Beads and Pendants

1 Material Analysis

The overview of beads (centrally perforated objects) and pendants (objects with off-centre perforation or with attached loop) presented herein follows a classification by material (marine mollusc shell, coral, stone, faience, glass, metal-in-glass, metal) and by the techniques used to make them. Provenance and parallels are provided accordingly.

1.1 Marine Mollusc Shells

Two marine mollusc species of Red Sea origin were found: *Cypraea annulus* sp. and *Marginella* sp. The former was recorded in five of the tumuli, the latter solely in T.7.

Fifteen complete shells and one shell fragment were identified as *Cypraea annulus* sp. (Z1/27, Z1/30, Z4/52.1–2, Z7/1, Z7/8.1.1–4, Z7/9.1, Z7/10.1, Z7/79, Z12/2, Z27/5) [Fig. 4.1]. They were perforated by removing the convex part of their bodies, which resulted in a large hole. Similar specimens were discovered in post-Meroitic Tumulus 4 on Uli Island (Godlewski, Obłuski, and Zielińska 2005, Fig. 8). Interestingly, a necklet of cowrie shells came from a camel burial found under a large tumulus in Firka (Kirwan 1939, 3, object A11/5).

Two *Marginella* sp. shells were found in T.7: Z7/8.2, Z7/9.2 [see Fig. 4.1]. Their apices had been removed. *Marginella* sp. shells perforated in the same way were found in a late antique trash dump in Berenike (Then-Obłuska 2015b, Fig. 1:6) and in a post-Meroitic Ashkeit grave (Then-Obłuska 2018, Pl. 2.4). *Marginella* sp. specimens known from Meroitic and early Roman bead assemblages tend to have their bodies removed (Then-Obłuska 2015a; 2015b).

1.2 Ostrich Eggshell

Ostrich eggshell was an easily available material and yet only 14 beads recorded from El-Zuma were made of it. Two general types were distinguished: large disc and small disc to short cylinder. The large discs were cut from pieces of ostrich eggshell perforated by pecking the centre from one or both ends. The edges were retouched. The surface around the lip of the perforation remained unworked. Large beads measure about 15 mm in diameter [Figs 4.2: Z28/15.1, Z28/17.1, 4.6, 4.8], compared to the 4.5 mm diameter of the smaller type (Z5/29, Z13/33, Z16/22, Z24/49.1) [see Fig. 4.2].

1.3 Coral

A single coral bead Z25/35, not illustrated here, was recorded (for an earring with coral bead, see Chapter 5.1.5). Short-to-long cylinder beads made of *Corallium* sp. were common in late Roman/early Byzantine Egypt and post-Meroitic Nubia (e.g. Then-Obłuska 2015b, Fig. 2.2; Emery and Kirwan 1938, Pls 43–44). In the Fourth Cataract region, salmon-coloured specimens were found in burial T1.81 at Musa (National Museum in Warsaw, Inv. No. 239056, Then-Obłuska 2018, Pl. 3) and in a grave at Tabo, where they formed part of a belt (Jacquet-Gordon and Bonnet 1971, 81).

1.4 Stone

More than 160 stone beads and pendants were recorded. Stone (quartz, agate, carnelian, black steatite, and what is most probably sandstone) beads were produced using one of two techniques: perforation from either one or both ends. Here and in Chapter 5.1.9, carnelian is defined as an orangey or reddish chalcedony with essentially no banding. All remaining varieties of chalcedony, with either banding or other patterns and of various colours, are referred to as agate.

1.4.1 Stone Beads and Pendants Drilled from One End

Most of the beads were drilled from one end and they are characterized by truncated conical perforations. Some of them bear traces of saw marks across the larger hole. Saw marks made it easier to set the drill in place, and they are typical of Egyptian and Nubian stone perforating (Then-Obłuska 2015a; 2015b). Among the small beads there are examples that are **truncated and conical** (Z4/49.1–4, Z4/175, Z16/21), **globular** (Z4/50.1), **long and ellipsoid** (Z4/176, Z4/178, Z16/20a,c) and **pear-shaped** (Z4/48.1–2, Z16/20b) [Fig. 4.3].

Small beads of black steatite, and white quartz, and red agate, are the most characteristic types in Early Makurian El-Zuma. They have already been identified in the Fourth Cataract region. They are also known from many Nobadian sites in Lower Nubia (Then-Obłuska 2016a; 2016c and references: Vila 1984, Fig. 219,92; Pellicer Catalán and Llongueras Campaña 1965, Fig. 41,114; Presedo Velo, Blanco y Caro, and Pellicer Catalán 1970, Fig. 215,158; Farid 1963, Fig. 58,11; Kirwan 1939, Pl. xx:14), including the royal cemeteries of Qustul and Ballana (Emery and Kirwan 1938, Pl. 43, Types 53–54 = JE [= Egyptian Museum, Cairo] 80899,

FIGURE 4.1 Marine mollusc shell beads

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70264, 70275, 70260, personal observation). White, red, and black beads were found strung alternately at the latter site. Furthermore, truncated conical beads made of a variety of stones were found on the neck of a king buried in Tomb 80 at Ballana (Emery and Kirwan 1938, 211, Cat. No. 152, Pl. 46C =JE 70258).

