9. Beads and pendants in life and death: insights into the production, use and deposition of ornamental technologies at Çatalhöyük

Milena Vasić, Matilda Siebrecht, Christina Tsoraki and Rena Veropoulidou
(with contributions by Virginia García-Díaz)

Introduction

Beads form the largest part of bodily adornment at Çatalhöyük. Over 43,000 beads have thus far been found during Mellaart's excavations and the Çatalhöyük Research Project (ÇRP) excavations, in a variety of deposits that span over 1,000 years of the occupation of the settlement. Although this chapter is primarily focused on the research conducted in the last segment of the project (2009–2017), it also provides an overview of the entire bead assemblage that was recovered during the 25 years of the ÇRP. The last nine years of excavations produced over 12,000 beads, and although patterns observed in previous studies (Bains 2012; Bains et al. 2013; Bar-Yosef Mayer 2013; Hamilton 2005; Russell 2005; 2012; Russell, Griffitts 2013; Vasić 2018; Wright 2012) have not significantly changed with the addition of these beads, we now have a better knowledge of how beads were used, as well as a better diachronic overview of their use. The studied assemblage consists of 21,546 beads from 14,294 stratified units from the Neolithic East Mound (North, South, GDN, TP and TPC Areas) excavated during the ÇRP (table 9.1). Priority units were studied in detail, and 1,165 stone and 1,272 shell beads and pendants (including finished products, roughouts and preforms) from these contexts have been subjected to a more detailed technological and use-wear analysis (see chapters 10 and 13). Beads and pendants made of animal bone and tooth were also studied in detail and the results will be published elsewhere (Garcia Diaz in preparation).

Methods

Following the methodology employed for the study of other ground stone artefacts (Chapter 13), the analysis of stone beads entailed the systematic recording of attributes that relate to production stages and manufacturing techniques, along with use-related attributes including information on the degree of wear and possible attachment methods. The latter included information on the deformation of the rim of the perforation, rounding of the perforation rim, with or without polishing in the perforation interior, and rounding on the face and margins of the beads. Microscopic observations were conducted at a low power magnification (10-60x) using a stereomicroscope (Nikon SMZ645 and Leica M80). The identification of rocks and minerals was facilitated by the use of on-site rock reference collections and identification guides (e.g., Jones 2000; Pellant 2000).

	North	*South*	*TPC*	*GDN*	*TP*	*Total*
Activity	22	125	2			149
Cluster	17	104	2		3	126
Floors (use)	231	529	63	2	16	841
Construction	338	452	50	13	42	895
Fill	748	486	85	13	95	1,427
Midden	755	1,034	5	31	40	1,865
Burial fill	11,282	737	443	76	9	12,547
Skeleton	2,567	1,034	17	9		3,627
Arbitrary	23	12			3	38
Unknown	30				1	31
Total	16,013	4,513	667	144	209	21,546

Table 9.1. Quantity of beads in different types of deposits by excavation areas.

Shell artefacts were examined under a low power magnification stereomicroscope (Nikon SMZ645; 10-40x) in order to identify taxa and skeletal parts, to take measurements and to record information on morphological characteristics of artefacts, degree of preservation and overall condition, manufacturing techniques and associated traces (facets, cuts, perforation shape and surface treatment), primary and secondary use and related use-wear traces, post-depositional variables (natural or chemical weathering and breakage patterns) and colour alterations. The recording of shell artefacts also implemented different archaeomalacological and shell artefact methodologies (see Veropoulidou, this volume, Chapter 10; Volume 13, Chapter 3).

In addition, preliminary experiments were conducted using different materials (stone, animal bone and copper) in order to provide insight into bead manufacturing processes (Siebrecht et al. in preparation). Experiments focused on the shaping, grinding and drilling of the stone and bone materials using flint, obsidian and copper drill bit tools and sandstone and schist abrading stones with different combinations of abrasive and lubricating additives such as water and sand. The experiments were designed to provide a better understanding of the properties of the tested materials in terms of workability (for example, ease of cutting and drilling), but also to create a reference collection for the subsequent stage of microwear analysis identifying distinct microwear traces that could be associated with particular motions or materials.

Assemblage overview

Materials

Over 78 different organic and inorganic materials were used for bead manufacture at Çatalhöyük. These include at least 30 different types of rocks and minerals, 24 mollusc species, copper, clay, botanical material (wood, indeterminate mineralised plant/wood material, as well as perforated hackberry seeds that potentially could have been used as beads (for the use of seeds and nuts as beads in an ethnographic context, see Falci et al. 2019)), bone and teeth of different animals and, interestingly, two examples of perforated human teeth (Haddow et al. 2019).

The analysed material confirms patterns of raw material use that were previously reported (Bains 2012; Bains et al. 2013; Vasić 2018), with sedimentary rocks, particularly limestone and tufa, being the dominant materials in the production of stone beads, followed by metamorphic rocks, most commonly fine-grained schist/phyllite and marble. Amongst minerals, there is a clear preference for carnelian, fluorapatite and turquoise.

Contrary to the previous publication (Bar-Yosef Mayer 2013), there is now more evidence to suggest that *Theodoxus heldreichi* shells were definitely used as beads, as was also suggested by Reese (2005). Together with *Unio*, these were shells of local origin that were frequently chosen for the production of beads and pendants. However, marine shells are by far more numerous in the assemblage, most commonly the *Antalis* group (Chapter 10), followed by *Nassarius gibbosulus* shells. Given the quantity of local shells on site, it is striking that marine shell beads dominate the ornamental assemblage, which clearly demonstrates a clear preference towards non-local materials.

Amongst the identified taxa, beads made of bone from large mammals (predominantly cow/aurochs/bison) and hare-sized animals, followed by sheep-sized animals, form the largest part of the assemblage. Peculiarly, this does not correspond to the actual presence of animals on site, where sheep-sized remains represent the largest proportion of the faunal remains (Russell et al. 2013b; Russell, Martin 2005).

Different forms of limestone and marble could have been procured locally within an area of 15 to 20km from the site (Bains et al. 2013), and clay and freshwater shells (*Unio* sp., *Th. heldreichi*, *Theodoxus anatolicus*, *Viviparus* sp. and *Lymnaea* sp.) were available in the immediate vicinity. The Erenler-Alacadağ volcanic formation, which is located ca 60–70km to the southwest of the site and is associated with the procurement of clays, ochre and possibly andesite, is a likely source area for carnelian (Doherty, Tarkan 2013; see also Tarkan this volume, Chapter 4; Doherty 2017a; Bains et al. 2013). On the other hand, fluorapatite, turquoise and marine shells were sourced from areas that were significantly further away from the site, with the majority of marine species originating from the Mediterranean Sea, one (*Antalis dentalis*) from the Aegean Sea and one fossil species (*Dentalium* sp. cf. *sexangulum*) from as far away as the Hatay and İskenderun basins (100–400km distant).

