used. When the Gate fell out of use, apparently after the earthquake which hit the city towards the end of the EB II, it was carefully closed by a massive wall (W.867) that incorporated big limestone boulders, like Gate L.160, possibly to strengthen the MIW.

A street along the city-wall was excavated for a length of 14 m, from the “Palace of the Copper Axes” westwards. The floor gently slopes from the west to the east and represents the paving of the EB IIIB street running inside the MIW (Nigro 2012b: 188). Recent discoveries in the Palace, namely its extension towards the west, suggest that Gate L.860 was directly connected to it, and its forerunner is to be investigated in front of the gate itself.

External Fortifications on the Northern Slope of the Khirbah

The foundation of Northern Bastion T.830 was supported by an external wall, Outer Wall W.155 (Nigro 2007: 349–51; 2008: 92–9; 2010b: 438–9; 2012b: 38–40; 2016b: 138–9), with a corridor 1 m wide separating the two structures. The Outer Wall was built at the same time as the Northern Bastion, and in its western stretch where Bastion T.830 meets the Outer Wall there is an outer battering face made of

large boulders to support the weight of the massive structure above (FIG. 6).

Another narrow corridor (L.862) separated the Outer Wall and the latest fourth defensive line of fortification, called Exterior Wall W.827, which runs parallel to the Outer Wall. Even if the outer face of the Exterior Wall proved to have been partly overlaid and cut by the foot of the EB IVB Embankment (FIG. 7), the inner southern face of the same wall clearly indicated that this structure, with a varying width from 2 m to 3.50 m, turned up southwards to end against the abutting face of the Outer Wall, forming a single impenetrable defensive line (Nigro 2012b: 46–51). The tower on the north-western corner of the city was the place where all the four fortification lines joined.

The Story of the City of al-Batrāwī as Reflected by its Complex Multiple Defensive System

The multiple city walls of al-Batrāwī represents a unique summary of the city’s history, from its foundation at the end of the 4th millennium BC to its first destruction due to a tremendous earthquake towards 2800 BC, the reconstruction during EB IIIA followed by another destruction, and then the final fire which destroyed the city



7. View of the northern face of Exterior Wall W.827 with the EB IVB Embankment which concealed the EB III collapsed walls, seen from the north-east.

around 2300 BC (Nigro 2017b: 164–5).

The four fortification lines were progressively built on terraces. The top and earliest structure was the Main Inner City-Wall of the al-Batrāwī (Batrawy) II period (EB II, 3000–2800 BC), which also hosted the main gate (L.860) and a postern 25 m to the east (L.160). When this massive structure collapsed due to a strong earthquake, the whole fortification system had to be re-planned and reconstructed. This happened during the al-Batrāwī IIIa period (EB IIIA, 2800–2500 BC), when both gates were blocked by walls and another entrance

was opened to the east. The MIW was reconstructed by raising its stone basement, inserting wooden chains, and rebuilding the mudbrick superstructure. At the same time, the northern slope of the hill was reinforced by two battering walls, Outer Wall W.155 and Scarp Wall W.165. The Northern Bastion T.830 was built on top of the Outer Wall, which appositely deviated its line to sustain the huge structure. Further on, in the al-Batrāwī IIIb period (EB IIIB, 2500–2300BC), the fourth and last fortification line was added to the system at its bottom, including Transversal Wall W.177 and



8. View of Exterior Wall W.827 and Outer Wall W.155 with its outer battering face and the two corridors, L.858 (between Bastion T.830 and Outer Wall) and L.862 (between Outer Wall and Exterior Wall), seen from the south-east.

Exterior Wall W.827, which created a rhomboidal courtyard to the east in front of the Outer Wall (blind room L.824), and then progressively turned up to end against the Outer Wall itself at the north-western corner of the city (FIG. 8).

The four lines of massive walls built on four sloping terraces bridged a height of about 6 m and an overall width of about 16 m. Strata in between these structures and encapsulated materials provided a clear sequence of major constructive phases during the life of the ancient city (Nigro 2008: 13–30 figs. 2.6–2.19).