Larger examples are characterized by a truncated conical perforation and a saw mark next to the larger hole. These are **large globular beads** of about 10 mm in diameter, made of red or white quartz (Z28/15), long barrels

of white stone (Z17/7), and teardrop pendants with rounded bases (Z17/6, Z17/9, Z20/12) [see Fig. 4.3]. These types are commonly recorded in Late Meroitic to transitional Late Meroitic/post-Meroitic graves in the Fourth Cataract region (Then-Obłuska 2014, Pl. 11, Cat. 148, 150, 151, 175 spherical, 173 teardrop, 220, 225 long barrels; Longa 2011, Fig. 4 spherical beads and teardrop pendants) and up to the Sixth Cataract (Pokorná et al. 2014, spherical beads).

FIGURE 4.2 Ostrich-eggshell beads

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1.4.2 Stone Beads Drilled from Both Ends

Some beads were perforated from both ends, resulting in a double parallel perforation. Examples include four **large transparent rock crystal** beads (Z4/48.3) [Fig. 4.4], along with similar ones discovered in 4th–7th-century Kharga in the Western Desert, Egypt (MET [= Metropolitan Museum of Art, New York] 25.10.20.96; 31.8.33, personal observation). In Nubia, beads of this kind were found only on the necks of kings from the Ballana burials: Tomb 80 (Emery and Kirwan 1938, 211, object B.80–130, Cat. 155 =JE 70283) and Tomb 95 (Emery and Kirwan 1938, 212, object B.95–68, Cat. 157). The clarity and transparency of this material is said to have been especially valued in religious spheres

as a symbol of purity (e.g. Dubin 2009, 77). A few rock crystal beads were discovered in an early Christian context in the Church of the Granite Columns in Dongola (Then-Obłuska 2013, Fig. 3.1).

Two **large lenticular beads of dark agate**, Z7/10.2 and Z7/16, were recovered from a context associated with T.7 [see Fig. 4.4]. They measure approximately 23 mm in diameter. A bead of this kind was found in a tomb at El-Detti, a cemetery contemporary with the site at El-Zuma (Then-Obłuska 2016a, Fig. 1F, col. Fig. 3F). Similar large lenticular beads were found on the left arm of a man buried in Ballana Tomb 9, dating from the 4th century AD; this man was apparently a warrior (Emery and Kirwan 1938,

FIGURE 4.3 Stone beads perforated from one end
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FIGURE 4.4 Stone beads perforated from both ends

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Pl. 38B: B.9–3; Wenig 1978, 309, Cat. 309, personal observation). Tomb B.9 is dated to AD 430/440 (Török 1986, 197). However, another two bracelets were found on the right and left wrists of an adult queen in tomb B.47 (Emery and Kirwan 1938, Pl. 38A: B.47–26, 27), dated to AD 430. Similar beads are exhibited at the Sudan National Museum (SNM 3230); they were registered as coming from the Oxford Excavations at Firka. Indeed, the beads were found as a bracelet on the body marked as E, that of an adult in Tomb A.11 at cemetery A (Kirwan 1939, 6, object A.11/62, Pl. xx: Type 5a, described as carnelian). The Firka site is considered to be of rather late date, that is, AD 490–570 (Williams 1991, 12). Z7/10.3 is a perforated pebble pendant [see Fig. 4.4]. Saw marks are visible around the hole.

Long, square to rectangular, biconical carnelian beads Z9/10, Z9/17 and Z24/55 were drilled from both ends, and are characterized by a double parallel perforation [see Fig. 4.4]. They measure about 9 mm in thickness and from 12 mm to 20 mm in length. Examples have been recorded from early Byzantine Berenike, Egypt (see Then-Obłuska 2015b, Fig. 3.6–7), Tell al-Sin and Deir el-Zor, Syria (Montero Fenollós and Al-Shbib 2008, Pl. LX:1), Lower Nubian Qustul, dated to AD 370/380–410 (OIM [= Oriental Institute Museum] E20308, E20624M, E21367—personal observation), Fourth Cataract sites dated to the transitional Late Meroitic/post-Meroitic period (Then-Obłuska 2014, Pl. II, Cat. 215, 216) and further up the Nile at Gabati (Edwards 1998, Fig. 10:74). Whether copper drills and abrasive or single- and double-diamond drills were used is not clear. The latter method would indicate their Asian origin (Kenoyer 2003).

The slightly reddish, rectangular truncated biconical bead Z13/31, perforated from both ends, was most probably made of sandstone [see Fig. 4.4]. It measures 10 mm in width and 11 mm in length.

1.5 Glazed Steatite

The sole scarab bead Z27/4, carved in soapstone, features traces of green glaze in a few places [see Fig. 4.4]. It measures 10.2 mm in width and 13 mm in length.

1.6 Faience

Faience (also known as glazed composition) beads constitute the overwhelming majority of the assemblage. Almost two thousand faience beads were recorded.

Faience beads are characterized by the porosity of their quartzite bodies, which is probably attributable to the large share of natron used in faience production in the post-Meroitic period in the Fourth Cataract region (Then-Obłuska 2014, 1070). Beads were produced by segmenting hand-folded long tubes into shorter and longer pieces. The

fact that whitish parts are visible in the cores of broken beads suggests that they were glazed using the application technique. Blue glaze covers the outer surface of the body and the interior (perforation) surface, indicating they were dipped in liquid glaze. Because of the high core porosity, the glaze went deeply into the bodies and sometimes results in bluish bead sections. Due to their position during glazing, some beads are flattened on the side where they lack the glaze.