The vast majority of shell species employed in bead making do not appear to have had other uses. For example, the majority of marine shells were worn when procured, thus making them unsuitable for food consumption. Similarly, *Theodoxus* are rather small to be considered as a source of food. On the other hand, *Unio* species were used as food and also in the production of lime, temper and a variety of objects, pigment containers being thus far the most common type. Furthermore, copper appears to have been used exclusively for the production of ornaments. A small number of rocks and minerals were used exclusively for the production of beads (tufa, carnelian, 'galena', hematite of metallic lustre, fluorapatite and turquoise). Other stone materials, however, show simultaneous use for the production of beads and other ground stone artefacts, such as serpentinite and diabase used for axes and adzes and polishing tools, while metamorphic schist/phyllite and marble were widely used as abrasive and polishing tools (for broad patterns in material selection and use of stone, see Chapter 13; for shells, see Chapter 10). Peculiarly, beads were very rarely made of otherwise commonly utilised obsidian and chert, whilst widely used materials such as andesite and basalt were never fashioned into beads, pendants or annulets.

Colours. Beads made of shell, animal bone and tooth exhibit a variety of hues of white, with tooth and *Unio* shell beads being brighter, iridescent and more lustrous. *Nassarius* and *Columbella* beads have orange and pinkish colours. Depending on the type of clay used and the finishing techniques, the colour of clay beads varies from beige to brown and from light grey to black, with the latter being the most common. Beads made from stone show greater colour variation. Limestones range in colour from white/off-white to different shades of red (reddish brown, light to dark red); tufa beads have a red and reddish orange hue; marble is white/off-white, whereas other metamorphic varieties range in colour from light green to dark green/black and greenish grey to dark grey, while serpentinites sometimes also have a veined appearance. Similarly, diabase has dark grey and greenish grey hues. Carnelian ranges from light to dark orange, while fluorapatite has greenish and bluish hues and turquoise ranges from light to bright blue in colour. Materials preliminarily identified as 'galena' and 'hematite' have a metallic grey/black colour.

Whilst the choice of raw materials and manufacturing methods (for example, abrasive and polishing techniques) influenced to great extent the colour of the finished products, there is evidence of additional colour alteration of materials. Pigments were used to paint bone, clay and shell beads, perhaps best seen in a *Lymnaea* bead (11617.x1) that was painted with black and red stripes (see Chapter 10: fig. 10.1c). Similarly, red stripes were observed on a perforated *Viviparus* (13351.l1).

Deliberate exposure to fire under controlled conditions in order to achieve a black colour is also evident on a small number of bone, shell and marble beads. A similar observation has been made for wooden beads found in a burial in B.102 (Asouti, Kabukçu 2012), and for a stone bead (22661.x2) found in a burial in B.131.

Overall, the use of heat technologies is attested across different sites and materials throughout the Neolithic (for a review, see Bursalı et al. 2017). For example, repeated treatment of terracotta beads with molybdenum powder for the purpose of obtaining a blue colour has been reported at Köşk Höyük (Öztan 2012), while beads of artificially obtained blue colour were also found at Barcin Höyük and other Neolithic and Chalcolithic sites across Anatolia and Syria (Baysal 2016b; Bursalı et al. 2017). A number of blue-coloured beads with a white core have been found at Neolithic Çatalhöyük, in relation to deposits dated to the Final period of the occupation of the East Mound. Based on textural features visible on the broken light-coloured surfaces of these beads, most likely bone, tooth or their fossilised forms was used for their production, with odontolite being a possibility (Bains 2012; Taniguchi et al. 2002; cf. Bursalı et al. 2017). While further work is required to establish the exact material used and the chemical process that resulted in the colour alteration, what becomes apparent is the fact that people at Çatalhöyük intentionally meddled with materials in order to achieve such colour, at least in the Final period, despite the fact that true turquoise and fluorapatite were also used on site. Whatever the reason behind this choice (for example, skeuomorphism, as suggested by Bursalı et al. 2017), the use of this material and the complexity involved in its modification indicates an interest in technological experimentation, along with increased time investment and technological skill for materials associated with adornment practices. It should be noted, however, that beads with artificially obtained colour occur rarely in the assemblage, which indicates that the colour alteration of bead materials was not a regular practice at Çatalhöyük.

Typology. Beads and pendants were manufactured in a large variety of shapes and materials (fig. 9.1 and tables 9.2 and 9.3), with disc and ring beads (T.1) being by far the most common type and forming over 82% of the entire bead assemblage. Other beads that exist in large quantities and occur relatively frequently include types T.2, T.5, T.7, T.9, T.11, T.15, T.23 and T.25 (table 9.3). The recorded types can be split into two different groups. The first group includes beads and pendants whose shape was created by deliberate and extensive modification of the raw material (table 9.2). The second group consists of final products that have undergone minimal modification, presumably with the intention of keeping the original form in which the raw material occurs (tooth beads, pebbles, and all shell beads and pendants apart from those made from *Unio* and *Antalis* group).

Disc, cylindrical, barrel and sub-spherical beads and teardrop/oval-shaped pendants occur in a variety of materials, whilst the majority of other types are limited to one or two materials at the most. Disc beads, most commonly made from stone, also appear in clay, indeterminate wood/mineralised plant material and bone. All identified stone materials occur in the disc form, including carnelian, fluorapatite and turquoise, which were typically rendered in other forms. Despite occurring across the majority of materials, it is quite noticeable that very few green and blue discs exist. They form less than 1% of the T.1 bead assemblage.

