

AN EGYPTIAN GREEN SCHIST PALETTE AND AN AMAZONITE GEMSTONE
FROM THE “PALACE OF THE COPPER AXES” AT BATRAWY, JORDAN

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The exploration of the “Palace of the Copper Axes”, the Early Bronze Age III palace of the easternmost city of Southern Levant during the 3rd millennium BC, was resumed in 2018, during the 14th season of excavation at Khirbet al-Batrawy in north-central Jordan, and completed in 2019. In the entrance hall of the palace, a square space with ceilings supported by four pillars, an Egyptian green schist palette, a cyan gemstone of amazonite and a pierced bead of fluorapatite were found buried under the destruction layer, while a barrel-shaped carnelian bead from Mesopotamia was found in the destruction layer just outside the Eastern Pavilion of the palace. These finds again testify to the inclusion of the palace and the city into a wide international trade network and its special connections with Pharaonic Egypt.²

Keywords: palette; Egypt; Batrawy; “Palace of the Copper Axes”; amazonite

1. THE FINDING CONTEXT: ENTRANCE HALL L.1100

In October 2018 and 2019, Sapienza University Expedition to Palestine & Jordan carried out the 14th and 15th seasons of excavations and restorations at the site of Khirbet al-Batrawy, in north-central Jordan, concluding the exploration of the “Palace of the Copper Axes”.³ The excavation of the building continued towards west, where the existence of an entrance hall had been surmised: the plan of the palace is clearly organized according to a symmetrical layout with a central entrance separating two wings (fig. 1).

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² Nigro 2014a.

³ The final report on the excavation of the palace, in seasons 2009-2012 and 2017-2019, is going to appear in 2020. Provisional information on stratigraphy, architecture and finds is available in the following publications: Medeghini - Nigro 2017; Medeghini *et al.* 2016; Nigro 2010a; 2010b; 2010c; 2010d; 2011; 2012a; 2012b; 2012c; 2013a; 2013b; 2014a; 2014b; 2014c; 2015; 2016; Nigro ed. 2008, 127-240; 2012, 145-332; Nigro - Sala 2010; 2011; 2012; 2013.

1.1. *Stratigraphy*

Two occupational phases of the Early Bronze Age IVB⁴ were distinguished just over an earliest reuse of the burnt ruins of the palace and its furnishings, which can be ascribed to the end of the Early Bronze Age IVA. Nonetheless, the underlying destruction strata were up to 1 m thick, due to the slope of the bedrock, and basically consisted of an upper layer (F.1324), incorporating collapsed building material, and a lower layer (F.1327), consisting of burnt ceilings fallen down on the floor (L.1330) of the entrance hall. The upper layer included fragments of yellowish-clay plaster (some with reeds impressions), charcoals, ashes, broken mud-bricks, stones, and several items apparently fallen down from the upper storey, roofing or balconies (fig. 2). The lower layer consisted of brownish-gray soil, with ashes and charcoals, and sealed finds smashed on the original floor of the hall.

Both layers mark the end of Period Batrawy IIIb (Early Bronze Age IIIb), when the city was set on fire and the palace transformed into a heap of ruins; according to radiocarbon, this event is dated back around the mid of the 3rd millennium BC.⁵

1.2. *Architecture: Entrance Hall L.1100*

The investigated area was considered the entrance hall of the palace, called L.1100 (fig. 3).⁶ It was delimited by Walls W.1103+W.1133, to the east; Wall W.1245, to the south; and Walls W.1323+W.1333, to the west. The last two walls were also the eastern limit of Hall L.1340, the northern room of the western wing of the palace arranged symmetrically to Pillared Hall L.1040 and completely explored during the 2019 season.

Underneath the thick destruction layer, four stone bases 0.2 m high, symmetrically displaced, have been uncovered.⁷ They were the bases of wooden pillars supporting the at least 3.5 m high roof of Entrance Hall L.1100. The bedrock pavement of the hall was uncovered in the southern upper part of the hall, while in the centre and to the north the floor (L.1330), consisted of a compact layer of yellowish marl and crushed limestone, laid over a marl-pebbles preparation and a filling regularizing the bedrock surface.

The entrance hall opened to the north towards the street (L.1060) running along the city-walls, and was flanked by the northernmost rooms of the palace (Halls L.1040 and L.1340), while to the south a raised porch (L.1292) connected it with a second line of large rooms (L.1110 and L.1250). The four pillars monumentalized the space and distributed circulation between four symmetrical doors, two on the eastern side and two on the western side of the

⁴ Nigro ed. 2012, 146, tab. 3.1.

⁵ Radiocarbon dates so far published from the EB IIIb contexts of the palace (Höflmayer 2014, 130, figs. 3-4) and further dates being published, though earlier from about two centuries to one century than traditional chronology, provide an indication of the possible end of the EBA city of Batrawy which does not necessarily imply a raising of the end of the Early Bronze III in the Southern Levant, a phenomenon which occurred not simultaneously in the various sites of the region (Nigro 2017, 165-166).

⁶ In season 2018 works in the area of the palace included the eastern half of Square BIII5 and Squares BIII6-7 (see Nigro 2016, fig. 2). In season 2019, excavations continued towards west in Squares BkII5+BIII5.

⁷ B.1285 (NE pillar base), B.1329 (SE pillar base), B.1331 (NW pillar base), B.1339 (SW pillar base). As in Hall L.1040 (Nigro 2016, 142, fig. 9), bases were limestone boulders, laid on small stones set into the bedrock.

hall, which gave access to two facing wings of the palace. Pillars and doors were placed in order not to hamper circulation and to emphasize the palace monumentality (fig. 4).

1.3. Finds from Entrance Hall L.1100

On the floor and within the destruction layers in Entrance Hall L.1100 several finds were collected, some of them originally deposited on the floor of this room, while the majority fallen down from the upper storey or balconies during the collapse of the burning palace.

At least two big *pithoi*,⁸ one jar,⁹ one *amphoriskos*¹⁰ and a small bottle¹¹ were found in the hall. The two *pithoi* are made of different fabrics and with different manufacture quality, one (KB.18.B.1324/1) is preserved only in the lower half, the other (KB.18.B.1324/3) is complete and has a rope-like decoration at the bottom of the neck. *Pithos* KB.18.B.1324/1 was found leaning against the western wall of the hall, Wall W.1323,¹² *pithos* KB.18.B.1324/3 was found next to the north-eastern pillar base (B.1285), while the other vessels mentioned above were found in the middle of the hall, just east of the same wall, W.1323.

A large amount of items was found together with pottery vessels, some of them related to daily activities (flint blades,¹³ mortars,¹⁴ and a pestle¹⁵), others to craft activities (polishing pebbles¹⁶ and bone tools¹⁷), others simply linked to the economic and political role played by the palatial institution.¹⁸ A pit (P.1326) full of plaster and clayish marl, including the clay fragments with impressed reeds,¹⁹ was uncovered in the south-western

⁸ KB.18.B.1324/1 and KB.18.B.1324/3. *Pithoi* for long-term conservation were particularly frequent in the palace and characterized 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, at the base of the neck and on the middle of the body (Nigro 2016, 142-143; Sala 2014a, 268, figs. 16-17).

⁹ KB.18.B.1324/25. This specimen belongs to the category of the medium size jars for daily deposit, with a squat ovoid body, flaring neck, short everted rim, and a couple of pushed-up ledge handles applied on the middle of the body (Sala 2014a, 267, fig. 12).

¹⁰ KB.18.B.1324/24. The *amphoriskos* belongs to the sub-type with slender body and a cylindrical neck, similar to other specimens found in the palace (Sala 2014a, 267, fig. 11:5).

¹¹ KB.18.B.1324/26.

¹² *Pithos* KB.18.B.1324/1 contained the burnt epiphysis of a bovine homer (KB.18.B.FR.24) and a quartzite pear-shaped pestle (KB.18.B.32).