1.6.1 Short and Standard Beads

Short and standard beads measure from 3 mm to 6 mm in diameter and from 2 mm to 4 mm in length [see Figs 4.5, 4.6].

1.6.2 Long Tubular Beads

Long tubular examples Z22/9, Z28/4, Z28/15 and Z28/17 measure about 3.5–7 mm in diameter and up to 9 mm in length [see Fig. 4.6].

In general, faience beads are common finds at Lower Nubian and Fourth Cataract sites (e.g. Then-Obłuska 2014, Pl. 2; 2016a; Longa 2011, Fig. 4) and their distribution extends south to the Sixth Cataract region (Pokorná et al. 2014), to Botri south of Khartoum (Bashir 2007, Pl. 5), and to the west of the White Nile in Al-Khiday (Maritan et al. 2014, Fig. 3).

1.7 Glass and Metal-in-Glass

Almost one hundred glass beads and pendants were recorded. Glass beads were made of drawn or wound glass. One pendant was made of rod-pierced glass.

1.7.1 Drawn and Segmented Glass and Metal-in-Glass

Many monochrome beads were made from drawn glass tubes. Such tubes could be segmented on grooved moulds or with a tool that resulted in the beads having constricted ends. They often appear covered with yellowish patina. The smaller specimens measure about 3.3–5 mm in diameter and 2–3.5 mm in length. At El-Zuma they are represented by opaque red glass (Z17/10, Z27/9) and dark blue beads (Z28/15.6) [see Fig. 4.8].

Two beads (Z4/50.2, Z4/174) appear to be segments of a tube made of two layers of glass with silver foil in-between [see Fig. 4.3: Z4/50.2]. Segmenting glass tubes in open moulds is a well-recognized Egyptian technique used in the manufacture of glass and metal-in-glass beads. Silver-in-glass specimens are one of the most characteristic features of post-Meroitic assemblages in Lower and Upper Nubia (e.g. Then-Obłuska 2014; 2018).

FIGURE 4.5 Faience and some glass beads

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1.7.2 Drawn and Rounded Glass

Drawn glass tubes were cut up and the pieces were roughly rounded. Fifty-one are made of green (Z4/3, Z4/51, Z12/82, Z24/49, Z28/4, Z28/15) [see Fig. 4.5: Z4/3.2], two of orange (Z4/51.1), and two of orange-on-red glass (Z4/51.2), two of yellow (Z9/9, Z24/49.4), one of blue (Z24/49.3), and one of blue-green glass (Z28/15.5) [see Figs 4.7, 4.8]. Altogether, 59 beads of this type have been recorded at El-Zuma. They

make up 63.4% of all glass beads and 2.6% of all beads found at this site.

Drawn and rounded beads have been discovered in many private and royal Nobadian and Early Makurian cemeteries in Lower and Upper Nubia (Then-Obłuska 2018; Then-Obłuska and Wagner 2019). Small monochrome beads with rounded ends come from the late antique Red Sea port sites of Berenike and Marsa Nakari

FIGURE 4.6 Faience and some stone and ostrich-eggshell beads
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FIGURE 4.7 Glass beads

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FIGURE 4.8 Glass and some ostrich-eggshell, stone and faience beads
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(e.g. Then-Obłuska 2015b, Fig. 4:33–41; 2019). Those in the form of an opaque orange layer above a translucent red one are rare. Ten such beads were identified from the Serra East 25 site and four from Nag el-Arab. Another two beads were recorded in Berenike (BE95-005-013#72, BE95-005-TS#97). In general, drawn and rounded beads are well known from South Asian, Indian, and Sri Lankan sites, where they were most probably produced (Dussubieux 2001, 105; Hannibal-Deraniyagala 2013, Note 13). Chemical composition analyses of beads from early Roman Quseir/Myos Hormos in Egypt and from Lower Nubian sites have confirmed their South Indian/Sri Lankan origin (Then-Obłuska and Dussubieux 2016; Then-Obłuska and Wagner 2017).

1.7.3 Wound Glass

An outstanding bead of wound glass in translucent green was also found at El-Zuma (Z13/32) [see Fig. 4.7].

1.7.4 Rod-Pierced Glass

Large flattened teardrop Z4/210 was perforated by rod-piercing the dark blue glass in its upper part [see Fig. 4.7]. A similar example comes from a Coptic burial at Matmar (UC59788, tomb 1101). While blue and blue-green glass teardrop pendants characterize Nobadian assemblages in Lower Nubia (Then-Obłuska 2018), they have so far not been identified in Upper Nubia.

2 Bead Glass Chemistry

Fourteen glass bead samples from the El-Zuma assemblage were selected for laboratory analysis, which was carried out in the Biological and Chemical Research Centre of the University of Warsaw, Poland. The aim was to evaluate the elemental composition of the glass beads by means of a sensitive instrumental method (LA-ICP-MS) (Then-Obluska and Wagner 2019).