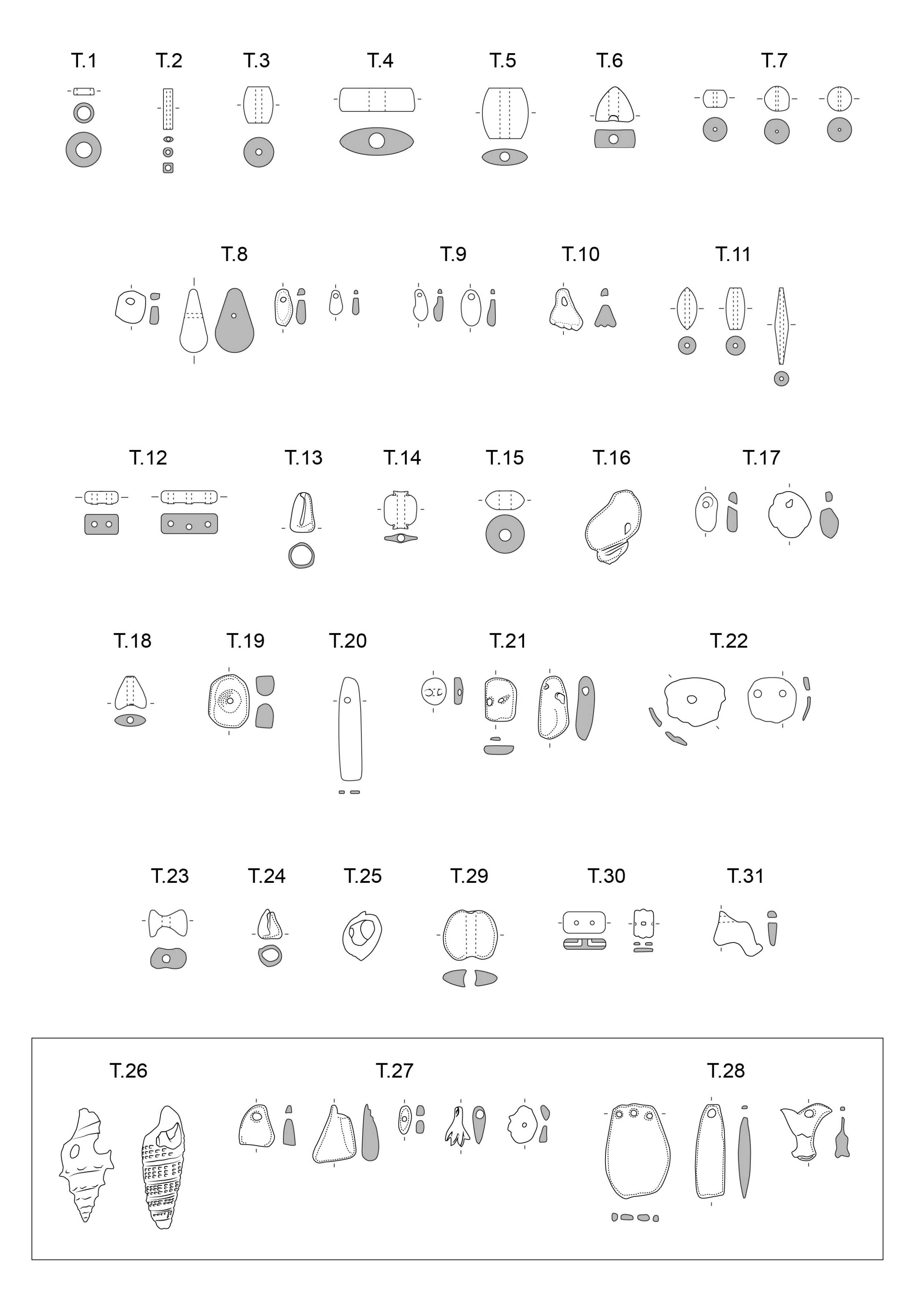

Figure 9.1. Typology of beads and pendants (illustration by Kathryn Killackey).

Group	*Type*	*Description*
I	T.1	Disc/ring: flat round shape with a central perforation
	T.2	Cylindrical: round, elliptical or square section
	T.3	Barrel
	T.4	Axe head: lens-shaped faces and parallel sides
	T.5	Flattened barrel: lens-shaped faces, with long and rounded sides (similar to T.4)
	T.6	Pyramid: rounded pyramids with a rectangular face
	T.7	Sub-spherical: rounded beads with a circular face
	T.8	Tear-drop/oval elongated: off-centre perforation
	T.11	Lenticular: beads with a lens/lenticular sides
	T.12	'Spacer': rectangular with multiple perforations
	T.14	'Collared butterfly': rounded sides and a collared rim
	T.15	T.1/T.7 crossover: circular face and rounded sides
	T.18	Heart
	T.19	Rectangular: rectangular face with a central perforation
	T.20	'Bullroarer': oblong with an off-centre perforation
	T.21	Button: U-shaped perforation and only one use-face
	T.22	Large flattened valves (*Unio*, *Spondylus*, *Patella*): with one or two perforations. Occur in different shapes
	T.23	Interlocking: hourglass-shaped beads
	T.27	Miscellaneous (beads): types that occur only a few times (for example, double ended, fish vertebra, triangular bone, trapezoid stone, star-shaped clay beads)
	T.28	Miscellaneous (pendants): various shapes that are one of a kind and worn suspended (exl. T.8/T.9)
	T.29	T.14/T.5 crossover
	T.30	Rectangular: beads with a rectangular face and one or two L-shaped perforations (three use-faces)
	T.31	Bird
II	T.9	Red deer canine beads and their imitation in long bone cortex
	T.10	Tooth beads (exl. T.8 and T.9)
	T.13	*Conus mediterraneus* shell beads
	T.16	*Viviparus* shell beads
	T.17	Pebbles: irregularly shaped naturally or artificially perforated
	T.24	*Columbella* shell beads
	T.25	*Nassarius* shell beads
	T.26	Beads made of other shells

Table 9.2. Typology of beads and pendants.

Type	*Animal Bone/ Tooth*	*Human Tooth*	*Botanical*	*Shell*	*Clay*	*Plaster*	*Stone*	*Copper*	*Unknown*	*Total*
T.1	47		2,970	1,046	473	51	10,875	13	2,333	17,808
T.2	26			282	9		139		7	463
T.3	2		1		17	2	50		1	73
T.4	1				1		85		1	88
T.5					2		135		1	138
T.6							9			9
T.7			8		238		34		2	282
T.8	16			2	19		31			68
T.9	173				1					174
T.10	36	2					2			40
T.11					368		12	1		381
T.12					2		1			3
T.13				31						31
T.14							2			2
T.15	1		1	2	5		132			141
T.16				16						16
T.17							86		2	88
T.18							5			5
T.19					1		9			10
T.20	12									12
T.21							15			15
T.22				96						96
T.23	270						7			277
T.24				62						62
T.25				273						273
T.26				152						152
T.27	13				15		14		2	44
T.28	15				1		13		1	30
T.29							26			26
T.30							7			7
T.31										0
Indeterminate	40		5	170	125	2	367	3	20	732
Total	652	2	2,985	2,132	1,277	55	12,056	17	2,370	21,546

Table 9.3. Count of beads of different types and materials.