¹³ Flint implements are three Canaanite blades (KB.18.B.21, KB.18.B.38, KB.18.B.51), and one flint sickle (KB.18.B.40).

¹⁴ KB.18.B.34, KB.18.B.36, KB.18.B.62. Limestone mortar KB.18.B.34 was perhaps a re-employed door-socket.

¹⁵ KB.18.B.32.

¹⁶ KB.18.B.31, KB.18.B.37, KB.18.B.41, KB.18.B.48.

¹⁷ Bone tools are a carefully polished awl (KB.18.B.28.) and a sort of stylus (KB.18.B.25).

¹⁸ Three pottery tokens (or stoppers) were found close to each other (KB.18.B.26, KB.18.B.27, KB.18.B.22), possibly used as administrative tools/counters.

¹⁹ KB.18.B.AR.8.

corner of the hall. On the northern edge of the destruction layer,²⁰ a circular burnt mark in the soil may indicate the original presence of a wooden basket.

One of the most remarkable items was found in the north-eastern quadrant of the hall. Exactly at the interface of the upper and lower layers of destruction, just aside the foot of the north-eastern pillar base (B.1285), where the large *pithos* KB.18.B.1324/3 was smashed on the floor, a broken Egyptian green schist palette was found upside down in the yellowish brickly layer, probably fallen from an upper storey or balcony (figs. 5-6). Finally, at the foot of the south-western pillar base (B.1339) an amazonite gemstone and a small bead of fluorapatite were found on the floor of the hall.

All these finds depict the ordinary life of the palace as a place of exchange, transformation and gathering of different goods including luxury and imported items.

2. THE GREEN SCHIST PALETTE (KB.18.B.30)

The green schist palette (KB.18.B.30) was originally rectangular in shape, with the approximate dimensions of a modern smartphone (10 × 9.7 [15] cm, 0.9-1.2 cm thick), and only the upper left part is preserved (fig. 7). It was carved in the finest Egyptian style, with a double-line grooved frame all around it and a slightly convex shape tapering towards the edges (fig. 8).

2.1. *Type and material*

The palette belongs to the square/rectangular type, around 1 cm thick, with a grooved frame of one or at least three incised lines on the polished front side. This type, commonly attested in Egypt since the early Naqada III period,²¹ is imported to the Southern Levant during the Early Bronze Age IB-III.²² Similar specimens had been found at other EBA III sites, such as Tell el-Khuweilifeh/Tel Halif²³ and Khirbet Kerak/Beth Yerah.²⁴ East of the Jordan River, Egyptian palettes had been found at Bab edh-Dhra',²⁵ Numeira,²⁶ Tell el-

²⁰ Here, destruction layer F.1327 was cut by pit P.865 of Phase 1, the filling of which (F.864) contained several animal bones (KB.18.B.FR.18 and KB.18.B.FR.27) and Islamic pottery fragments related to a later frequentation of the site, used as a quarry for building materials.

²¹ Petrie 1974, 38, pl. LIX; Stevenson 2009, fig. 6. In Naqada III period palettes became progressively rare, and next to the typical rectangular palette, ceremonial palettes skilfully carved with elaborate reliefs were used as status *insigna* of the emerging kingship (Petrie 1953), as the most famous specimen, the Narmer Palette, testifies to.

²² Together with stone maceheads and calcite vessels, cosmetic palettes represent one of the most frequent luxury goods imported from Egypt to the Southern Levant during the 3rd millennium BC (Sala 2012, 277-279; 2014b, 66-67). The presence of Egyptian outposts and Egyptian merchants travelling along the Southern Levant allowed the establishment of a steady trade network between the Pharaonic Kingdom and the proto-urban Southern Levantine centers already during the Early Bronze Age IB (de Miroschedji *et al.* 2001; de Miroschedji 2002, 41-45; Braun - van den Brink 2008, 659-672; Braun 2011, 112-119; 2014, 39-40). The rise of the urban society in the Early Bronze Age II-III encouraged the development of new forms of relationships and Egyptian luxury goods became symbols of power of the emerging Southern Levantine élites and objects not only of commerce but also of diplomacy (de Miroschedji 2002, 45-47; Greenberg - Eisenberg 2002, 214-221; Greenberg *et al.* 2012, 96; Sowada 2009, 36-37, 109, 127).

²³ Jacobs 1996; Jacobs - Seger 2017, 87-88, fig. 2.B.26.

²⁴ Greenberg - Eisenberg 2002, 214, fig. 13.2; Sowada 2009, 121-122.

²⁵ Rast - Schaub 1989, 343, 384-385; 2003, 294, 400, figs. 10.39:2, 12.6:3-4; Wilkinson 1989, 454-455, figs. 261:3, 261:7; Lee 2003, 631; Sowada 2009, 95-97, fig. 18, pl. 13.

‘Umeiri,²⁷ and during the exploration of the village of Umm Saysabān in the region of Petra.²⁸ Finally, a further specimen came right from the “Palace of the Copper Axes” of Batrawy, where the first Egyptian palette (KB.11.B.100) was found in 2011 season in the south-western corner of Pillared Hall L.1040.²⁹

The X-Ray diffraction pattern (fig. 9) revealed that the palette has the typical mineral composition of green talc-schist, which was extracted in Egypt from quarries in the Eastern Desert.³⁰ It is mainly constituted by quartz, orthoclase, chlorite and muscovite, and its texture is fine and the hardness is very low (1.2 of Mohs’ scale). The results obtained by X-Ray diffraction are confirmed by the EDX map performed in the area shown in fig. 10 (image at the top), where the presence of titanium grains, zirconium silicate and aluminium silicate, containing small quantities of iron, were revealed.

2.2. *Traces of use*

Several scratches are visible on the surfaces of the palette, produced with wooden or bone tools used to mix and prepare the makeup powders (fig. 11). Due to the softness of the stone these scratches may have been produced also by sharpened nails.

Some coloured spots have been identified to be analyzed in order to check the possibility that they concealed traces of the original products used as cosmetics (§ 3.).

3. ANALYSES OF COSMETIC REMAINS ON THE PALETTE

Three different spots on the surfaces of the palette have been sampled in the Biology and CNIS Labs of Sapienza University, plus one not-stained area as comparison, and underwent three different methods of analyses aiming to characterize the chemical-physical composition of such traces.

3.1. *SEM & EDX*

The area containing the coloured spots has been gently scratched using a scalpel, and the powder has been mounted over SEM stub by a conductive graphite tape. A stratigraphy of the palette has been done analyzing a polished cross-section of a micro fragment embedded in an acrylic resin. All the images have been obtained using an Auriga Zeiss FESEM, equipped with a Bruker Quantax Microanalysis (energy resolution 123 eV K α Mn).

3.2. *X-Ray diffraction*

XRD pattern has been acquired using a Philips Analytical PW1830 X-Ray diffractometer, equipped with Ni β -filtered Cu-K α 1 (1.54056 Å) radiation, in the 2 θ range from 5 to 80° with a step size of 0.02° and a time for step of 3.5 sec.

²⁶ Sowada 2000, 1528-1529, fig. 3b; 2009, 93-94, pl. 13.

²⁷ Geraty *et al.* 1986, 135.

²⁸ Hübner 2011, 162-164, fig. 14.

²⁹ Nigro 2014a, 47, fig. 13; Sala 2014b, 69.

³⁰ Astor - Harrell - Shaw 2000, 57-58; Stevenson 2007, 150-152; 2011, 70; Klemm - Klemm 2008, 307-309.

The data were collected with an acceleration voltage and applied current respectively of 40 kV and 30 mA. The crystalline phases in the resulting diffractogram have been identified through the COD database (Crystallography Open Database – an open-access collection of crystal structures).³¹

3.3. Raman

The Raman spectra have been recorded using a micro-Raman dispersive spectrometer (SENTERRA, Bruker Optik GmbH), employing a CW diode pumped solid state laser of 100 mW operating at 785 nm. The spectra have been recorded by using a 50 × objective with a resolution of 3 cm⁻¹ in the spectral window from 45 to 1500 cm⁻¹.