In general, glass beads were manufactured using a soda-rich flux mixed with different types of sand. Three main glass compositional groups were identified based on the content of MgO and Al₂O₃: low-alumina soda-lime glass, high-alumina glass, and plant-ash soda-lime glass.

The results confirmed the presence of East Mediterranean and South Asian glass beads in the El-Zuma assemblage. While drawn and rounded glass beads were made of South Indian/Sri Lankan high-alumina glass, confirming macroscopic identification (compare section 4.1.7), the remaining analysed samples were made of Egyptian glass (Then-Obluska and Wagner 2019).

3 Catalogue [Table 4.1]

The catalogue, in tabular form, presents beads and pendants according to find number. Object descriptions list (in sequence): figure number, find number (tumulus and object number), object type (B—bead, P—pendant), material, quantity, shape (according to Beck's 1928 nomenclature), technique of manufacture/production, colour and diaphaneity (o—opaque, st—semi-translucent, t—translucent, transparent), measurements (given in millimetres: D—diameter, L—length, W—width, Th.—thickness, H—height, HD—hole diameter), find context, excavation season, references. The scale is 10 mm, unless otherwise stated.

TABLE 4.1 Catalogue of the beads and pendants

Figure no.	Tumulus no.	Find no.	B/P	Material	Quantity	Shape	Technique	Colour(s) and diaphaneity
4.1	T.1	Z1/27	B	Mollusc shell; <i>Cypraea annulus</i> sp.	1			
4.1	T.1	Z1/30	B	Mollusc shell; <i>Cypraea annulus</i> sp.	1			
	T.3	Z3/8	B	Faience	1			
	T.3	Z3/9	B	Mollusc shell; accidental perforation	1			
4.5	T.4	Z4/3.1	B	Faience	15			
4.5	T.4	Z4/3.2	B	Glass	3	globular	drawn	green
	T.4	Z4/3.3	B	Faience	1			
	T.4	Z4/3.4	B	Glass	19		drawn	green
4.5	T.4	Z4/45	B	Faience	18			
	T.4	Z4/46	B	Faience	8			
	T.4	Z4/47	B	Faience	222			
4.4	T.4	Z4/48.1	B	Agate	1	ellipsoid		red
4.4	T.4	Z4/48.2	B	Rock crystal	1	ellipsoid		
4.4	T.4	Z4/48.3	B	Rock crystal	4	ellipsoid		
4.3	T.4	Z4/49.1	B	Stone		truncated conical		black
4.3	T.4	Z4/49.2	B	Agate		truncated conical		red
4.3	T.4	Z4/49.3	B	Agate		truncated conical		red
4.3	T.4	Z4/49.4	B	Rock crystal		truncated conical		
4.3	T.4	Z4/50.1	B	Stone	5			red
4.3	T.4	Z4/50.2	B	Metal-in-glass	1			
4.7	T.4	Z4/51.1	B	Glass	2		drawn and rounded	orange
4.7	T.4	Z4/51.2	B	Glass	2		drawn and rounded	orange-on-red
4.7	T.4	Z4/51.3	B	Glass	1		drawn and rounded	green
4.7	T.4	Z4/51.4	B	Glass	1	short cylinder		green
4.1	T.4	Z4/52	B	Mollusc shell; <i>Cypraea annulus</i> sp.	2	1 shell and 1 fragment		
	T.4	Z4/137	B	Faience	35			
	T.4	Z4/174	B	Metal-in-glass	1			
4.3	T.4	Z4/175	B	Agate	1	conical		red
4.3	T.4	Z4/176	B	Agate	1	ellipsoidal		dark red
4.5	T.4	Z4/177	B	Faience	191			
4.3	T.4	Z4/178	B	Agate	2	ellipsoidal		red
4.5	T.4	Z4/179	B	Faience	37			
4.5	T.4	Z4/209	B	Faience	58			
4.7	T.4	Z4/210	P	Glass	1	teardrop pendant	rod-pierced	blue
	T.5	Z5/7	B	Glass	1			
	T.5	Z5/8	B	Faience	12			
	T.5	Z5/13	B	Faience	1			
	T.5	Z5/29	B	Ostrich eggshell	1			
	T.7	Z7/1	B	Mollusc shell; <i>Cypraea annulus</i> sp.	1			
4.1	T.7	Z7/8.1	B	Mollusc shell; <i>Cypraea annulus</i> sp.	4			
4.1	T.7	Z7/8.2	B	Mollusc shell; <i>Marginella</i> sp.	1			
	T.7	Z7/8.3	B	Faience	10			
4.1	T.7	Z7/9.1	B	Mollusc shell; <i>Cypraea annulus</i> sp.	1			
4.1	T.7	Z7/9.2	B	Mollusc shell; <i>Marginella</i> sp.	1			
4.1	T.7	Z7/10.1	B	Mollusc shell; <i>Cypraea annulus</i> sp.	1			
4.4	T.7	Z7/10.2	B	Stone, agate	1	lenticular		red
4.4	T.7	Z7/10.3	B	Stone	1	pebble pendant		red
4.4	T.7	Z7/16	B	Stone		lenticular?		
	T.7	Z7/79 (Z7/1-old number)	B	Mollusc shell; <i>Cypraea annulus</i> sp.	1	pendant		white (o)
	T.8	Z8/10	B	Faience	1	barrel		blue
	T.9	Z9/8	B	Faience	25 (and a few fragments)	oblate		light green (o)