The “Palace of the Copper Axes” and Entrance Hall L.1100 (Area B South)

Excavations in Area B South brought to light a large building, which has been investigated since 2010 and interpreted on the basis of the architecture and meaningful finds as a public building, now known as the “Palace of the Copper Axes” (Fiaccavento 2013; 2014; Medeghini *et al.* 2016; Nigro 2012a: 705 fig. 6; 2012b: 176–82; 2012d;

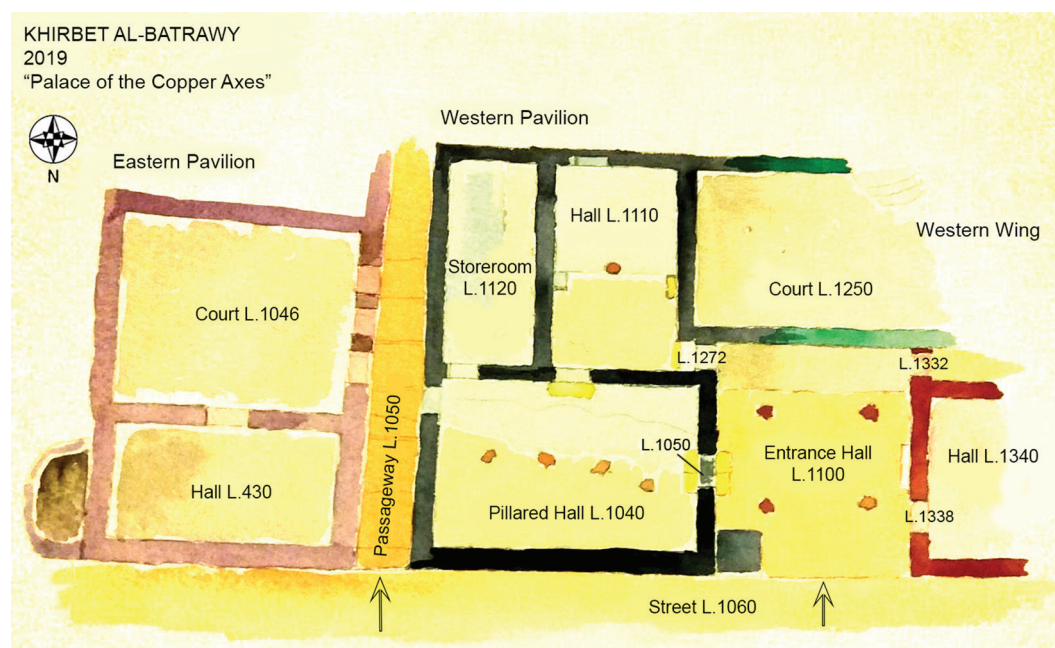
2014c; 2015).

The palace was erected upon a series of terraces on the northern slope of the site, descending from the acropolis. The lowest terrace hosted two almost symmetrical pavilions subdivided by a central passage (L.1050), which have been carefully explored during four seasons (2010–2013) of excavations and restorations (Nigro 2013b: 198–204 figs. 13, 15–22; 2016b: 139–49; 2017b: 162–4).

The exploration of the palace was resumed in the 2018–2019 seasons and revealed the prosecution of the structure towards west, with a monumental Entrance Hall and another room to the west, belonging to a further wing of the palace, whose extension is evidently much greater (FIG. 9). The overall plan of the building proved to be organized according to a symmetrical rule, with the central main entrance, and two wings, the eastern one almost fully excavated and previously subdivided into an Eastern and a Western Pavilion (FIG. 10).
Entrance Hall L.1100



9. General view of the “Palace of the Copper Axes” with Entrance Hall L.1100 and the western wing at the end of the 2019 season of excavations and restorations, seen from the south.



10. Reconstructed plan of the “Palace of the Copper Axes” with the Entrance Hall in the middle of two symmetrical wings (drawing by Lorenzo Nigro).