A correlation between certain raw materials, forms and colours has been noted during the study. Cylindrical beads are usually white in colour (76.5%) and made most commonly of shell, but also bone and stone. Grey and black T.2 also exist, although in smaller quantities (only 14% of the T.2 assemblage), and were rendered in clay and stone, with serpentinite being the most common rock. The other colours (pink, red, blue and brown) are quite rare.

The majority of beads of type T.4 were made of marble and serpentinite. On the other hand, almost 80% of T.5 beads, which resemble T.4, but are much longer, were made of fluorapatite. Beads of type T.29, another type that is similar to types T.4 and T.5, with the difference being in their large size and rounded sides, were most frequently made of brown and/or red minerals (onyx/agate and a single example of carnelian). Beads of types T.11 and T.12 exist in stone and clay, while T.15 is most commonly made from carnelian and T.6, T.21 and T.30 from fluorapatite. In addition, it is likely that fluorapatite was used for the manufacture of type T.31, which was found in a single burial in E.IV.8 (Mellaart 1963: Pl.XXIIb).

Limestone was mainly used for the production of T.1 beads, but not exclusively. Perhaps the most interesting examples are limestone T.4 beads that were found with

(32762) in B.132. In the same building, another individual (32741) was buried with a tooth-shaped limestone bead. It is interesting that both individuals were buried with these limestone beads, which do not exist elsewhere.

Unio shells were typically used for the production of type T.21, and there are also single examples of the use of *Spondylus* and *Patella* for the production of this type that were found in a burial (21802) in B.43. Interlocking beads (T.23) were typically made of animal bone, but there are also several examples in stone (see below). Peculiarly, while T.1 beads dominate across different materials, bone examples are not that frequent, and animal bone was used most commonly for teardrop and red deer canine forms. Previous studies have already noted imitation of perforated red deer canines manufactured from bone (Russell 2005; Russell, Griffitts 2013; Bains et al. 2013), whilst the recent excavations also produced a couple of examples of stone beads imitating animal teeth. Perhaps the most extraordinary examples of tooth beads are two perforated human teeth, likely intended to be worn as pendants. It is striking that although red deer canine (T.9) and tooth (T.10) forms in general seem to have been highly valued, beads made of actual animal teeth remain relatively rare on site, with a single burial (11657) thus far containing a large concentration of tooth beads. Despite the multifariousness of the bead assemblage, clear patterns have been noted. Without minimising the differences in the physical properties and limitations that various raw materials have, the observed correlations between some types and materials are suggestive of the importance of particular materials being used for certain types of beads.

Manufacturing processes and contexts of production

Bead technologies have already been discussed in previous publications (Bains 2012; Bains et al. 2013; Bar-Yosef Mayer 2013; Russell 2005; 2012; Wright 2012), and this section focuses on certain aspects of the production process that were elucidated through recent analysis of roughouts/preforms, associated debitage and finished products. Stone and *Unio* bead assemblages demonstrate that a combination of percussive (flaking, pecking) and abrasive (sawing, drilling, grinding, polishing) techniques were used to transform the raw materials into varied forms.

The manufacture of artefacts from *Unio*, *Viviparus* and *Lymnea* involved drilling, flaking and grinding and occasionally painting. In contrast, *Theodoxus* shells were naturally perforated prior to their collection. Wear traces observed at the rim of their perforations, however, demonstrate that despite their natural perforations, these shells were used as beads. Both natural and artificial perforations exist on *Nassarius* shells, with the former being created in the process of rolling on the beach and the latter through hammering and gouging techniques. Perforation of marine shells was also achieved by drilling at various sides of the shell (from the apex to the aperture, at the body whorl/surface), whilst grinding was used both as a means of creating a perforation and for modification of the natural shape of the shells.

Recent results obtained through detailed technological studies reveal similarities and differences in the *chaîne opératoire* of T.1 beads made from different materials. The vast majority of limestone, phyllite/schist (e.g., 32707.k21) and diabase (e.g., 22512.k5) disc beads have been biconically perforated and shaped mainly by abrasion all over; the occasional presence of faceted margins suggests that grinding was done in stages rather than in a rolling motion.

Both perpendicular and angled perforations (unifacial or bifacial; e.g., 22419.k9 and 18697.k1) have been noted in the assemblage, though the latter occur more frequently in limestone beads. It was previously suggested that angled perforations resulted from the use of a hand drill (Bains 2012); however, our experimental work demonstrates that angled perforations can also be achieved by using a bow drill. Given that it is more time-consuming, though, it is likely that that angled perforations on beads created with a bow drill were the result of unintentional misalignment (Siebrecht et al. in preparation).

Tufa beads show variation in the type of perforations (mostly biconical and straight, but conical perforations are also present) and the shape of the perforation rim, with both circular and ovate examples present. Based on information derived from preforms, the production sequence of tufa beads can be reconstructed as follows: after the initial shaping of the margins (e.g., 16565.k5) and faces through flaking, the faces of the beads were regularised by grinding against a rough surface, as indicated by the depth of the striations visible (e.g., 16555.k3), before being biconically drilled with conical-shaped drill bits. Most of the tufa beads appear to have been drilled using flint drill bits, as demonstrated by the ridges and bands of scoring and striations evident inside the perforation (e.g., 16565.k7), wear traces comparable to those observed on experimental beads drilled using flint. The presence of tufa beads and preforms with a more circular and regular perforation (e.g., 18137.k1, 17048.k17) suggests the use of a drill-bit material that can be more easily shaped into a cylinder, such as bone or copper. Attempts to use bone as a drill bit have been unsuccessful in previous experiments (Bains 2012). Although the copper drill bit used in the new experiments conducted by Siebrecht did not create a cylindrical perforation of the kind that occurs on archaeological pieces, the bands of scoring and small ridges visible were comparable with the traces in the archaeological pieces, thus suggesting that the use of copper is possible. The flaked margins were then ground in steps, as suggested by the presence of distinctive facets creating a polygonal/sub-square shape (e.g., 18658.k1). This clearly points away from grinding in a rolling motion (with or without a grooved abrader). It demonstrates that these beads were produced individually and not in groups (whilst being strung together) (cf. Bains 2012). Variations in the *chaîne opératoire* of tufa beads such as omission of the intermediary grinding stage and the regularisation of the face of the bead (e.g., 19773.k1) or initiation of the perforation directly on the natural weathered surface without prior treatment (e.g., 19773.k2, 21810.k1, 21810.k2 and 21810.k4) suggest that there was no strict adherence to a particular production procedure. The presence of preforms found in the same burial fill (21814) with and without evidence for the grinding stage prior to the creation of the perforation clearly suggests that such variations in the *chaîne opératoire* reflect the choices and preferences of the individual producer(s) rather than temporal differences.