3.4. Results

The preliminary analysis of the palette revealed the presence of coloured spots on its surfaces: the one located in the central area of the front side provided the following results.

A SEM analysis was performed, and through the back-scattered electron signal has been possible to locate micrometric iron oxide grains that, according to the EDX spectrum, correspond to red ochre (fig. 12). The iron/oxygen ratio (tab. 1) is compatible with red ochre, despite the possible presence of aluminium silicates and titanium. The carbon signal derives from the graphite tape used for mounting the extracted powder of the palette. In order to distinguish between different forms of metal oxides, molecular spectroscopy analysis was also performed: the Raman spectrum (fig. 13) confirmed that the analyzed spot is red ochre. Raman analysis identified the red spot as bands of haematite (Fe₂O₃) at 606, 405 and 290 cm⁻¹. The presence of titanium, which was found in traces as brookite (TiO₂), at 511 and 153 cm⁻¹, could correspond to a contaminant of titanium dioxide phase in natural iron oxide deposits.

El	AN	Series	norm.	C Atom.	C Error (1 Sigma)
[wt.%]		[at.%]		[wt.%]	
Fe	26	K-series	47.51	21.35	1.35
O	8	K-series	36.59	57.39	4.47
C	6	K-series	6.49	13.55	1.47
Si	14	K-series	4.94	4.41	0.24
Ti	22	K-series	1.81	0.95	0.12
Al	13	K-series	1.75	1.62	0.12
K	19	K-series	0.56	0.36	0.06
Mg	12	K-series	0.36	0.37	0.06
Total:			100.00	100.00	

Tab. 1 - EDX quantitative analysis of the red ochre grain.

³¹ Gražulis *et al.* 2009.

4. THE AMAZONITE GEMSTONE (KB.18.B.50) AND THE FLUORAPATITE BEAD (KB.18.B.63)

A cyan gemstone (KB.18.B.50) in the shape of a rectangular parallelepiped with smoothed edges and a tooth-like apex was uncovered almost over the floor of Entrance Hall L.1100 in the south-western corner of the hall (figs. 14-15). The gemstone is remarkably big ($3.0 \times 1.55\text{-}0.4 \times 1.3$ cm); its surfaces were partly polished and the edges smoothed. At the bottom and the tip, metallic veins are visible. Apparently the gem had been worked to become a major pendant in a necklace.

A very small pierced bead (KB.18.B.63) of a similar turquoise color was found not far from the gemstone (fig. 16); it shows a roughly square shape ($0.62 \times 0.58 \times 0.2$ cm) and an eccentric round hole (0.18-0.20 cm of diameter). The bead is similar but not identical to those belonging to the necklace found in 2011 season in Hall L.1110.³²

4.1. *Stone identification and interpretation*

The gemstone KB.18.B.50 and bead KB.18.B.63 have been identified through Raman spectrography.

Raman spectra have been recorded using a micro-Raman dispersive spectrometer (SENTERRA, Bruker Optik GmbH), employing a CW diode pumped solid state laser of 5 mW operating at 532 nm. The spectra have been recorded by using a $20 \times$ objective with a resolution of 3 cm^{-1} in the spectral window from 45 to 1500 cm^{-1} and then compared with the mineral database RRUFF³³ for possible band assignments.

The gemstone (fig. 17) shows the typical Raman bands of microcline [$\text{K}(\text{AlSi}_3\text{O}_8)$], a tectosilicate mineral belonging to the green amazonite stone.³⁴

Conversely, the bead (fig. 18) shows the characteristic bands of the fluorapatite [$\text{Ca}_5(\text{PO}_4)_3\text{F}$].

The employment of amazonite as a gemstone is mainly attested in Egypt, where amazonite and turquoise were used for manufacturing disc, barrel and teardrop shaped beads as early as in the Predynastic Period.³⁵ Amazonite was one of the most used gemstones during the Dynastic Period, together with carnelian, amethyst, red jasper, lapis lazuli, and turquoise, and it was also one of the most frequently mentioned stones in Dynastic texts, where the Egyptian name of amazonite was *nšmt* (*neshmet*).³⁶ Attestations in the Near East originate from Mesopotamia, where beads of amazonite had been found in the Royal Cemetery of Ur,³⁷ and amazonite was used for manufacturing beads and cylinder seals retrieved in Neo-Assyrian contexts.³⁸

³² Nigro 2012a.

³³ Downs - Hall-Wallace 2003.

³⁴ Ostrooumov 2015, 158-161.

³⁵ Hayes 1965, 95.

³⁶ Harrell 2012.

³⁷ Rapp 2009, 104.

³⁸ Hawkins ed. 1977.

5. THE CARNELIAN BEAD (KB.19.B.140)

In the 15th season (2019) in a destruction layer (F.978) excavated just outside Wall W.1187, the eastern limit of Eastern Pavilion, a barrel-shaped carnelian bead (KB.19.B.140) was found. The bead is 30.1 mm long and weighs 14.71 g. The upper face diameter is 12.37 mm, while the lower face diameter is 11.53 mm. The maximum diameter at the mid-height of the bead is 17.08 mm. In the centre of the top circular face there is a very small incision, where the piercing of the bead had been started, and then interrupted perhaps after that the gemstone was damaged on its side (fig. 19).

5.1. Stone identification and interpretation

The stone of the barrel-shaped bead has been identified through petrographic analyses, in particular with Raman spectrography and diffractometry carried out in the laboratories of the Department of Earth Sciences of Sapienza University. The analyses have shown that the bead is made of raw carnelian (orange chalcedony), before a careful firing treatment made it redder and more lustrous.

The barrel-shaped is a quite common bead type well known from the Royal Cemetery of Ur,³⁹ and was widely spread over Mesopotamia, Syria and the Levant during the mid-3rd millennium BC.⁴⁰

6. IMPORTS IN BATRAWY AND THEIR HISTORIC-ARCHAEOLOGICAL IMPLICATIONS

The three finds from Entrance Hall L.1100, actually at any extent fallen down from the upper storey of the “Palace of the Copper Axes”, and the carnelian bead from the Eastern Pavilion again testify to the network of international exchange with which the palace was connected.

The Egyptian green talc-schist palette, together with another fragmentary incised palette found in 2011 (KB.11.B.100), and with the bi-conical amethyst bead in the princess’ necklace (KB.11.B.101) found in Hall L.1110,⁴¹ speaks for the inclusion of Batrawy among the centers trading with the Pharaonic Kingdom between the IV and the VI Dynasty (fig. 20).⁴² The connection with Egypt through the “Copper Route” is also suggested by the

³⁹ Woolley 1934, pl. 134, U.8569.

⁴⁰ Carnelian was really appreciated in Mesopotamia and it was second only to lapis lazuli for the production of beads and amulets (Moorey 1994, 97-98). It is attested in Syria, and at Ebla carnelian is also mentioned in administrative tables from the Royal Archives (Peyronel - Vacca 2013, 443-444). In Southern Levant barrel-shaped carnelian beads have been found in EBA III contexts in Tomb F3 at Tell es-Sultan/Jericho (Kenyon 1960, 155-156, fig. 55), and at Tell ed-Duweir/Lachish (Tufnell 1958, pl. 29:6 and 21); different types of carnelian beads have been also found at Tell el-Mutesellim/Megiddo, Tell ‘Arad, Bab edh-Dhra’ (Nigro 2012a, fn. 9).

⁴¹ Nigro 2012a, 230-231, figs. 15-16; 2014a, 44, figs. 1, 8. The amethyst from the necklace should be extracted in Egypt in Wadi Abu Had, in the northern part of the Eastern Desert, a source used for amethyst mining as early as in the I Dynasty (Andrews 1991; Bomann - Young 1994; Astor - Harrell - Shaw 2000, 50-52). The other famous sources of amethyst were at Gebel el-Asr, in the Western Desert, and in the Eastern Desert at Wadi Abu Diyeiba (Harrell - Sidebotham 2004) and Wadi el-Hudi, 35 Km south-east of Aswan, the use of which can be traced back to the Middle Kingdom (Fakhry 1952; Sadek 1980; Shaw - Jameson 1993).