Entrance Hall L.1100 had a roughly square plan, measured about 60 m² (7.20×8.20 m), and represented the monumental entrance to the palace.² Entrance Hall L.1100 had a floor (L.1330) consisting of a thick and compact layer of yellowish clay mixed with lime. The hall was delimited to the east by walls W.1103+W.1133 of Pillared Hall L.1040, to the south by wall W.1245 of Court L.1250 and Porch L.1292, to the west by walls W.1323 and W.1333 of Hall L.1340, while to the north the Entrance Hall directly opened onto the peri-pomerial street running inside the Main Inner City-Wall. Four limestone pillar bases were set into it: the NE pillar base (B.1285) was

at a regular distance of about 1.12 m from Wall W.1107, in front of door L.1150; the SE pillar base (B.1329) was at a distance of 2.25 m from Wall W.1133, in front of door L.1272; the NW pillar base (B.1331) was at a distance of 1.58 m from Wall W.1333, in front of door L.1338; finally, the SW pillar base (B.1339) was at a distance of 3.89 m from Wall W.1323, in front of door L.1332 (FIG. 11).

Finds from Entrance Hall L.1100

Like the other portions of the palace, Entrance Hall L.1100 suffered a violent fire (Nigro 2017b: 164), which provoked the sudden collapse of its ceilings supported by wooden beams (Gallo 2014: 158–60). A roughly 1 m thick layer of destruction has been carefully excavated within it, distinguishing on top a layer of collapse (F.1324), mainly incorporating fragments of yellowish-clay plaster, charcoals, ashes, broken mudbricks, stones, and several

² Before reaching the structures of the Entrance Hall, another portion of the EB IV village was brought to light, displaying two major occupational phases (Nigro 2012b: 146 table 3.1) directly built upon the thick destruction layer and collapsed remains of the latest phase of utilisation of the palace (EB IIIB, 2500–2300 BC).



11. General view of the Western Wing and Entrance Hall L.1100 of the “Palace of the Copper Axes” at the end of the 15th season (2019) of excavations and restorations, seen from the north-west.

items apparently fallen down from an upper storey or roofing. A lower layer of destruction (F.1327) was a mixed filling with charcoals, ashes, broken and burnt mudbricks, mortar, plaster, and other fragments of combusted and broken building materials. Two *pithoi* (KB.18.B.1324/1 and KB.18.B.1324/3) were found leaning against the NE-SW oriented Wall W.1323.³ The bottom of *pithos* KB.18.B.1324/1 was found against the eastern side of the wall and it contained the burnt epiphysis of a bovine humerus and a quartzite pear-shaped pestle (KB.18.B.32). In the middle of the hall, three vessels were uncovered: an *amphoriskos*

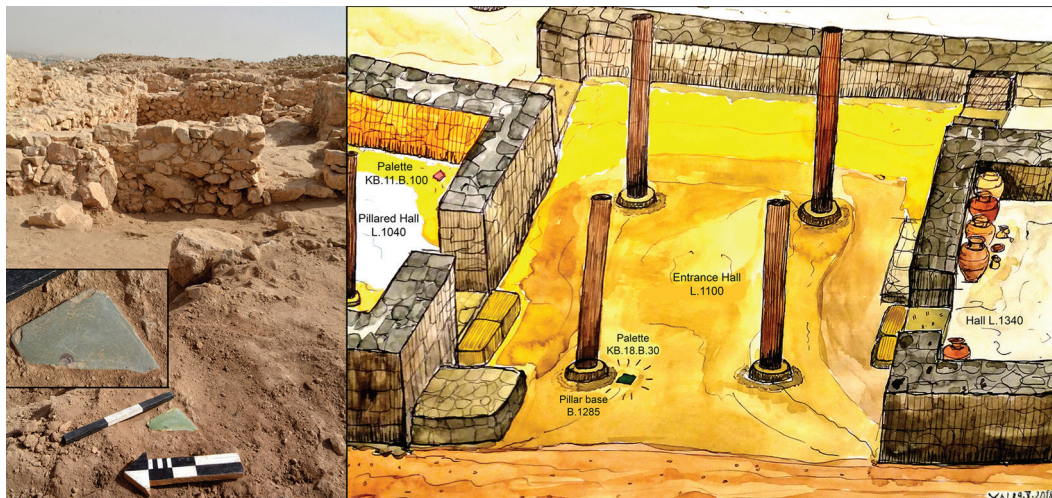
³ *Pithoi* for long-term conservation were particularly frequent in the palace and were characterised by an elongated ovoid body and flaring neck, a narrow flat base, and rope-like plastic decorations usually applied at the junction of the different parts of the vessel, such as the base of the neck and the middle of the body (Sala 2014b: 268 figs. 16–17; Nigro 2016b: 142–3).