On the other hand, carnelian disc beads show a different production sequence. Both conical and biconical perforations are present, but the former are more common. The faces of the beads were originally flaked, and while on one of the bead faces the negatives of the previous flake removals have been erased by subsequent grinding, they are still visible on the opposite face of the bead. The irregular finish of the carnelian beads (with the negatives of previous flake removals still visible) contrasts with the uniform appearance of the regularly shaped limestone beads (see figs 9.2 and 9.3). Considering the difficulty in shaping carnelian due to its hardness (Schumann 1992), perhaps this indicates an effort to minimise time investment in the production of these beads. Another possibility to consider, however, is whether it represents a conscious decision to preserve on the surface of the beads the different processes that brought them to life. This is reminiscent of the production processes and appearance of flint daggers at Neolithic Çatalhöyük (Nazaroff et al. 2016).

Evidence for the production of disc beads using a rod/pre-formed cylinder is provided by two marble roughouts found in the North Area. Two shallow grooves on the ground margin of roughout 32132.k11 (early stage of sawing) suggest the intention of the producer to cut the preform in half in order to create two beads. In this case, the absence of a perforation on the rod suggests that the perforations were individually drilled on the pre-existing ground surfaces. In the case of 21509.k10, however, two unfinished perforations were drilled on either side of the rod, indicating that there was variation in the manufacturing sequence of beads from pre-formed cylinders. Similarly, manufacture of T.1 beads made of shells belonging to the *Antalis* and *Dentalium* groups involved mainly sawing the naturally shaped cylinders into thin slices, with some of them exhibiting a combination of sawing and grinding at the posterior and anterior end of the shell. In contrast, bone T.1 beads exhibit different manufacturing processes, which are also evident in the ratio of the perforation and bead diameters of bone and stone discs (for more information on the production of bone beads, see Bains et al. 2013). It is likely that the production of stone and shell cylindrical beads followed similar procedures to the manufacture of T.1 beads.

Another interesting observation regarding the production of T.1 beads is a correlation between raw materials and the size of the final products, with tufa beads mostly being smaller than 3mm (Size 1) and limestone, marble, phyllite and schist beads falling mainly between 3 and 5mm (Size 2), whilst the large majority of carnelian beads are between 5 and 7mm (Size 3) and fluorapatite beads are usually between 5 and 10mm (Sizes 3 and 4). The majority of bone T.1 beads are between 5 and 10mm (Sizes 3 and 4), whilst the size of shell T.1 beads largely depends on the size of the shell chosen for the manufacture, with their never being larger than 10mm and over 58% of the shell T.1 assemblage being smaller than 3mm.

The vast majority (over 72%) of beads are smaller than 5mm. Beads that fall within the Size 3 and Size 4 groups form 14.6% of the bead assemblage, whilst beads larger than 10mm are not as common (8.4%). As disc and ring beads form the largest portion of the assemblage, consideration of size (but also colours and materials) greatly reflects the T.1 assemblage (fig. 9.4). If they are excluded, we get the results in reverse, with more than half of beads being larger than 10mm, whilst the smaller category forms only 3.9% of the assemblage and is mostly represented by smaller *Antalis* cylindrical beads.

Detailed technological studies were also conducted on interlocking (T.23) beads. Production of this type of bead made of animal bone was discussed in a previous publication (Bains et al. 2013), but as mentioned above, examples of interlocking beads rendered in stone were unearthed during recent excavations. These beads show a more demanding production sequence than that entailed in the manufacture of T.1 beads, which was also evidenced during experiments conducted by Siebrecht. Based on the study of preforms and roughouts of interlocking beads, the initial stage entailed the shaping of a long rod (average size >20mm) through grinding, occasionally performed in steps, as shown by facets created on the surface of the rod (e.g., 13127.k5); this

Figure 9.2. Carnelian beads (22623.k2) (photograph by Matilda Siebrecht) (for colour version, see online supplementary material).

Figure 9.3. Limestone beads (30036.k2) (photograph Matilda Siebrecht) (for colour version, see online supplementary material).