D	L/Th/W	HD	Context data	Season	References
			Top of tunnel fill (NW part, near entrance to chamber)	2017	Then-Obluska 2017, Fig. 1
			W part of chamber 1	2017	Then-Obluska 2017, Fig. 1
			Robber pit	2014	
			Tunnel	2014	
			Tunnel	2013	Then-Obluska 2016c, Fig. 5
			Tunnel	2013	Then-Obluska 2016c, Fig. 5
			Tunnel	2013	
			Shaft and tunnel secondary deposit (2013 excavation)	2017	
			W tunnel, fill, W part of E side of entrance	2017	
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 3
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 3
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 3
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 3
			W tunnel, fill, 2.40–4.25 m from edge of shaft, layer 5	2017	Then-Obluska 2017, Fig. 1
			W tunnel, fill, 9.00 m from edge of shaft, dark bottom layer	2017	
			W tunnel, fill, entrance to W room (W chamber?)	2017	
			W tunnel, fill, entrance to W room (W chamber?)	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, entrance to W room (W chamber?)	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, entrance to W room (W chamber?)	2017	
			W tunnel, fill, entrance to W room (W chamber?)	2017	Then-Obluska 2017, Fig. 2
			W tunnel, fill, entrance to W room (W chamber?)	2017	
			E tunnel, S part, dark layer	2017	Then-Obluska 2017, Fig. 3
			E tunnel, S part, dark layer	2017	Then-Obluska 2017, Fig. 3
			Chamber 1	2007	
			Chamber 1, by brick blocking wall at central part	2007	
			Shaft fill, by SE corner	2007	
			Tunnel fill	2007	
	17.55 × 25.61 × 6.58	18.5 × 14.64	Tunnel fill	2011	
			Found close to first pillar	2015	Then-Obluska 2017, Fig. 1
			Found close to first pillar	2015	Then-Obluska 2017, Fig. 1
			Found close to first pillar	2015	
			In tunnel entrance	2015	
			In tunnel entrance	2015	Then-Obluska 2017, Fig. 1
				2015	Then-Obluska 2017, Fig. 1
				2015	Then-Obluska 2017, Fig. 2
				2015	Then-Obluska 2017, Fig. 2
				2015	Then-Obluska 2017, Fig. 2
17.55 × 25.61 × 6.58		18.5 × 14.64	Tunnel fill	2011	
4.27	3.3	0.9–1.6	Burial chamber, E part	2014	
			Shaft, S part, near damaged blocking wall (chamber 1)	2011	

TABLE 4.1 Catalogue of the beads and pendants (*cont.*)

Figure no.	Tumulus no.	Find no.	B/P	Material	Quantity	Shape	Technique	Colour(s) and diaphaneity
4.7	T.9	Z9/9	B	Glass	1	short cylinder	drawn	light yellow (o)
4.4	T.9	Z9/10	B	Stone; carnelian	1	long square bicone		red (st)
	T.9	Z9/13	B	Faience	48	barrel		light green (o)
	T.9	Z9/14	B	Faience	1	tubular, long		light green (o)
	T.9	Z9/15	B	Quartz	2	barrel standard	polished; conical perforation	white (o)
	T.9	Z9/16	B	Quartz	1	pear-shaped	polished	white (o)
4.4	T.9	Z9/17	B	Stone; carnelian	1	long square bicone		light to dark red (st)
	T.10	Z10/50	B	Stone?	1	pear-shaped		black
	T.10	Z10/51	B	Quartz	1	globular	saw marks across larger hole	red
4.6	T.10	Z10/52	B	Faience	80	short oblate		light blue
	T.11	Z11/31.1	B	Faience	10 (1 broken)	standard and long tubular	glazed	light blue; green/whitish cores
	T.11	Z11/31.2	B	Faience	7	short tubular	cut and polished	light blue; green
	T.11	Z11/31.3	B	Faience	1	tubular	polished	light blue; green
	T.12	Z12/2	B	Mollusc shell; <i>Cypraea annulus</i> sp.	1			
4.7	T.12	Z12/82.1	B	Faience	1			
4.7	T.12	Z12/82.2	B	Glass	21		drawn, rounded ends	green (st)
	T.13	Z13/2.1	B	Faience	220 and 12 fragments	disc and short tubular	glazed	whitish with traces of light blue-green glaze/whitish cores
	T.13	Z13/2.2	B	Stone	1	barrel	burnished	white and black
4.4	T.13	Z13/3	B	Agate?	1	spherical	polished	light yellow; light red; dark red traces
	T.13	Z13/30.1	B	Faience	5	short and standard tubular	glazed	turquoise
	T.13	Z13/30.2	B	Faience	5	disc tubular	glazed	whitish; traces of blue-green
4.4	T.13	Z13/31	B	Stone	5	truncated bicone		dark reddish
4.7	T.13	Z13/32	B	Glass	1	globular	wound	green (t)
4.2	T.13	Z13/33	B	Ostrich eggshell	3 (1 broken)	disc cylinder	burnished	white
4.7	T.13	Z13/34	B	Glass	1 (8 fragments)	oblate		light green (st)
	T.15	Z15/10	B	Faience	1			
	T.15	Z15/13	B	Faience	1			
	T.15	Z15/33	B	Faience	1 half			
	T.16	Z16/5	B	Faience	2			
	T.16	Z16/19	B	Faience	65	short tubular		light green/light blue glaze; white cores
4.3	T.16	Z16/20a	B	Agate	1	ellipsoidal	polished; saw marks across larger hole	light red to dark red
4.3	T.16	Z16/20b	B	Agate	1	conical	polished; saw marks across larger hole	light red to dark red
4.3	T.16	Z16/20c	B	Agate	2	ellipsoidal	polished	light red to dark red
4.3	T.16	Z16/21	B	Stone	1	convex cone	polished	black
4.2	T.16	Z16/22	B	Ostrich eggshell	2	disc cylinder	burnished	whitish
4.3	T.16	Z16/23	B	Quartz	1	ellipsoidal	perforated from one end	white
4.3	T.17	Z17/6	B	Quartz	1	teardrop pendant	saw marks across larger hole	red