(KB.18.B.1324/24) was found upside down, a small jar (KB.18.B.1324/25) with rope-like decoration and pushed-up ledge handles, and the upper part of a broken bottle (KB.18.B.1324/26; Sala 2014b: 267 fig. 12).⁴

Other implements found in the palace are fine flint tools, pottery stoppers or tokens, fine bone tools, a carefully polished bone awl (KB.18.B.28), and a sort of bone stylus (KB.18.B.25). A basalt donut or ring (KB.18.B.33), interpreted as the lower part of a potter’s wheel (Fiaccavento 2013) or connected with a marble mortar (KB.18.B.24) re-employed in the earliest EB IVB phase, was also found.

However, the most remarkable finds in Entrance Hall were a broken Egyptian green schist palette, an amazonite gemstone, and

⁴ The *amphoriskos* belongs to the sub-type with slender body and a cylindrical neck similar to other specimens from the repertoire of the palace (Sala 2014b: 267 fig. 11:5).



12. Egyptian palette KB.18.B.30 at the moment of its retrieval, not far from the round pillar base B.1285, seen from the west; sketch drawing of Entrance Hall L.1100 and Pillared Hall L.1040, with the finding spots of the two Egyptian palettes (drawing by Lorenzo Nigro).



13. Palette KB.18.B.30 (the front side on the left, the reverse side on the right).

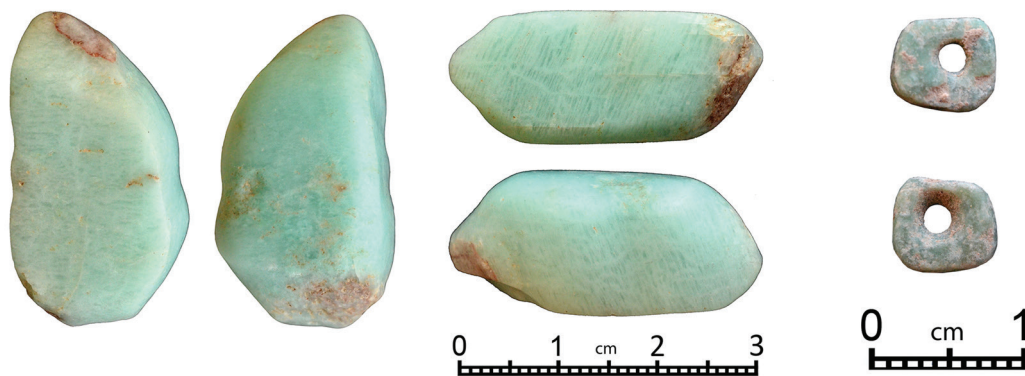
a bead of fluorapatite (Nigro *et al.* 2020). Egyptian green schist palette KB.18.B.30 was found just beside the foot of the north-east pillar (B.1285), upside down in the layer of collapse (F.1324), probably fallen

from an upper storey or balcony (Fig. 12). The palette belongs to the squared/rectangular type, no more than 1 cm thick, with a grooved frame of one or at least three incised lines on the polished front side,

commonly attested to in Egypt since the Early Naqada III period (Petrie 1974: 38 pl. LIX) and typically imported to the southern Levant during the EB IB–III (FIG. 13; Sala 2012: 277–9; 2014a: 66–7). Another fragment of a palette (KB.11.B.100) was found in the “Palace of the Copper Axes”, in the south-western corner of Pillared Hall L.1040 (Nigro 2014b: 47 fig. 13; Sala 2014a: 69).