⁴² Nigro 2014a, 49.

building technique of the Main Inner City-Wall⁴³ and by some pottery finds, as like as a “lotus vase” (KB.11.B.1128/76) made of the local fabric according with an Egyptian shape.⁴⁴ Moreover, the incrustations identified on the palette, sampled and analyzed, turned out to be umber, a natural pigment mainly composed of red ochre and used as face-paint in Egypt.⁴⁵ The association of red ochre with palette, often preserved as stains on the surface of these items, testify to their use for face makeup also in Batrawy.⁴⁶ The discovery of this cosmetics once again shows how the members of the ruling class of a Southern Levantine city replicated Egyptian élite life-style to mark their rank.⁴⁷ Makeup instruments were typically owned by the urban élite, even in a far away centre like Batrawy.

As regards the gemstones found during the 14th-15th seasons, they are made of three different semi-precious stones. The first one (KB.18.B.50) is made of amazonite. The sources of this somewhat rare semi-precious green-cyan stone were very far from Batrawy. Ores of amazonite active in pre-classical periods are known in the Eastern Desert of Egypt, where two amazonite quarries are located at Gebel Migif in Wadi Shait, not far from the Red Sea, and at Gebel Hafafit in Wadi Fayrouz.⁴⁸ Other ancient sources are in the south-eastern Libya’s Egheï Mountains,⁴⁹ Sudan, Ethiopia⁵⁰ and in the southern Urals in Russia.⁵¹

We cannot say nothing more precisely about the provenance of the gem, unless by cutting a piece of it to undergo a more detailed analysis. The most natural carrier is again an Egyptian one, and the route is the same of copper and other precious stuff traded across the Sinai and along the Wadi ‘Arabah.⁵² Conversely, if the Russian origin is hypothesized, we have to reconstruct a track across Caucasus, Armenia, Anatolia, and Syria which is also very suggestive as it might be similar to or even coincide with the one followed by the bear’s skin found in Pillared Hall L.1040 along with the symbols of power, i.e. the copper axes (fig. 21).⁵³

The second small bead (KB.18.B.63), apparently belonging to a lost necklace, is made of fluorapatite, a somewhat rare but not so precious cyan stone which is much easier to find in respect of other semi-precious stones in the majority of geological deposits of the Southern Levant.

The third precious barrel-shaped bead (KB.19.B.140) is made of carnelian and possibly was being produced at the site, as it was not yet pierced but showed the beginning of the

⁴³ Nigro 2014a, fn. 70.

⁴⁴ Nigro 2014a, 46, fig. 11; Sala 2014b, 60-70.

⁴⁵ Following Petrie’s interpretation, it was generally assumed that palettes played a central role in the preparation of cosmetics (Petrie *et al.* 1896, 10).

⁴⁶ Lucas 1930, 44. Palettes show traces of different substances used as cosmetics, as well as galena, hematite, and obviously red ochre, which were processed on the palettes probably mixed with other animal or vegetal substances as fats, resins, and oils. The presence of these cosmetic products is attested both in funerary and settlement contexts (Badaud 2008, 1068).

⁴⁷ Nigro *et al.* 2018, 120.

⁴⁸ Harrell 2012; Harrell - Osman 2007; Harrell - Storemyr 2009, 18.

⁴⁹ De Michele - Piacenza 1999.

⁵⁰ Ostrooumov 2015, 17, see also fig. 2.1.

⁵¹ Ostrooumov 2015, 14.

⁵² Nigro 2014a, fig. 1.

⁵³ Nigro 2014b, 265-266.

hole, baked and polished.⁵⁴ The known sources of carnelian are again the Eastern and Western Deserts of Egypt,⁵⁵ Wadi ‘Arabah, the southern Sinai, or the western mountainous region of Saudi Arabia,⁵⁶ even though similar beads are also attested to in Mesopotamia, namely in the Royal Cemetery of Ur as stated above (fn. 39).

Both the amazonite and the carnelian beads were unfinished. Their shapes and surfaces examined on a microscope show that the process of cutting, polishing and piercing was interrupted by the fire which destroyed the city. This points to Batrawy not only as a centre importing gemstones – as the finding of the necklace from Hall L.1110 well demonstrated – but also as a working station for semi-precious stones.

REFERENCES

- ANDREWS, C.A.R.
1991 *Ancient Egyptian Jewelry*, London 1991.
- ASTOR, B.G. - HARRELL, J.A. - SHAW, I.
2000 Stone: P.T. NICHOLSON - I. SHAW (eds.), *Ancient Egyptian Materials and Technology*, Cambridge 2000, pp. 5-77.
- BADUEL, N.
2008 Tegumentary paint and cosmetic palettes in Predynastic Egypt: Impact of those artefacts on the birth of the monarchy: B. MIDANT-REYNES - Y. TRISTANT (eds.), *Egypt at its origins 2: Proceedings of the international conference "Origin of the State, Predynastic and Early Dynastic Egypt", Toulouse (France), 5th-8th September 2005* (Orientalia Lovaniensia Analecta 172), Leuven - Paris - Dudley 2008, pp. 1057-1090.
- BOMANN, A. - YOUNG, R.
1994 Preliminary Survey in the Wadi Abu Had, Eastern Desert, 1992: *Journal of Egyptian Archaeology* 80 (1994), pp. 23-44.
- BRAUN, E.
2011 Early Interactions between Peoples of the Nile Valley and the Southern Levant: E. TEETER (ed.), *Before the Pyramids. The origins of Egyptian Civilization* (Oriental Institute Museum Publications 33), Chicago 2011, pp. 105-122.
- 2014 Reflections on the context of a late Dynasty 0 Egyptian Colony in the Southern Levant: interpreting some evidence of Nilotic material culture at select sites in the Southern Levant (ca. 3150 BCE – ca. 2950 BCE): A. MAĆZYŃSKA (ed.), *The Nile Delta as a centre of cultural interactions between Upper Egypt and the Southern Levant in the 4th millennium BC. Proceedings of the conference held in the Poznan Archaeological Museum, Poznań, Poland, 21-22 June 2013* (Studies in African Archaeology 13), Poznań 2014, pp. 37-56.

⁵⁴ In addition to the carnelian beads belonging to the four-strings necklace, another spherical bead made of carnelian was found in the Eastern Pavilion of the “Palace of the Copper Axes” in 2006 season (Nigro ed. 2008, 160, fig. 4.61.a).

⁵⁵ Carnelian was found in pebbles in the Eastern Desert in the regions of Wadi Abu Gerida and Wadi Saga, and in the Western Desert near Gebel el-Asr (Sowada 2009, 236).

⁵⁶ Sowada 2009, 94-95, 236; Nigro 2012a, 231, fig. 7; 2014a, 44.