D	L/Th/W	HD	Context data	Season	References
5.4×5.16	2.4	1.35	Chamber 1, central part	2011	Then-Obluska 2016c, Fig. 4
9.73×8.93	12.34	1.81	Shaft, S part, near damaged blocking wall of chamber 1	2011	
4.0	3.3	0.9–1.6	Chamber 1, central part	2011	
5.2	7.1	2.5	Chamber 1, central part	2011	
5.36	5.47	1.85; 1.35	Chamber 1, central part	2011	
3.66	4.67	0.8; 1.35	Chamber 1, central part	2011	Then-Obluska 2016c, Fig. 4
9.45×9.72	20.11	1.84	Chamber 1, central part	2011	
			Chamber	2007	
			Chamber	2007	
			Chamber	2007	
4.92	4.8–6.46	2.08	Chamber	2007	Then-Obluska 2016c, Fig. 6
			Burial chamber 1	2009	
4.28	2.9	1.7	Burial chamber 1	2009	
3.51	3.5	1.3	Burial chamber 1	2009	
			Fill of robber hole	2013	
			Chamber 1, E part	2013	Then-Obluska 2016c, Fig. 6
			Chamber 1, E part	2013	
5.9	3.07–4.0	1.3	SE corner of shaft; near burial chamber	2009	
3.83	4.93	1.5	SE corner of shaft; near burial chamber	2009	
8.61	8.21	1.7; 1.93	SE corner of shaft; near burial chamber	2009	
3.78–4.02	2.94–3.94	1.7	Chamber 4; probably part of decoration of a leather case Z13/15	2009	Then-Obluska 2016c, Fig. 4
4.02	2.1	1.9	Chamber 4	2009	
8.07×9.85	11.02	2.09	Chamber 4, central and E part	2009	
6.41×6.16	4.98	2.32; 2.2	Chamber 4	2009	
4.5	1.9	1.0	Chamber 4, central part	2009	
5.76	?	1.0	Chamber 4, central part	2009	Then-Obluska 2016c, Fig. 6
			Fill of shaft	2013	
			Fill of shaft, S part	2013	
			Fill of shaft, N part	2013	
			Shaft, near chamber 1	2011	
4.0	2.77	1.55	Chamber 1 (burial chamber), S part, near skull and skeleton	2011	Then-Obluska 2016c, Fig. 3
4.28	5.87	1.47; 1.0	Chamber 1 (burial chamber), S part, near skull and skeleton	2011	
3.08	3.5	0.7; 0.95	Chamber 1 (burial chamber), S part, near skull and skeleton	2011	
2.88	3.98	1.25; 0.8	Chamber 1 (burial chamber), S part, near skull and skeleton	2011	
4.4	5.8	1.53; 1.2	Chamber 1 (burial chamber), S part, near skull and skeleton	2011	
4.36	1.76	1.36	Chamber 1 (burial chamber), S part, near skull and skeleton	2011	Then-Obluska 2016c, Fig. 3
3.27	4.13	1.15; 0.8	Chamber 1 (burial chamber), S part, near skull and skeleton	2011	
10.0×10.04	12.74	1.9; 2.42	Burial chamber, central part	2009	Then-Obluska 2016c, Fig. 3

TABLE 4.1 Catalogue of the beads and pendants (*cont.*)