At the foot of pillar base B.1339, an amazonite gemstone (KB.18.B.50) in the shape of a rectangular parallelepiped with smoothed edges and a tooth-like apex and a small pierced bead (KB.18.B.63) were found (FIG. 14). Apparently, the gemstone was in the processes of being worked to become a major pendant in a necklace. The material of

gemstone KB.18.B.50 was identified through Raman spectrography as green amazonite (Ostrooumov 2015: 158–61; Nigro *et al.* 2020). This stone is mainly attested in Egypt during Predynastic and Dynastic Periods (Hayes 1965: 95), but amazonite was also used in Mesopotamia in the Royal Tombs of Ur and for manufacturing Neo-Assyrian beads and cylinder seals (Hawkins 1977). Ores of amazonite active in pre-classical periods are known in Egypt in the Eastern Desert (Harrell and Osman 2007; Harrell and Storemyr 2009: 18), but also in southeast Libya’s Egheï Mountains (De Michele and Piacenza 1999), Sudan, Ethiopia (Ostrooumov 2015: 17), and in the southern Urals in Russia (Ostrooumov 2015: 14).



14. The green-cyan amazonite gemstone KB.18.B.50 and bead KB.18.B.63 found in Entrance Hall L.1100.



15. The carnelian gemstone KB.19.B.140 found in the Eastern Pavilion.

Two more carnelian beads (KB.06.B.40 and KB.19.B.140), one finished and the other unfinished (FIG. 15), were also found in the Eastern Pavilion (Nigro 2006a: 160 fig. 4.61, a). These finds suggest that the palace hosted a workshop producing ornaments.

Conclusions

Fifteen seasons (2005–2019) of systematic excavations and restorations at Khirbat al-Batrāwī yielded a distinguished set of data that contributed to a deeper and more detailed understanding of Early Bronze Age Jordanian urbanism. The monumental architecture of its defensive system, the inner layout with spatial and functional distinctions within the city, as well as the economy, social organization, technological innovation, and centralisation of goods, including luxury and symbolic goods from long-distance trade, all testify to the central role of al-Batrāwī in the general framework of the Early Bronze Age southern Levantine urbanisation.

Bibliography

- Chesson, M.S., and N. Goodale. 2014. "Population Aggregation, Residential Storage and Socioeconomic Inequality at Early Bronze Age Numayra, Jordan." *JMA* 35:117–34.
- Chesson, M.S., and G. Philip. 2003. "Tales of the City? 'Urbanism' in the Early Bronze Age Levant from Mediterranean and Levantine Perspectives." *JMA* 16:3–16.
- De Michele, V., and B. Piacenza. 1999. "L'amazonite di Eghei Zuma (Tibesti settentrionale, Libia)." *Sahara* 11:109–12.
- Douglas, K. 2006. "Occupational History of the Early Bronze Age in the Upper Wadi az-Zarqa." In *Khirbet al-Batrāwī. An Early Bronze Age Fortified Town in North-Central Jordan. Preliminary Report of the First Season of Excavations (2005)*, edited by L. Nigro, 49–62. Rome: La Sapienza Expedition to Palestine and Jordan.
- Falconer, S.E. 1994. "Village Economy and Society in the Jordan Valley: A Study of Bronze Age Rural Complexity." In *Archaeological Views from the Countryside. Village Communities in Early Complex Societies*, edited by G.M. Schwartz and S.E. Falconer, 121–42. Washington: Smithsonian Institution Press.
- Fiaccavento, C. 2013. "Potters' Wheels from Khirbet al-Batrāwī: A Reconsideration of Social Contexts." *Vicino Oriente* 18:75–103.
- . 2014. "EB III Polished Jugs with Reserved Alternate-Hatching Decoration." *Vicino Oriente* 18:83–100.
- Gallo, E. 2014. "Destructions in Early Bronze Age Southern Levant." In *Overcoming Catastrophes. Essays on Disastrous Agents Characterization and Resilience Strategies in Pre-Classical Southern Levant*, edited by L. Nigro, 144–69. Rome "La Sapienza" Studies on the Archaeology of Palestine and Transjordan 11. Rome: La Sapienza Expedition to Palestine and Jordan.
- Genz, H. 2010. "Thoughts on the Function of 'Public Buildings' in the Early Bronze Age Southern Levant." In *The Development of Pre-State Communities in the Ancient Near East. Studies in Honour of Edgar Peltenburg. Themes from the Ancient Near East BANEA Publication Series 2*, edited by D. Bolger and L.C. Maguire, 46–52. Oxford: Oxbow Books.
- Greenberg, R. 2002. *Early Urbanizations in the Levant. A Regional Narrative. New Approaches to Anthropological Archaeology*. London: Leicester University Press.
- Harrell, J.A., and A. Osman. 2007. "Ancient Amazonite Quarries in the Eastern Desert." *Egyptian Archaeology* 30:26–8.
- Harrell, J.A. and P. Storemyr. 2009. "Ancient Egyptian Quarries: An Illustrated Overview." In *QuarryScapes: Ancient Stone Quarry Landscapes in the Eastern*