- BRAUN, E. - VAN DEN BRINK, E.C.M.
 2008 Appraising South Levantine-Egyptian interaction: recent discoveries from Israel and Egypt: B. MIDANT-REYNES - Y. TRISTANT (eds.), *Egypt at its Origins 2. Proceedings of the Third International Conference "Origin of the State. Pre-dynastic and Early Dynastic Egypt"*, Toulouse (France), 5th-8th September 2005 (Orientalia Lovaniensia Analecta 172), Leuven - Paris - Dudley 2008, pp. 643-680.
- DOWNES, R.T. - HALL-WALLACE, M.
 2003 The American Mineralogist Crystal Structure Database: *American Mineralogist* 88 (2003), pp. 247-250.
- FAKHRY, A.
 1952 *The inscriptions of the amethyst mines at Wadi El-Hudi*, Cairo 1952.
- GERATY, L.T. - HERR, L.G. - LABIANCA, Ø.S. - BATTENFIELD, J.R. - BOLING, R.G. - CLARK, D.R. - LAWLOR, J.I. - MITCHEL, L.A. - YOUNKER, R.W.
 1986 Madaba Plains Project: A preliminary Report of the 1984 Season at Tell el-'Umeiri and Vicinity: *Bulletin of the American Schools of Oriental Research, Supplementum* 24 (1986), pp. 117-144.
- GRAŽULIS, S. - CHATEIGNER, D. - DOWNES, R.T. - YOKOCHI, A.F.T. - QUIRÓS, M. - LUTTEROTTI, L. - MANAKOVA, E. - BUTKUS, J. - MOECK, P. - LE BAIL, A.
 2009 Crystallography Open Database - an open-access collection of crystal structures: *Journal of Applied Crystallography* 42 (2009), pp. 726-729.
- GREENBERG, R. - EISENBERG, E.
 2002 Egypt, Bet Yerah and Early Canaanite Urbanization: E.C.M. VAN DEN BRINK - T.E. LEVY (eds.), *Egypt and the Levant. Interrelations from the 4th through the Early 3rd Millennium B.C.E.*, London - New York 2002, pp. 213-222.
- GREENBERG, R. - PAZ, S. - WENGROW, D. - ISERLIS, M.
 2012 Tel Beth Yerah: Hub of the Early Bronze Age Levant: *Near Eastern Archaeology* 75 (2012), pp. 88-107.
- HARRELL, J.A.
 2012 Gemstones: W. WENDRICH (ed.), *UCLA Encyclopedia of Egyptology*, Los Angeles 2012. <http://digital2.library.ucla.edu/viewItem.do?ark=21198/zz002czx1r>.
- HARRELL, J.A. - OSMAN, A.
 2007 Ancient amazonite quarries in the Eastern Desert: *Egyptian Archaeology* 30 (2007), pp. 26-28.
- HARRELL, J.A. - SIDEBOTHAM, S.
 2004 Wadi Abu Diyeh: An amethyst mine in Egypt's Eastern Desert: *Minerva* 15/6 (2004), pp. 12-14.
- HARRELL, J.A. - STOREMYR, P.
 2009 Ancient Egyptian quarries: an illustrated overview: N. ABU-JABER - E. BLOXAM - P. DEGRYSE - T. HELDAL (eds.), *QuarryScapes: Ancient stone quarry landscapes in the Eastern Mediterranean* (Geological Survey of Norway Special Publication 12), Trondheim 2009, pp. 7-50.
- 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 1977.
- HAYES, W.C.
 1965 *Most Ancient Egypt*, Chicago 1965.
- HÖFLMAYER, F.
 2014 Dating catastrophes and collapses in the ancient Near East: the end of the first urbanization in the Southern Levant and the 4.2 ka BP event: L. NIGRO (ed.), *Overcoming*

- Catastrophes. Essays on disastrous agents characterization and resilience strategies in pre-classical Southern Levant* (Rome «La Sapienza» Studies on the Archaeology of Palestine and Transjordan 11), Rome 2014, pp. 117-140.
- HÜBNER, U.
2011 Die Archäologische Expedition 2011 in die Region um Petra: Ausgrabungen auf Umm Saysabān: *Natur und Mensch. Jahresmitteilungen der Naturhistorische Gesellschaft Nuernberg* 2011, pp. 157-168.
- JACOBS, P.F.
1996 A cosmetic palette from Early Bronze Age III at Tell Halif: J.D. SEGER (ed.), *Retrieving the past: essays on archaeological research and methodology in honor of Gus W. van Beek*, Winona Lake 1996, pp. 123-134.
- JACOBS, P.F. - SEGER, J.D.
2017 *Lahav VI: Excavations in Field I at Tell Halif, 1976-1999. The Early Bronze III to Late Arabic Strata*, Winona Lake 2017.
- KENYON, K.M.
1960 *Excavations at Jericho. Volume One. The Tombs excavated in 1952-1954*, London 1960.
- KLEMM, R. - KLEMM D.D.
2008 *Stones and Quarries in Ancient Egypt*, London 2008.
- 2003 Worked Stones: W.E. RAST - R.T. SCHAUB, *Bâb edh-Dhrâ': Excavations at the Town Site (1975-1981). Part 1: Text, Part 2: Plates and Appendices* (Reports of the Expedition to the Dead Sea Plain, Jordan, Volume II), Winona Lake 2003, pp. 622-637.
- LUCAS, A.
1930 Cosmetics, Perfumes and Incense in Ancient Egypt: *Journal of Egyptian Archaeology* 16/1-2 (1930), pp. 41-53.
- MEDEGHINI, L. - NIGRO, L.
2017 Khirbet al-Batrawy ceramics: a systematic mineralogical and petrographic study for investigating the material culture: *Periodico di Mineralogia* 86 (2017), pp. 19-35.
- MEDEGHINI, L. - FABRIZI, L. - DE VITO, C. - MIGNARDI, S. - NIGRO, L. - GALLO, E. - FIACCAVENTO, C.
2016 The ceramic of the "Palace of the Copper Axes" (Khirbet al-Batrawy, Jordan): A palatial special production: *Ceramic International* 42/5 (2016), pp. 5952-5962.
- DE MICHELE, V. - PIACENZA, B.
1999 L'amazonite di Eghei Zuma (Tibesti sett., Libia): *Sahara* 11 (1999), pp. 109-112.
- DE MIROSCHEJJI, P.
2002 The socio-political dynamics of Egyptian-Canaanite interaction in the Early Bronze Age: E.C.M. VAN DEN BRINK - T.E. LEVY (eds.), *Egypt and the Levant. Interrelations from the 4th through the Early 3rd Millennium B.C.E.*, London - New York 2002, pp. 39-57.
- DE MIROSCHEJJI, P. - SADEK, M. - FALTINGS, D. - BOULEZ, V. - NAGGIAR-MOLINER, L. - SYKES, N. - TENBERG, M.
2001 Les fouilles de Tell es-Sakan (Gaza): nouvelles données sur les contacts égypto-cananéens aux IVe-IIIe millénaires: *Paléorient* 27/2 (2001), pp. 75-104.
- Moorey, P.R.S.
1994 *Ancient Mesopotamian Materials and Industries. The Archaeological Evidence*, Oxford 1994.
- NIGRO, L.
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 & Transjordan, Colour Monographs I), Rome 2010.