Figure no.	Tumulus no.	Find no.	B/P	Material	Quantity	Shape	Technique	Colour(s) and diaphaneity
4.3	T.17	Z17/7	B	Quartz	3	barrel	saw marks across larger hole	white
	T.17	Z17/8	P	Quartz	4	teardrop pendant	saw marks across larger hole	white
4.3	T.17	Z17/9	P	Quartz	9	teardrop	saw marks across larger hole	whitish
4.8	T.17	Z17/10	B	Glass	7	oblate	single-segment	dark red (o)
	T.17	Z17/11.1	B	Faience	62 (1 broken)	standard tubular	glazed	light blue and green glaze; whitish cores
	T.17	Z17/11.2	B	Glass	1	oblate	drawn	dark red (covered with patina) (o)
4.6	T.18	Z18/9	B	Faience	14			
4.6	T.18	Z18/10	B	Faience	45			
	T.18	Z18/11	P	Quartz	4	teardrop		
	T.18	Z18/12	P	Quartz	1	teardrop		white
	T.20	Z20/6.1	B	Faience	3	standard tubular		light blue
	T.20	Z20/6.2	B	Faience	1	short tubular		light blue
	T.20	Z20/6.3	B	Faience	6	standard tubular		light blue
	T.20	Z20/6.4	B	Faience	9	long barrel		light blue
	T.20	Z20/7.1	B	Faience	1	long tubular		light blue
	T.20	Z20/7.2	B	Faience	5	standard tubular		light blue
	T.20	Z20/7.3	B	Faience	6 (and a half)	standard tubular		light blue
	T.20	Z20/7.4	B	Faience	1 (half)	long tubular		light blue
	T.20	Z20/8.1	B	Faience	24	long tubular		light blue
	T.20	Z20/8.2	B	Faience	6	standard tubular		light blue
	T.20	Z20/8.3	B	Faience	7	standard tubular		light greenish
	T.20	Z20/9.1	B	Faience	11	long tubular		light blue
	T.20	Z20/9.2	B	Faience	6	standard tubular		light blue
	T.20	Z20/9.3	B	Faience	4	short tubular		light blue
	T.20	Z20/10.1	B	Faience	40	long tubular		light blue
	T.20	Z20/10.2	B	Faience	35	standard tubular		light blue
	T.20	Z20/10.3	B	Faience	45	short tubular		light blue
	T.20	Z20/10.4	B	Faience	6	long tubular small		light blue
	T.20	Z20/11	P	Quartz	1	teardrop	saw marks across larger hole	white
4.3	T.20	Z20/12	B	Quartz	1	teardrop	saw marks across larger hole	white
	T.21	Z21/14.1	B	Quartzite	1	globular		white
	T.21	Z21/14.2	B	Faience	1	short oblate		green
	T.21	Z21/15.1	B	Ostrich eggshell	1	disc cylinder		
	T.21	Z21/15.2	B	Faience	1 fragment			
4.6	T.21	Z21/16.1	B	Quartz	1	globular		white
4.6	T.21	Z21/16.2	B	Faience	110	standard tubular		green
	T.21	Z21/17.1a	B	Quartz	1			
	T.21	Z21/17.1b	B	Quartz	16			
	T.21	Z21/17.2	B	Chalcedony	5			
	T.21	Z21/17.3	B	Limestone	67			
	T.21	Z21/17.4	B	Faience	27			

D	L/Th/W	HD	Context data	Season	References
7.95	8.84	2.5	Burial chamber, S part	2009	Then-Obluska 2016c, Fig. 3
11.67 × 10.46	15.8	1.38; 2.22	Burial chamber, S part	2009	
10.97 × 9.96	15.92	2.06	Grave chamber, S part	2009	Then-Obluska 2016c, Fig. 3
3.36–3.73	2.3–3.37	1.3	Grave chamber, S part	2009	Then-Obluska 2016c, Fig. 7
3.46–5.8	c. 3.9	2.1	Grave chamber	2009	
3.36	2.38	1.1	Grave chamber	2009	
			Central part of shaft, damaged blocking level	2007	
			Chamber	2007	
			Shaft, damaged blocking level	2007	
			Shaft, damaged blocking level	2007	
5.6	5.75; 6.5	1.98	Robber hole, NW part, near stones from damaged blocking wall	2011	
4.26	3.17	1.5	Robber hole, NW part, near stones from damaged blocking wall	2011	
5.34–3.93	4.64–4.3	1.5	Robber hole, NW part, near stones from damaged blocking wall	2011	
5.5–4.26	7.3–5.26	1.5	Robber hole, NW part, near stones from damaged blocking wall	2011	
4.8	6.83	1.73	Shaft, N part, depth: 0.9 m	2011	
5.63	6.44	2.5	Shaft, N part, depth: 0.9 m	2011	
5.0	4.57–4.12	1.5	Shaft, N part, depth: 0.9 m	2011	
4.42	7.23	1.8	Shaft, N part, depth: 0.9 m	2011	
5.08–4.05	7.56–5.24	1.9–1.0	Shaft, NE part, near skull and stones from damaged blocking wall	2011	
5.93	4.9	2.15	Shaft, NE part, near skull and stones from damaged blocking wall	2011	
3.8	5.65	1.85	Shaft, NE part, near skull and stones from damaged blocking wall	2011	
5.77	8.88–6.5	1.8	Shaft, near bottom	2011	
6.7–4.9	5.56–4.2	1.8	Shaft, near bottom	2011	
3.8	3.67	1.65	Shaft, near bottom	2011	
4.9–5.9	8.8–7.1	2.15	Burial chamber	2011	
4.58–5.96	4.8–6.35	1.7	Burial chamber	2011	
3.31–4.55	2.75–4.04	2.1	Burial chamber	2011	
3.32–4.18	4.96–6.5	1.35	Burial chamber	2011	
11.3 × 11.22	16.5	3.18 × 3.08; 1.77 × 1.8	Burial chamber	2011	
11.02 × 11.13	14.77	2.88 × 2.36; 1.57 × 1.37	Superstructure (surface)	2011	Then-Obluska 2016c, Fig. 3
			Fill of shaft, S part	2013	
			Fill of shaft, S part	2013	
			Fill of shaft	2013	
			Fill of shaft	2013	
c. 10			Burial chamber, NW part	2013	
			Burial chamber, NW part	2013	
			Burial chamber, N part	2013	
			Burial chamber, N part	2013	
			Burial chamber, N part	2013	
			Burial chamber, N part	2013	
			Burial chamber, N part	2013	