- Mediterranean*, edited by N. Abu-Jaber, E. Bloxam, P. Degryse and T. Haldal, 7-50. Geological Survey of Norway Special Publication 12. Trondheim: Geological Survey of Norway.
- Harrison, T.P., and S.H. Savage. 2003. "Settlement Heterogeneity and Multivariate Craft Production in the Early Bronze Age Southern Levant." *JMA* 16:33–57.
- Hawkins, J.D., ed. 1977. *Trade in the Ancient Near East. Papers Presented to the XXIII Rencontre Assyriologique Internationale, University of Birmingham, 5–9 July, 1976*. London: British School of Archaeology in Iraq.
- Hayes, W.C. 1965. *Most Ancient Egypt*. Chicago: University of Chicago Press.
- Kafafi, Z. 2011. "Neither Early Bronze Age Cities nor States in the South of the Levant: Another Perspective." *Syria* 88:47–57.
- Medeghini, L., L. Fabrizi, C. De Vito, S. Mignardi, L. Nigro, E. Gallo, and C. Fiaccavento. 2016. "The Ceramic of the 'Palace of the Copper Axes' (Khirbet al-Batrawy, Jordan): A Palatial Special Production." *Ceramic International* 42:5952–62.
- Nigro, L., ed. 2006a. *Khirbet al-Batrawy. An Early Bronze Age Fortified Town in North-Central Jordan. Preliminary Report of the First Season of Excavations (2005)*. Rome "La Sapienza" Studies on the Archaeology of Palestine and Transjordan 3. Rome: La Sapienza Expedition to Palestine and Jordan.
- . 2006b. "Preliminary Report of the First Season of Excavations by the University of Rome 'La Sapienza' at Khirbat al-Batrāwī (Upper Wādī az-Zarqā)." *ADAJ* 50:229–48.
- . 2007. "Preliminary Report of the Second Season of Excavations by the University of Rome 'La Sapienza' at Khirbat al-Batrāwī (Upper Wādī az-Zarqā)." *ADAJ* 51:345–60.
- , ed. 2008. *Khirbet al-Batrawy II. The EB II City-Gate, the EB II–III Fortifications, the EB II–III Temple. Preliminary Report of the Second (2006) and Third (2007) Seasons of Excavations*. Rome: La Sapienza Expedition to Rome "La Sapienza" Studies on the Archaeology of Palestine and Transjordan 6. Palestine and Jordan.
- . 2009. "Khirbet al-Batrawy: A Case Study of 3rd Millennium BC Early Urbanism in North-Central Jordan." *SHAJ* 10:657–77.
- . 2010a. *In the Palace of the Copper Axes/Nel Palazzo delle Asce di Rame. Khirbet al-Batrawy: The Discovery of a Forgotten City of the III Millennium BC in Jordan/Khirbet al-Batrawy: la scoperta di una città dimenticata del III millennio a.C. in Giordania*. Rome "La Sapienza" Studies on the Archaeology of Palestine and Transjordan, Colour Monographs 1. Rome: La Sapienza Expedition to Palestine and Jordan.
- . 2010b. "Between the Desert and the Jordan: Early Urbanization in the Upper Wadi az-Zarqa—The EB II–III Fortified Town of Khirbet al-Batrawy." In 6 ICAANE. *Proceedings of the 6th International Congress of the Archaeology of the Ancient Near East. 5 May–10 May 2008, "Sapienza", Università di Roma*, Vol. 2, edited by P. Matthiae et al., 431–58. Wiesbaden: Harrassowitz.
- . 2011. "Dominating the River: Khirbet al-Batrawy, an EB II–III City in North-Central Jordan." *Syria* 88:59–74.
- . 2012a. "Khirbet al-Batrawy." *AJA* 116:705–6.
- , ed. 2012b. *Khirbet al-Batrawy III. The EB II–III Triple Fortification Line and the EB IIIB Quarter inside the City. Preliminary Report of the Fourth (2008) and Fifth (2009) Seasons of Excavations*. Rome "La Sapienza" Studies on the Archaeology of Palestine and Transjordan 8. Rome: La Sapienza