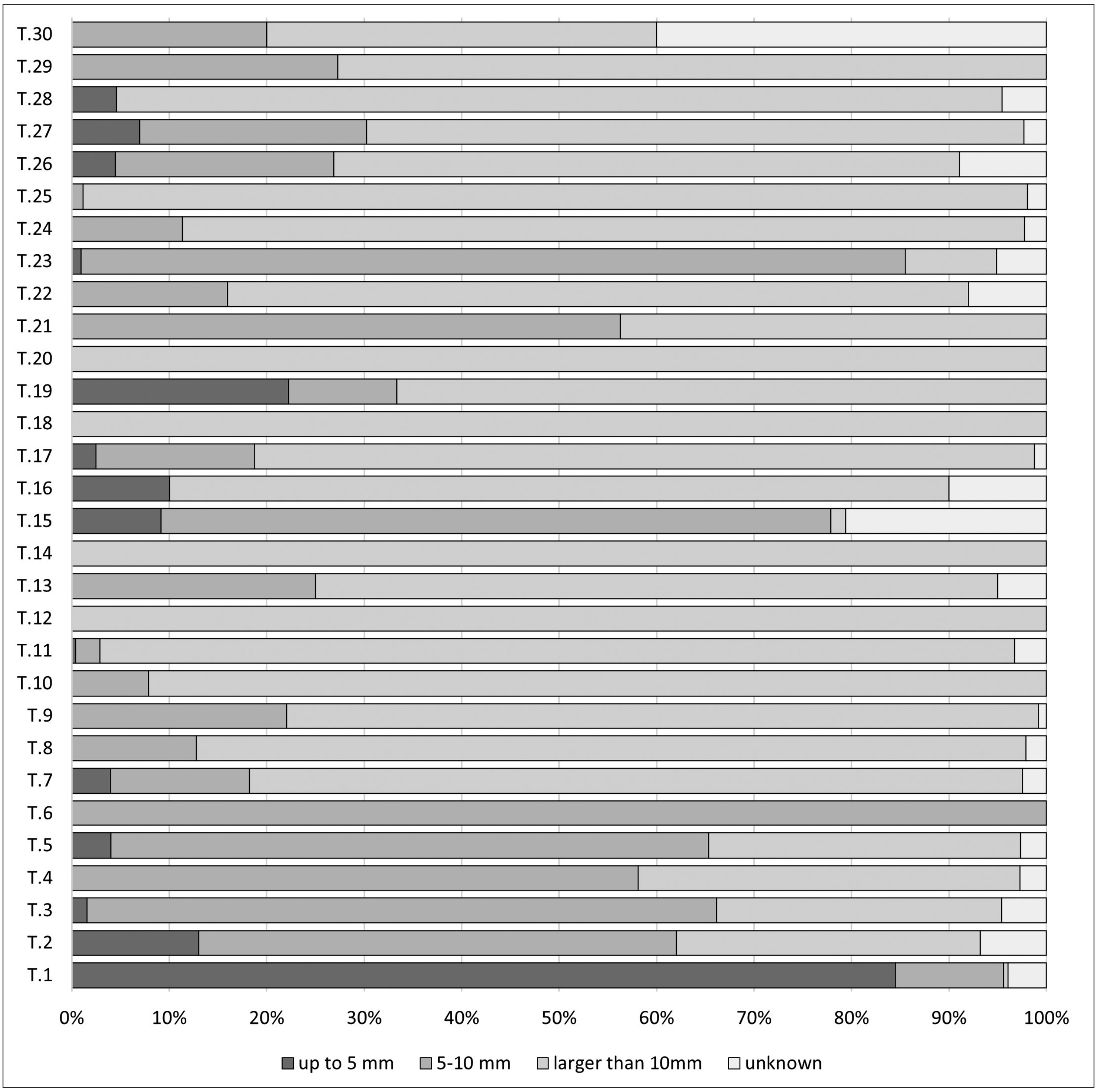

Figure 9.4. Types and sizes.

was then partly sawn bifacially into segments and biconically perforated. The next stage entailed the segmentation of the rod through snapping, and the final grinding and regularisation of the bead surface. Two finished interlocking beads made from marble (20450.k1) show scoring and fine striations on the interior of their perforation. Considering similarities with traces experimentally replicated during the use of a flint drill bit, we could suggest that the archaeological beads were drilled using flint. However, it appears that the perforations were deliberately smoothed following drilling, as there are no clear ridges within the walls of the perforation. Therefore, interlocking stone and bone beads show great similarity in production processes. The choice of marble for T.23 beads is quite interesting, due to its visual similarities to bone. Yet steatite preforms suggest that materials of other colours were also employed in the manufacture of this type.

Based on several preforms, the majority of the T.8 and T.9 pendants made of animal bone and various different stones appear to have shared a similar production process (as much as the chosen raw material allowed), which included general shaping of the raw nodule, followed by biconical perforation and final shaping and smoothing. Some stone and bone examples show that the preforms were ground extensively before a perforation was initiated (e.g., 31907.x1 and 4860.F1). In contrast, some bone pendant preforms (e.g., 4530.F22 and 4539.F35) show limited if any evidence of grinding but were instead either unworked materials or possibly flaked to a rough shape before perforation. Observed wear traces are consistent with the use of obsidian drill bits rather than flint, which creates more pronounced ridges (for example, steatite T.8 (12972.k8)).

The technological analysis of the bead assemblage reveals certain preferences, not only in terms of shapes and colours, but also in the ways beads were created. The variation in the manufacture of disc stone beads is evident, but so is the similarity in the production of shell and stone T.1 beads, the production sequence of which exhibits differences from bone beads. Different bead types were made from a variety of materials, but there is also evidence for imitation across materials. Occurrence of imitation red deer canine beads in animal bone is a recurring trait in the Neolithic (Choyke 2001; d'Errico, Vanhaeren 2002; Sidéra 2001), and there is also evidence of tooth-shaped beads being reproduced from other materials. Furthermore, a number of beads show great visual similarity with stone beads but, upon detailed inspection, were identified as non-stone materials. This includes beads found in direct association with an adolescent (23126) in B.131 that appear to have been made of wood/mineralised plant material with a very fibrous texture, but also clay beads with silty texture and highly burnished surfaces found with an adult (22620) in B.129. Similarly, some of the disc, cylindrical and barrel beads made of clay have highly burnished surfaces and look almost identical to stone beads. Considering that they were not easy to identify as non-stone materials even with the use of a microscope, it is unlikely that inhabitants of Çatalhöyük (apart from the person/people involved in their production) would have been able to differentiate (at least visually), for example, the beads that were placed with (23126) from stone beads. We cannot be certain whether this means that they were trying to replicate the stone beads, or whether their production reveals that certain aesthetic principles had to be adhered to regardless of the raw material.

Recycling has also been noted on a small number of artefacts. That is, artefacts whose use-life started as different objects at some point were turned into beads or pendants. Russell (2005) notes a ring with a pillar (5281.D1) with evident use-wear that after it had been broken was reworked and used as a pendant. Similarly, it is plausible that one T.9 bead that was found on a necklace of an adult female (10829) was created from a reworked boar tusk collar (Çatalhöyük Faunal database 10829.x10). Strikingly, both the necklace and anklet of this female contained T.9 beads made of boar incisors, whilst this individual was also adorned with five boar tusk collars. In addition, a fragment of an object that was found in an external midden deposit (32128) in the North Area appears to have started its use-life as a bangle/annulet and later was perforated, presumably with the intention of its being worn as a pendant.

Despite the large assemblage and the relatively frequent occurrence of beads, blanks, preforms, roughouts, nodules and debitage associated with bead production occur in comparatively low numbers. For example, the sampled units yielded a very small number of objects (n=23) that relate to the initial stages of stone bead production, deriving from both building interiors and external areas and mainly relating to the production of T.1 beads. While this supports the on-site production of stone beads, production contexts remain scarce. The material remains of in situ bead production that do exist in a few buildings are usually limited to one or two types. For example, T.1 preforms were recovered from B.75, whilst B.18 contained unfinished T.9 beads. There is no evidence of large-scale production of beads of a variety of types within individual units, whilst, in contrast, the existence of workshops with a range of different bead types has been noted elsewhere (for example, Kösk Höyük; see Öztan 2012).

The occurrence of unfinished beads made of fluorapatite and carnelian suggest that even these non-local materials were worked on site from the Middle period onwards. For example, carnelian roughouts and debitage were found in fills of B.119, B.97 and B.142. It is worth highlighting that B.142 is strongly associated with different types of stone-working activities and especially with the production of andesitic grinding tools (Chapter 13).