- 2010b Quattro asce di rame dal Palazzo B di Khirbet al-Batrawy (Bronzo Antico IIIB, 2500-2300 a.C.): *Scienze dell'Antichità* 16 (2010), pp. 561-572.
- 2010c Khirbet al-Batrawy: a third millennium city in Jordan: *American Journal of Archaeology* 114 (2010), pp. 514-516.
- 2010d Between the Desert and the Jordan: Early Urbanization in the Upper Wadi az-Zarqa - the EB II-III fortified town of Khirbet al-Batrawy: P. MATTHAIE - F. PINNOCK - L. NIGRO - N. MARCHETTI (eds.), *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*, Volume 2, Wiesbaden 2010, pp. 431-458.
- 2011 Dominating the River: Khirbet al-Batrawy, an EB II-III City in North-Central Jordan: *Syria* 88 (2011), pp. 59-74.
- 2012a An EB IIIB (2500-2300 BC) gemstones necklace from the Palace of the Copper Axes at Khirbet al-Batrawy, Jordan: *Vicino Oriente* XVI (2012), pp. 227-243.
- 2012b Khirbet al-Batrawy: *American Journal of Archaeology* 116/4 (2012), pp. 705-706.
- 2012c Khirbet al-Batrawy: Rise, Flourish and Collapse of an Early Bronze Age City in Jordan: R. MATTHEWS - J. CURTIS (eds.), *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*, Volume 1, Wiesbaden 2012, pp. 609-628.
- 2013a Urban Origins in the Upper Wadi az-Zarqa' Jordan: The City of Khirbat al-Batrawi in the third Millennium BC: F. AL-HMOUD (ed.), *Studies in the History and Archaeology of Jordan* XI, Amman 2013, pp. 489-506.
- 2013b Khirbet al-Batrawy: An Early Bronze Age City at the fringes of the desert: *Syria* 90 (2013), pp. 189- 209.
- 2014a The Copper Routes and the Egyptian Connection in 3rd millennium BC Jordan seen from the caravan city of Khirbet al-Batrawy: *Vicino Oriente* XVIII (2014), pp. 39-64.
- 2014b The King's Cup and the Bear Skin. Royal Ostentation in the Early Bronze III "Palace of the Copper Axes" at Khirbet al-Batrawy: Z. KAFAFI - M. MARAQTEN (eds.), *A Pioneer of Arabia. Studies in the Archaeology and Epigraphy of the Levant and the Arabian Peninsula in Honor of Moawiyah Ibrahim* (Rome «La Sapienza» Studies on The Archaeology of Palestine And Transjordan 10), Rome 2014, pp. 261-270.
- 2014c Khirbat al-Batrawy: G.J. CORBETT - D.R. KELLER - B.A. PORTER - CH.A. TUTTLE (eds.), *Archaeology in Jordan, 2012 and 2013 Seasons* (American Journal of Archaeology 118), Boston 2014, pp. 644-645.
- 2015 The Copper Axes Hoard in the Early Bronze IIIB Palace of Batrawy, Jordan: K. ROŚIŃSKA-BALIK - A. OCHAŁ-CZARNOWICZ - M. CZARNOWICZ - J. DĘBOWSKA-LUDWIN (eds.), *Copper and Trade in the South-Eastern Mediterranean Trade routes of the Near East in Antiquity* (British Archaeological Reports International Series 2753), Oxford 2015, pp. 77-83.
- 2016 Khirbat al-Batrawi 2010-2013: The City Defenses and the Palace of Copper Axes: *Studies on the History and Archaeology of Jordan* XII: *Transparent Borders* (2016), pp. 135-154.
- 2017 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: T. CUNNINGHAM - J. DRIESSEN (eds.), *Crisis to Collapse. The Archaeology of Social Breakdown* (AEGIS 11), Louvain 2017, pp. 149-172.
- NIGRO, L. (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» Studies on the Archaeology of Palestine & Transjordan 6), Rome 2008.

- 2012 *Khirbet al-Batrawy III. The EB II-III triple fortification line and the EB IIIB quarter inside the city-wall. Preliminary report of the fourth (2008) and fifth (2009) seasons of excavations* (Rome «La Sapienza» Studies on the Archaeology of Palestine & Transjordan 8), Rome 2012.
- NIGRO, L. - MONTANARI, D. - MURA, F. - YASINE, J. - RINALDI, T.
2018 A hoard of Nilotic nacreous shells from Egypt to Jericho (Early Bronze II, 3000-2800 BC): Their finding, content and historical archaeological implications”: *Palestine Exploration Quarterly* 150/2 (2018), pp. 110-125.
- NIGRO, L. - SALA, M.
2010 Preliminary Report on the Fifth Season (2009) of Excavations at Khirbat al-Batrāwī (Upper Wādī az-Zarqā’), by the University of Rome “La Sapienza”: *Annual of the Department of Antiquities of Jordan* 54 (2010), pp. 237-253.
- 2011 Preliminary Report on the Sixth (2010) Season of Excavation by “La Sapienza” University of Rome at Khirbat al-Batrāwī (Upper Wādī az-Zarqā’): *Annual of the Department of Antiquities of Jordan* 55 (2011), pp. 85-100.
- 2012 Preliminary Report of the Seventh Season (2011) of Excavations by the University of Rome “La Sapienza” at Khirbat al-Batrāwī (Upper Wādī az-Zarqā’): *Annual of the Department of Antiquities of Jordan* 56 (2012), pp. 45-54.
- 2013 Preliminary Report of the Eighth Season (2012) of Excavations by the University of Rome “La Sapienza” at Khirbat al-Batrawy (Upper Wadi az-Zarqa): *HAWLIYYAT DA’IRAT AL-ATAR AL-‘AMMAT* 57 (2013), pp. 217-228.
- OSTROUMOV, M.N.
2015 *Amazonite: Mineralogy, Crystal Chemistry, and Typomorphism*, Amsterdam 2015.
- PETRIE, W.M.F.
1953 *Ceremonial slate palettes* (British School of Egyptian Archaeology Publications 66), London 1953.
- 1974 *Prehistoric Egypt. Corpus of Prehistoric Pottery and Palettes*, London 1974.
- PETRIE, W.M.F. - QUIBELL, J.E. - SPURRELL, F.
1896 *Naqada and Ballas: 1895* (Egyptian Research Account Memoir 1), London 1896.
- PEYRONEL, L. - VACCA, A.
2013 Natural Resources, Technology and Manufacture Processes at Ebla. A Preliminary Assessment: P. MATTHIAE - N. MARCHETTI (eds.), *Ebla and Its Landscape. Early State Formation in the Ancient Near East*, Walnut Creek 2013, 431-449.
- RAPP, G.
2009 *Archaeomineralogy*, Berlin 2009².
- RAST, W.E. - SCHAUB, R.T.
1989 *Bâb edh-Dhrâ’: Excavations in the Cemetery directed by Paul W. Lapp (1965-67)* (Reports of the Expedition to the Dead Sea Plain, Jordan, Volume I), Winona Lake 1989.
- 2003 *Bâb edh-Dhrâ’: Excavations at the Town Site (1975-1981). Part 1: Text, Part 2: Plates and Appendices* (Reports of the Expedition to the Dead Sea Plain, Jordan, Volume II), Winona Lake 2003.
- SADEK, A.I.
1980 *The Amethyst Mining Inscriptions of Wadi el-Hudi*, Warminster 1980.
- SALA, M.
2012 Egyptian and Egyptianizing objects from EB I-III Tell es-Sultan/ancient Jericho: *Vicino Oriente* XVI (2012), pp. 275-302.
- 2014a Stratigraphy, Pottery and Chronology at Khirbet el-Batrawy in the Framework of 3rd Millennium BC Palestine and Transjordan: F. HÖFLMAYER - R. EICHMANN (eds.), *Egypt*

- and the Southern Levant in the Early Bronze Age* (Orient-Archäologie 31), Leidorf 2014, pp. 259-292.
- 2014b EB II-III *Aegyptiaca* east of the Jordan: a reevaluation of trade and cultural interactions between Egypt and the Transjordanian urban centres: *Vicino Oriente* XVIII (2014), pp. 65-81.
- SHAW, I. - JAMESON, R.
1993 Amethyst Mining in the Eastern Desert: A Preliminary Survey at Wadi el-hudi: *The Journal of Egyptian Archaeology* 79 (1993), pp. 81-97.
- SOWADA, K.N.
2000 Egyptian Palettes in the EB II and EB III Canaan: P. MATTHIAE - A. ENEA - L. PEYRONEL - F. PINNOCK (eds.), *Proceedings of the First International Congress on the Archaeology of the Ancient Near East, Rome, May 18th-23rd 1998*, Roma 2000, pp. 1527-1540.
- 2009 *Egypt in the Eastern Mediterranean during the Old Kingdom. An Archaeological Perspective* (Orbis Biblicus et Orientalis 237), Fribourg 2009.
- STEVENSON, A.
2007 The material significance of Pre-dynastic and Early Dynastic palettes: R. MAIRS - A. STEVENSON (eds.), *Current Research in Egyptology 2005. Proceedings of the Sixth Annual Symposium, University of Cambridge 2005*, Oxford 2007, pp. 148-162.
- 2009 Palettes: W. WENDRICH (ed.), *UCLA Encyclopedia of Egyptology*, Los Angeles 2009. <http://digital2.library.ucla.edu/viewItem.do?ark=21198/zz001nf6c0>.
- 2011 Material culture of the Predynastic Period: E. TEETER (ed.), *Before the Pyramids. The origins of Egyptian Civilization* (Oriental Institute Museum Publications 33), Chicago 2011, pp. 65-74.
- TUFNELL, O.
1958 *Lachish IV, The Bronze Age* (The Wellcome-Marston Archaeological Research Expedition to the Near East, Vol. IV), London 1958.
- WILKINSON, A.
1989 Objects from the Early Bronze II and III Tombs: W.E. RAST - R.T. SCHAUB, *Bâb edh-Dhrâ': Excavations in the Cemetery directed by Paul W. Lapp (1965-67)* (Reports of the Expedition to the Dead Sea Plain, Jordan, Volume I), Winona Lake 1989, pp. 444-470.
- WOOLLEY, C.L.
1934 *Ur Excavations II. The Royal Cemetery. A report on the Predynastic and Sargonid graves excavated between 1926 and 1931*, London 1934.