- Expedition to Palestine and Jordan.
- . 2012c. “Khirbet al-Batrawy: Rise, Flourish and Collapse of an Early Bronze Age City in Jordan.” In *Proceedings of the 7th International Congress on the Archaeology of the Ancient Near East. 12 April–16 April 2010, the British Museum and UCL, London*. Vol. 1, edited by R. Matthews and J. Curtis, 609–28. Wiesbaden: Harrassovitz.
- . 2012d. “An EB IIIB (2500–2300 BC) Gemstones Necklace from the Palace of the Copper Axes at Khirbet al-Batrawy, Jordan.” *Vicino Oriente* 16:227–43.
- . 2013a. “Urban Origins in the Upper Wādī az-Zarqā’, Jordan: The City of Khirbat al-Batrāwī in the Third Millennium BC.” *SHAJ* 11:486–506.
- . 2013b. “Khirbet al-Batrawy. An Early Bronze Age City at the Fringes of the Desert.” *Syria* 90:189–209.
- . 2014a. “Khirbat al-Batrawy.” *Archaeology in Jordan, 2012 and 2013 Seasons*. *AJA* 118, edited by G.J. Corbett, D.R. Keller, B.A. Porter, and Ch.A. Tuttle, 644–5. Boston, MA: Archaeological Institute of America.
- . 2014b. “The Copper Routes and the Egyptian Connection in 3rd Millennium BC Jordan Seen from the Caravan City of Khirbet al-Batrawy.” *Vicino Oriente* 18:39–64.
- . 2014c. “The King’s Cup and the Bear Skin. Royal Ostentation in the Early Bronze III ‘Palace of the Copper Axes’ at Khirbet al-Batrawy.” In *A Pioneer of Arabia. Studies in the Archaeology and Epigraphy of the Levant and the Arabian Peninsula in Honor of Moawiyah Ibrahim*, edited by Z. Kafafi and M. Maraqtan, 261–70. Rome “La Sapienza” Studies on the Archaeology of Palestine and Transjordan 10. Rome: La Sapienza Expedition to Palestine and Jordan.
- . 2015. “The Copper Axes Hoard in the Early Bronze IIIb Palace of Batrawy, Jordan.” In *Copper and Trade in the South-Eastern Mediterranean Trade Routes of the Near East in Antiquity*. BAR-IS 2753, edited by K. Rosińska-Balik, A. Ochał-Czarnowicz, M. Czarnowicz, and J. Dębowska-Ludwin, 77–83. Oxford: Archaeopress.
- . 2016a. “Khirbat al-Batrawy.” *AJA* 120:645–6.
- . 2016b. “Khirbat al-Batrawi 2010–2013: The City Defenses and the Palace of Copper Axes.” *SHAJ* 12:135–54.
- . 2017a. “Water and Power. Early Cities in Jordan and Water Control in the 3rd Millennium BC: The Case of Batrawy.” In *Precious Waters. Paths of Jordanian Civilizations as Seen in the Italian Archaeological Excavations. Proceedings of an International Conference Held in Amman, October 18th 2016*, edited by L. Nigro, M. Nucciotti, and E. Gallo, 1–14. Rome “La Sapienza” Studies on the Archaeology of Palestine and Transjordan 12. Rome: La Sapienza Expedition to Palestine and Jordan.
- . 2017b. “The End of the Early Bronze Age in the Southern Levant. Urban Crisis and Collapse seen from two 3rd Millennium BC Cities: Tell es-Sultan/Jericho and Khirbet al-Batrawy.” In *Crisis to Collapse. The Archaeology of Social Breakdown*. *AEGIS* 11, edited by T. Cunningham and J. Driessen, 149–72. Louvain: Presses universitaires de Louvain.
- Nigro, L., E. Gallo, F. Mura, M. Macrì, T. Rinaldi, and R. Gharib. 2020. “An Egyptian Green Schist Palette and an Amazonite Gemstone from the ‘Palace of the Copper Axes’ at Batrawy.” *Vicino Oriente* 24:1–26.
- Nigro, L., and M. Sala. 2009. “Preliminary Report of the Fourth Season (2008) of Excavations by the University of Rome ‘La Sapienza’ at Khirbat al-Batrāwī (Upper Wādī az-Zarqā’).” *ADAJ* 53:371–84.
- . 2010. “Preliminary Report of the