Carnelian was also found in burial fill in B.166 in the TPC Area, as well as together with tools that were found, potentially in a pouch, with an adult female (21672) in Sp.602 in the North Area. There are several other examples of unfinished shell and stone beads that were recovered from burial fills, thus providing indirect evidence of bead manufacture on site. A pouch with preforms for imitation red deer canine beads was found between the arms of an adult female (5169) in B.17, whilst another adult female (23115), buried in B.131, was directly associated with two preforms for steatite pendants, but possible use-wear traces are visible on one of the preforms. Four tufa preforms were found in burial fills associated with (21817) and (21841) in B.17, with the latter also containing waste related to the production of *Unio* beads. Two *Unio* shells (one representing an oval elongated pendant and the other, though it was shaped in a similar way, without a perforation) were placed under the cranium of an adult female (15621) in B.102. Together with other examples from non-burial contexts (for example, the floor of B.89), these attest to the manufacture of *Unio* pendants on site.

On the other hand, evidence of the on-site manufacture of beads and pendants from non-local shell species is limited. One *Cerastoderma glaucum* valve with partially finished perforations (Chapter 10) represents the best example, and, strikingly, it was also recovered from a burial fill (F.7977). Nevertheless, the occurrence of non-perforated *Columbella* examples in building fills and midden deposits, together with a few unfinished *Antalis* and *Dentalium* beads, demonstrates that marine shells were indeed worked on site, although it is possible that some were also brought in as finished products.

Currently, there is no evidence to support the specialised production of beads or the existence of specialised bead workshops at Çatalhöyük. If that was the case, we would expect to find larger quantities of unfinished products, preforms and associated debitage in at least some buildings (for example, the above-mentioned B.75 and B.18). Furthermore, the scattered nature of deposition of unfinished beads and their co-occurrence with the material remains of in situ manufacture of other types of objects (for example, axes, see Chapter 13) demonstrates that people were making different things in the same building, which is strongly suggestive of a small-scale production of different items in 'households', likely aiming at servicing individual needs as required.

The use of beads and pendants

Wear patterns and traces of use

The bead assemblage exhibits different degrees of wear. Stone beads with little or no wear account for 20.2% of the studied sample, and the remainder vary from moderately to heavily used. There is a tendency for turquoise and fluorapatite beads to exhibit a heavy degree of wear more frequently, whereas the limestone, tufa and carnelian examples more commonly tend to show light to moderate degrees of wear. The main use-related wear traces encountered across different stone materials include: partial smoothing and polishing of the perforation rims, often associated with a facet created on the edge of the perforation wall (e.g., 32453.k3) or a facet created inside the perforation (e.g., 17308.k3), resulting from tying the bead with a string; the deformation of the rims of the perforation that includes rounding with or without polish in the interior of the perforation or rounding with or without the presence of notches; and rounding and the unequal distribution of polish on the faces of the beads.

T.1 and T.2 shell beads also show similar patterns, with patchy traces of gloss on various spots of the walls of the bead coupled with slight notches/incisions at spots around the periphery of the posterior and the anterior ends that are suggestive of beads being strung (e.g., (32782), (20492), (16302) and (16131)). Smaller beads are sometimes found inside larger beads, which shows that some ornaments were composed of loosely strung beads. *Columbella* beads have a vertical perforation from the apex to the aperture that would have enabled suspension in a horizontal position. In addition, the rim of their perforations is smoothed and glossy, thus suggesting contact with a soft material (that is, thread).

There are some examples, however, that show evidence for tight attachment, most likely to clothing. These are mainly associated with the uneven deformation of the rim of the perforation and the presence of notches on opposite ends of the perforation along with thinning/flattening of the wall of the perforation on the same side. This wear pattern tends to occur in bead forms of elongated shape (e.g., T.2, T.3 and T.5). This type of wear has been observed, for instance, on a T.5 bead (22661.x2) found in direct association with an adult female (22661) in B.131, suggesting prolonged use prior to its deposition in the burial; judging from the way the perforation is worn on the two opposite ends, it appears that the bead was attached tightly, perhaps on clothing/textile, and not worn loose. A barrel-shaped bead (22678.k2) found in the fill of an adolescent female (31705) burial in the same building has rounded perforation edges, while one end has been worn through. This suggests that the attachment method was tight and was cutting through the rim of the perforation. The observed wear traces are visible only on the flat side of the bead, indicating that this was the side attached to the clothing/textile. A similar observation has been made for beads associated with an adolescent, possible female (23920), buried in B.150. This individual had a string of beads around her neck (fig. 9.5), but the use-wear traces clearly suggest that these beads had not always formed part of a necklace; rather, for a prolonged period of time prior to their deposition they had been tightly attached to another material, possibly clothing/textile. A group of black discs and black and white cylindrical stone and shell beads were found in several positions directly associated with the lower limbs. It is unclear in what form these beads were originally deposited, but as their position does not suggest anklets, it is possible that they were attached onto material as well (either used for wrapping the body, or some sort of a garment).

Similarly, evidence of beads worn with a form of tight attachment was also observed on a number of *Antalis* and *Dentalium* beads (e.g., (30038) and (19897)). Use-wear traces observed in the thinning of one part of the vertical wall of the shell and the presence of notches at the posterior and anterior ends, along with the condition of these beads, demonstrate the exhaustion of the raw material as a result of prolonged rubbing against another material (Chapter 10).

Figure 9.5. Necklace with (23920) (photograph by Ekin Ünal) (for colour version, see online supplementary material).

It is worth noting that similar wear damage patterns have been encountered in non-burial contexts as well, such as on a bead on the floor of B.89 (30977); 32806.x3, which was recovered from the building fill/burnt layer; and 20736.x5, which was found in a platform make-up layer in B.150. These examples clearly suggest that beads were being attached to materials, likely clothing, prior to their deposition in burials. Thus some of the beads originally interpreted as strings that moved due to burial disturbances might also have in fact represented clothing attachment.

Various degrees of use-wear have been noted on bone beads in an anklet found with a child (11657), ranging from very little to extensive, which suggests that some of these beads were in use for a very long time (Daly 2005). Imitation red deer canine beads found in association with an old adult individual, possible male (32762), also display different degrees of wear. Similarly, a *Nassarius* bracelet found with an old adult, possible male (20685), contained shells that had different degrees of use-wear, suggesting that these beads were not always used together. Through use, the surface of *Nassarius* shell erodes and becomes thinner. It is possible that new beads were being added to the same string in order to keep them tightly together, but it is also plausible that they had originally formed part of different ornamental compositions and at some point in their biography were assembled together to create a new string. In contrast, *Nassarius* beads found on an anklet with an adult female (23921) buried in B.166 contained beads that all displayed long use, which could suggest that this string stayed unaltered for a long time (see Chapter 10: fig. 10.7). In addition, the use-wear analysis gave an insight into how *Nassarius* beads were strung (see Chapter 10 for details). The burial assemblage demonstrates that these shells were tightly interlocked with one another, in a similar fashion to T.23 beads (see Bains et al. 2013). Both T.23 (made of stone and bone) and T.25 (*Nassarius* beads) were strung in tight clusters, thus forming very different visual patterns from strings with other bead types (fig. 9.6).