TABLE 4.1 Catalogue of the beads and pendants (*cont.*)

Figure no.	Tumulus no.	Find no.	B/P	Material	Quantity	Shape	Technique	Colour(s) and diaphaneity
4.6	T.22	Z22/9	B	Faience	12			
	T.24	Z24/4.1	B	Quartz	1?			
	T.24	Z24/4.2	B	Faience	1?			
	T.24	Z24/46	B	Faience	9			
	T.24	Z24/48	B	Faience	1			
4.8	T.24	Z24/49.1	B	Ostrich eggshell	1			
4.8	T.24	Z24/49.2	B	Glass	1			green
4.8	T.24	Z24/49.3	B	Glass	many fragments			blue
4.8	T.24	Z24/49.4	B	Glass	1 (in fragments)			yellow
4.4	T.24	Z24/55	B	Carnelian	2	long square bicone		red
	T.25	Z25/34	B	Shell?	1			
	T.25	Z25/35	B	Coral	1			
	T.25	Z25/36	B	Faience	72			
	T.26	Z26/1	B	Faience	1			
	T.26	Z26/6	B	Faience	13			
	T.27	Z27/4.1	B	Faience	100 (2 broken)	standard and long tubular	glazed	light green and blue glazed; whitish cores
	T.27	Z27/4.2	B	Stone; steatite	1	scarab		light grey; traces of turquoise glaze
4.4	T.27	Z27/4.3	B	Glass	1	oblate	drawn	red; covered with yellowish patina
	T.27	Z27/5	B	Mollusc shell; <i>Cypraea annulus</i> sp.	3 (1 broken)			white
	T.27	Z27/9	B	Glass	12	oblate	drawn	dark red (covered with patina) (o)
4.6	T.28	Z28/4.1	B	Glass	1	oblate	drawn and rounded	green
4.6	T.28	Z28/4.2	B	Faience	30			
	T.28	Z28/14	B	Faience	30			
4.2, 4.8	T.28	Z28/15.1	B	Ostrich eggshell	3			
4.8	T.28	Z28/15.2	B	Quartz	1	globular	saw marks across one of holes	red
4.8	T.28	Z28/15.3	B	Faience	50			
4.8	T.28	Z28/15.4	B	Glass	5		drawn and rounded	green
4.8	T.28	Z28/15.5	B	Glass	5		drawn and rounded	blue and blue-green; translucent
4.8	T.28	Z28/15.6	B	Glass	2		drawn; segmented	dark blue
4.8	T.28	Z28/15.7	B	Glass	1		drawn; segmented	covered with thick patina
4.2, 4.6	T.28	Z28/17.1	B	Ostrich eggshell	3			
4.6	T.28	Z28/17.2	B	Faience	71			
	?	?	B	Faience	12 (1 half)			

B bead

P pendant

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D	L/Th/W	HD	Context data	Season	References
			Shaft	2005	
			Shaft, central and N part	2012	
			Shaft, central and N part	2012	
			Chamber 1, SE part (E and SE corner)	2012	
			Sedimentary fill of shaft	2012	
			Shaft, N part, depth: 1.6 m	2012	Then-Obluska 2016c, Fig. 7
			Shaft, N part, depth: 1.6 m	2012	Then-Obluska 2016c, Fig. 7
			Shaft, N part, depth: 1.6 m	2012	Then-Obluska 2016c, Fig. 7
			Shaft, N part, depth: 1.6 m	2012	Then-Obluska 2016c, Fig. 7
			Chamber 1, E part (NE corner), next to skeleton	2012	Then-Obluska 2016c, Fig. 4
			Chamber 1	2007	
			Chamber 1	2007	
			Chamber 1	2007	
			Shaft (robber hole), N part	2014	
			Chamber 1, E part, near human bones	2014	
			Burial chamber, central part	2009	
10.5×16.9					
3.43–5.64	2.93–5.87	c. 1.7	Burial chamber, central part	2009	Then-Obluska 2016c, Fig. 4
10.24×13.01× 5.24		1.8; 1.9	Burial chamber, central part	2009	Then-Obluska 2016c, Fig. 4
3.5 ²	3.16	1.0	Burial chamber, central part	2009	
15.58×21.87× 6.35; 15.23× 20.25×6.6; 11.9×17.46× 4.82		15.66× 11.25; 14.7×11.0; 12.07×9.7	Burial chamber, central part	2009	Then-Obluska 2016c, Fig. 2
3.1–4.55	2.28–3.23	1.4	Burial chamber, central part	2009	
			Shaft, depth: 1.5–2 m	2012	Then-Obluska 2016c, Fig. 5
			Shaft, depth: 1.5–2 m	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, central part	2012	
c. 15			Burial chamber, S part, near skull	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, S part, near skull	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, S part, near skull	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, S part, near skull	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, S part, near skull	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, S part, near skull	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, S part, near skull	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, N part	2012	Then-Obluska 2016c, Fig. 5
			Burial chamber, N part	2012	Then-Obluska 2016c, Fig. 5
				2005	