- Fifth Season (2009) of Excavations by the University of Rome 'La Sapienza' at Khirbat al-Batrāwī (Upper Wādī az-Zarqā').” *ADAJ* 54:237–54.
- . 2011. “Preliminary Report on the Sixth (2010) Season of Excavation by 'La Sapienza' University of Rome at Khirbat al-Batrāwī (Upper Wādī az-Zarqā').” *ADAJ* 55:85–100.
- Nigro, L., M. Sala, and A. Polcaro. 2008. “Preliminary Report of the Third Season of Excavations by the University of Rome 'La Sapienza' at Khirbat al-Batrāwī (Upper Wādī az-Zarqā').” *ADAJ* 52:209–30.
- Ostrooumov, M.N. 2015. *Amazonite: Mineralogy, Crystal Chemistry, and Typomorphism*. Amsterdam: Elsevier.
- Paz, S., and R. Greenberg. 2016. “Conceiving the City: Streets and Incipient Urbanism at Early Bronze Age Bet Yerah.” *JMA* 29:197–223.
- Petrie, W.M.F. 1974. *Prehistoric Egypt. Corpus of Prehistoric Pottery and Palettes*. London: Aris & Phillips.
- Philip, G. 2001. “The Early Bronze I–III Ages.” *The Archaeology of Jordan*, edited by B. McDonald, A. Russel, and P. Bienkowski, 163–232. Sheffield: Sheffield Academic Press.
- . 2003. “The Early Bronze Age of the Southern Landscape: A Landscape Approach.” *JMA* 16:103–32.
- Rast, W.E. 2001. “Early Bronze Age State Formation in the Southeast Dead Sea Plain, Jordan.” In *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse*, edited by S.R. Wolff, 519–34. SAOC 59. Chicago: Oriental Institute of the University of Chicago.
- Sala, M. 2012. “Egyptian and Egyptianizing Objects from EB I–III Tell es-Sultan/Ancient Jericho.” *Vicino Oriente* 26:275–302.
- . 2014a. “EB II–III *Aegyptiaca* East of the Jordan: A Re-evaluation of Trade and Cultural Interactions between Egypt and the Transjordanian Urban Centres.” *Vicino Oriente* 28:65–81.
- . 2014b. “Stratigraphy, Pottery and Chronology at Khirbet el-Batrāwī in the Framework of 3rd Millennium BC Palestine and Transjordan.” In *Egypt and the Southern Levant in the Early Bronze Age*, edited by F. Höflmayer and R. Eichmann, 259–92. Rahden: VML.
- Savage, S.H., S.E. Falconer, and T.P. Harrison. 2007. “The Early Bronze Age City States of Southern Levant. Neither Cities nor States.” In *Crossing Jordan. North American Contributions to the Archaeology of Jordan*, edited by T.E. Levy *et al.*, 285–97. London: Equinox Publishing.