Fig. 1 - View of the “Palace of the Copper Axes” at the end of the 15th season (2019) of excavations, with Entrance Hall L.1100 and Western Wing in the foreground; from north-west.



Fig. 2 - The upper destruction layer (F.1324) with *pithos* KB.18.B.1324/1 visible against Wall W.1323 and *pithos* KB.18.B.1324/3 close to pillar base B.1285; from north.



Fig. 3 - General view of the “Palace of the Copper Axes” at the end of the 2019 season of excavations and restorations; from south.

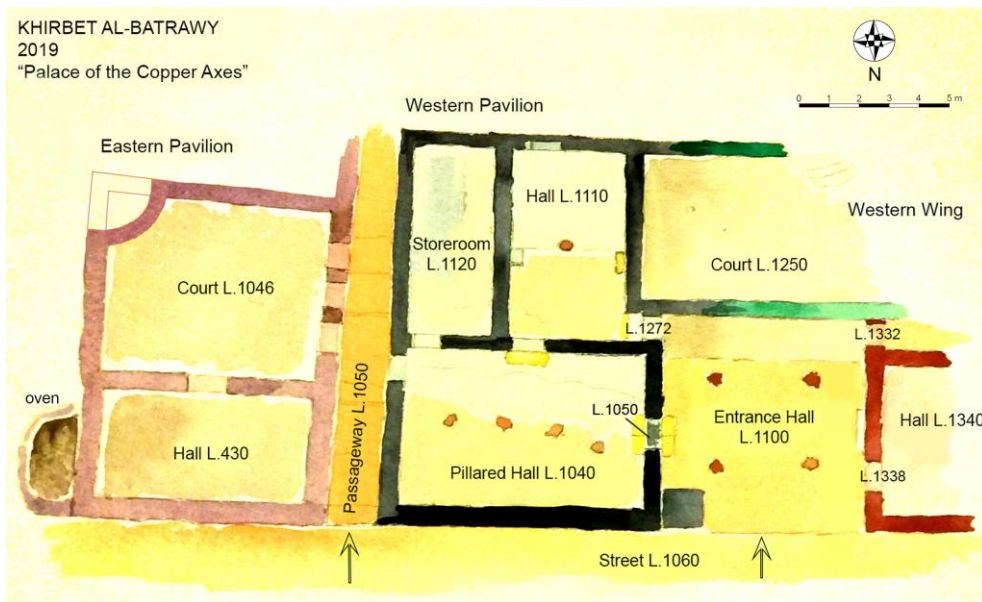


Fig. 4 - Reconstructive drawing of the “Palace of the Copper Axes” with the Entrance Hall in the middle of two symmetrical wings.



Fig. 5 - Palette KB.18.B.30 at the moment of its retrieval not far from pillar base B.1285; from west.



Fig. 6 - Ceramic vessels and items from destruction layer F.1324, with the green schist palette KB.18.B.30.



Fig. 7 - Palette KB.18.B.30 (on the left the front side, the reverse on the right).



Fig. 8 - Detailed views of palette KB.18.B.30 and the engraving decoration.



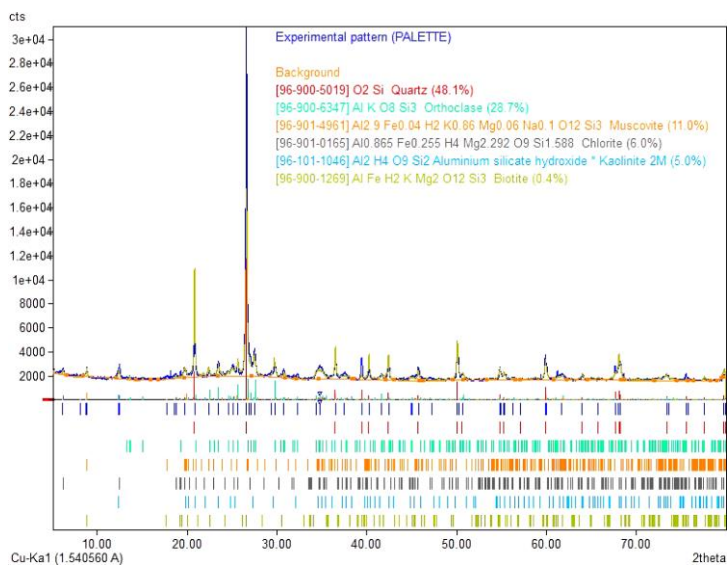


Fig. 9 - X-ray diffraction (XRD) pattern from palette KB.18.B.30 revealing the mineral composition of green talc-schist (Sapienza - CNIS).

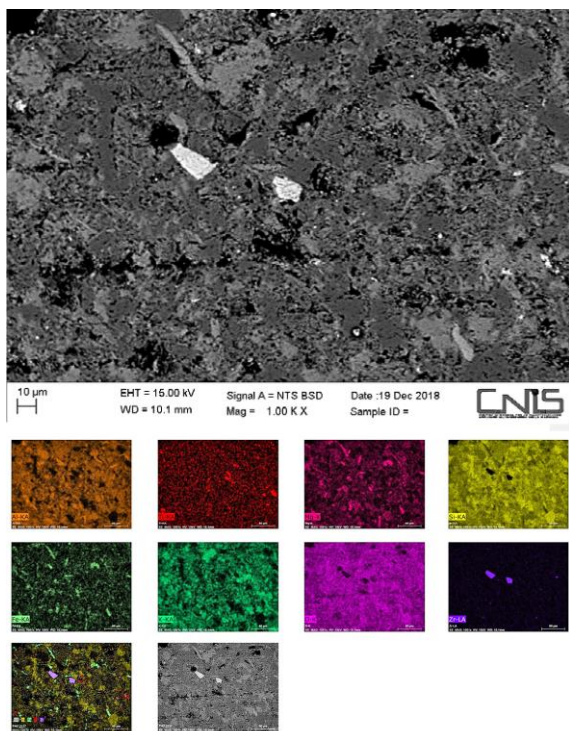


Fig. 10 - FESEM image of an area taken from the cross section of the palette and EDX map of the same area confirming the results obtained by the X-ray diffraction (Sapienza - CNIS).



Fig. 11 - Scratches and traces of use clearly visible on the surface of palette KB.18.B.30.

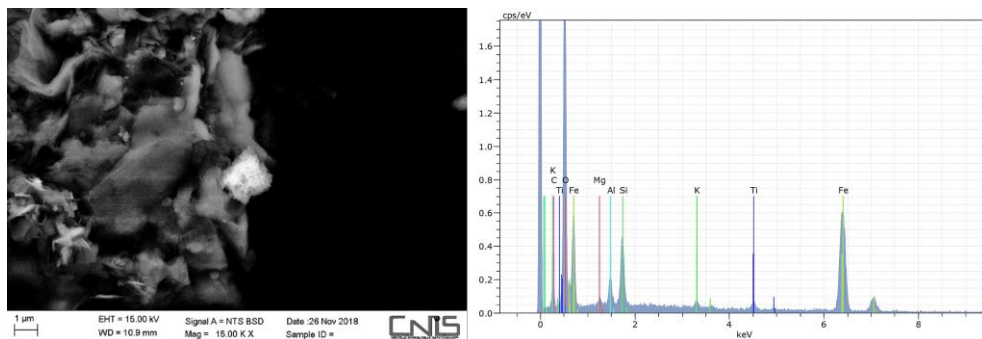


Fig. 12 - FESEM image of one of the red ochre grains visible on palette KB.18.B.30, and related EDX spectrum (Sapienza - CNIS).

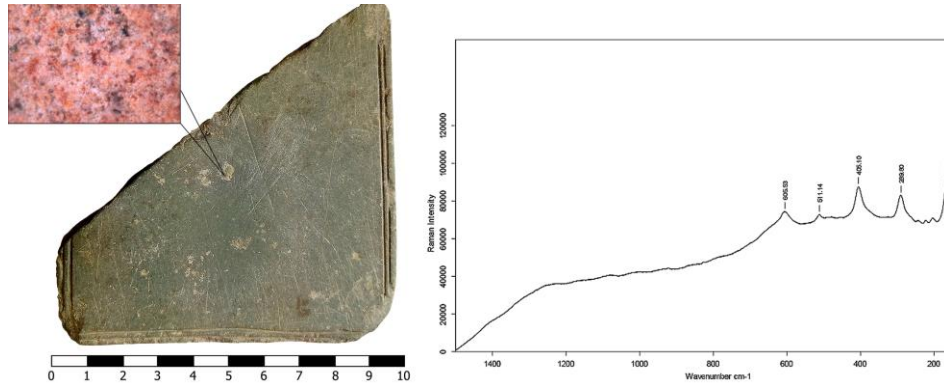


Fig. 13 - Red ochre from palette KB.18.B.30 and Raman spectrum obtained (Sapienza - CNIS).



Fig. 14 - Amazonite gemstone KB.18.B.50 at the moment of its retrieval in the south-western corner of Entrance Hall L.1100; from north-west.

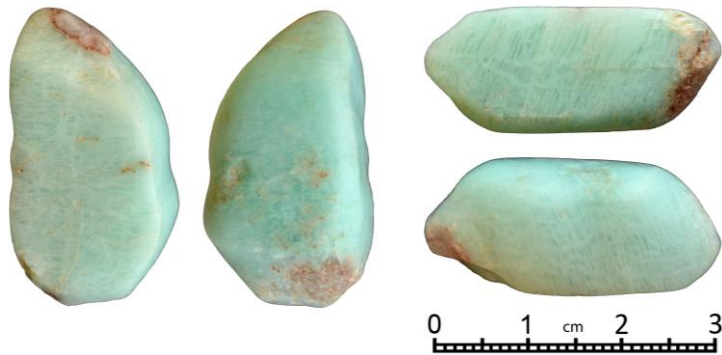
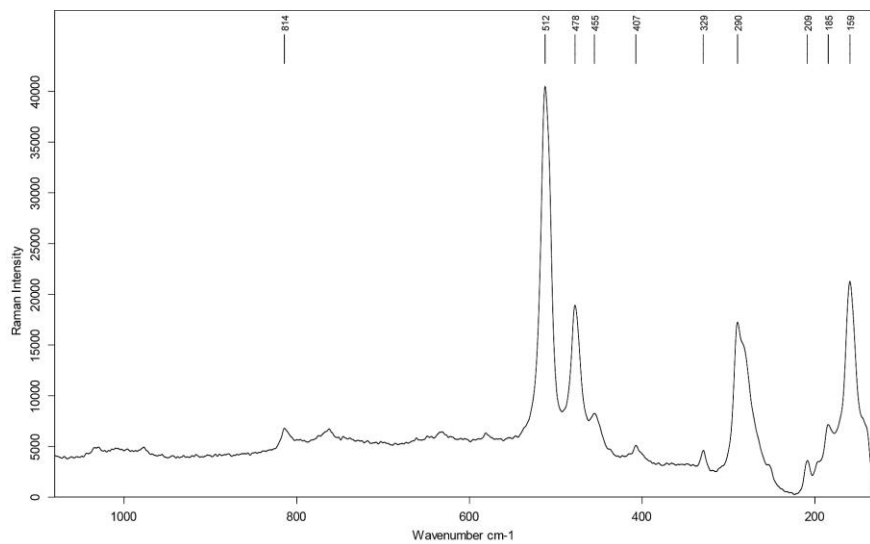


Fig. 15 - The green-cyan amazonite gemstone KB.18.B.50.

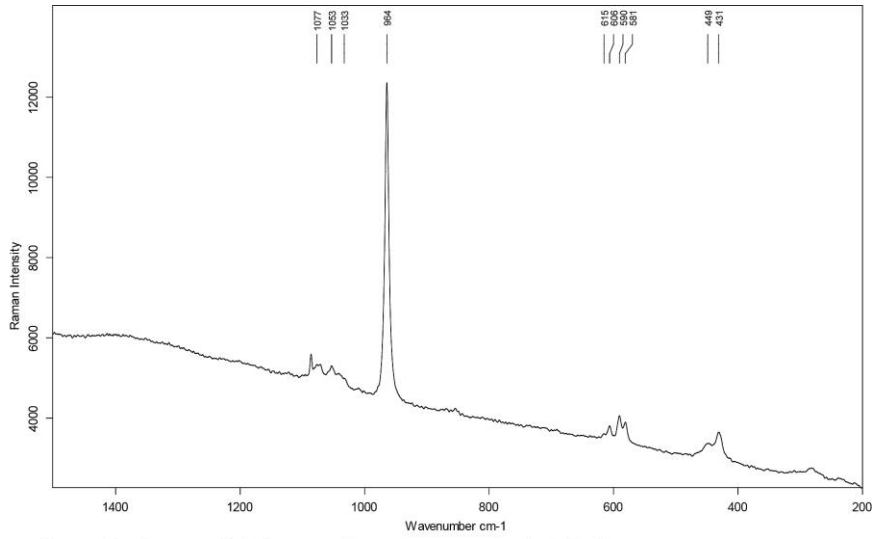


Fig. 16 - Bead KB.18.B.63, possibly part of a necklace.



Stone sample: Amazonite [microcline_R120005: $K(AlSi_3O_8)$]

Fig. 17 - Raman spectrum of gemstone KB.18.B.50 showing the typical Raman bands of microcline [$K(AlSi_3O_8)$], a tectosilicate mineral belonging to the green amazonite stone (Sapienza - CNIS).



Bead sample: fluorapatite[Fluorapatite_R050529: Ca₅(PO₄)₃F]

Fig. 18 - Raman spectrum of bead KB.18.B.63 showing the characteristic bands of fluorapatite [Ca₅(PO₄)₃F].

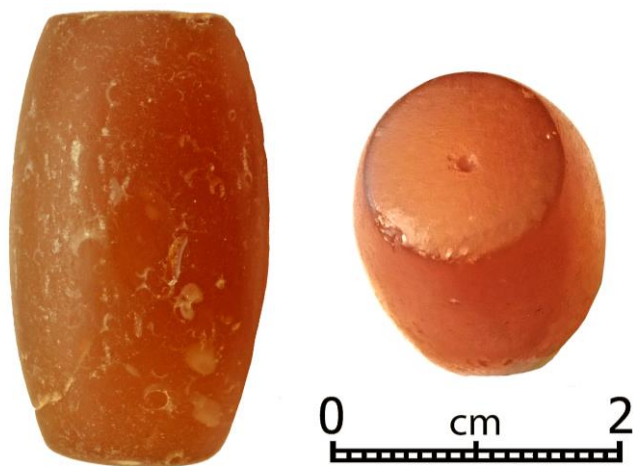


Fig. 19 - Carnelian bead KB.19.B.140, not yet pierced, baked and polished.



Fig. 20 - Imported and Egyptian-style items found in the "Palace of the copper Axes" at Batrawy.



Fig. 21 - Map with supply point for precious stuff and trade routes passing through the city of Batrawy, with the possible northern trade route across Caucasus, Anatolia and Levant.