Further analysis is required, especially on strings containing beads of different materials; nevertheless, it seems that some of the bead ornaments were indeed altered at some point during their use-life. Some beads could originally have formed part of one bead string – for example, as a bracelet – but then have been restrung with other beads in order to create another ornament. While bead ornaments are 'composite artefacts through which chains of relations can be traced' (Fowler 2004), it is important to remember that each bead is an entity on its own and can therefore be used in multiple ways and form part of different ornaments. Individual beads had different paths in their use-life, and not only could they have been easily combined and recombined, strung and restrung multiple times, they could also have been used as a clothing decoration at first, but then strung into a necklace or bracelet, or vice versa.

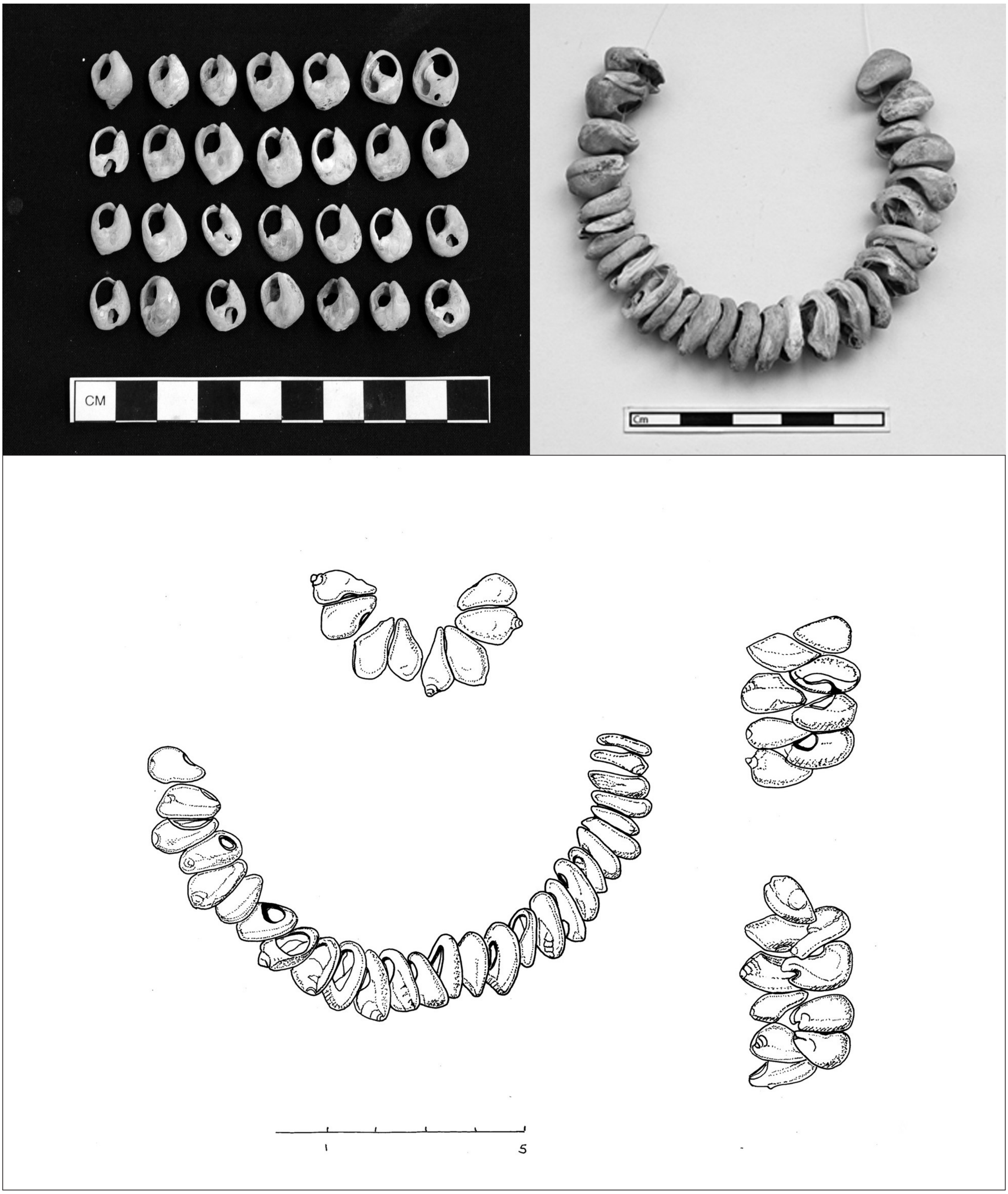

Figure 9.6. Nassarius *bracelet with (20685) (illustration by Caroline Habron; photographs by Milena Vasić and Jason Quinlan)*

Beads and pendants in context

Beads are most commonly present in burial fills, followed by middens (fig. 9.7). Although over half of the excavated midden units contained beads, beads usually occur in small numbers in these deposits and, in fact, bead densities are lowest in the midden deposits (fig. 9.8). This could partly be related to the different retrieval methods. Whilst the usual excavation and sampling procedure involved the entirety of a burial infill being sent to flotation (and the same typically applied for smaller floor deposits), due to their large volumes, midden deposits were usually sieved on site using a 5mm mesh. Given that the majority of beads are smaller than 5mm, it is likely that a lot were missed during the excavation and sieving. On the other hand, flotation ensured the retrieval of all artefacts larger than 1mm. Beads are most frequently present in burial features, where they also have the highest density. It should be noted that the density in burials is actually higher than shown in figure 9.8, as it does not take into consideration beads that were assigned to the skeleton units.

The vast majority of beads (over 75%) were recovered from burial features, some of which contained high concentrations of beads (table 9.1 and table 9.4). When they occur in other deposits, beads tend to be in smaller numbers (up to five per deposit). Primary contexts such as activity deposits, clusters and floors rarely have high concentrations of beads, although exceptions do exist. High densities of beads were noted in the dirty areas and deposits associated with fire installation rake-outs in B.18, B.80 and B.97 in the South Area and B.132 in the North Area (see also Hamilton 2005 for a similar observation regarding B.17). In some cases (B.132, B.18, B.75 and Sp.329), the higher quantity of beads can be related to bead manufacture, which can also be supported by the occurrence of preforms, drills and debitage of associated materials.

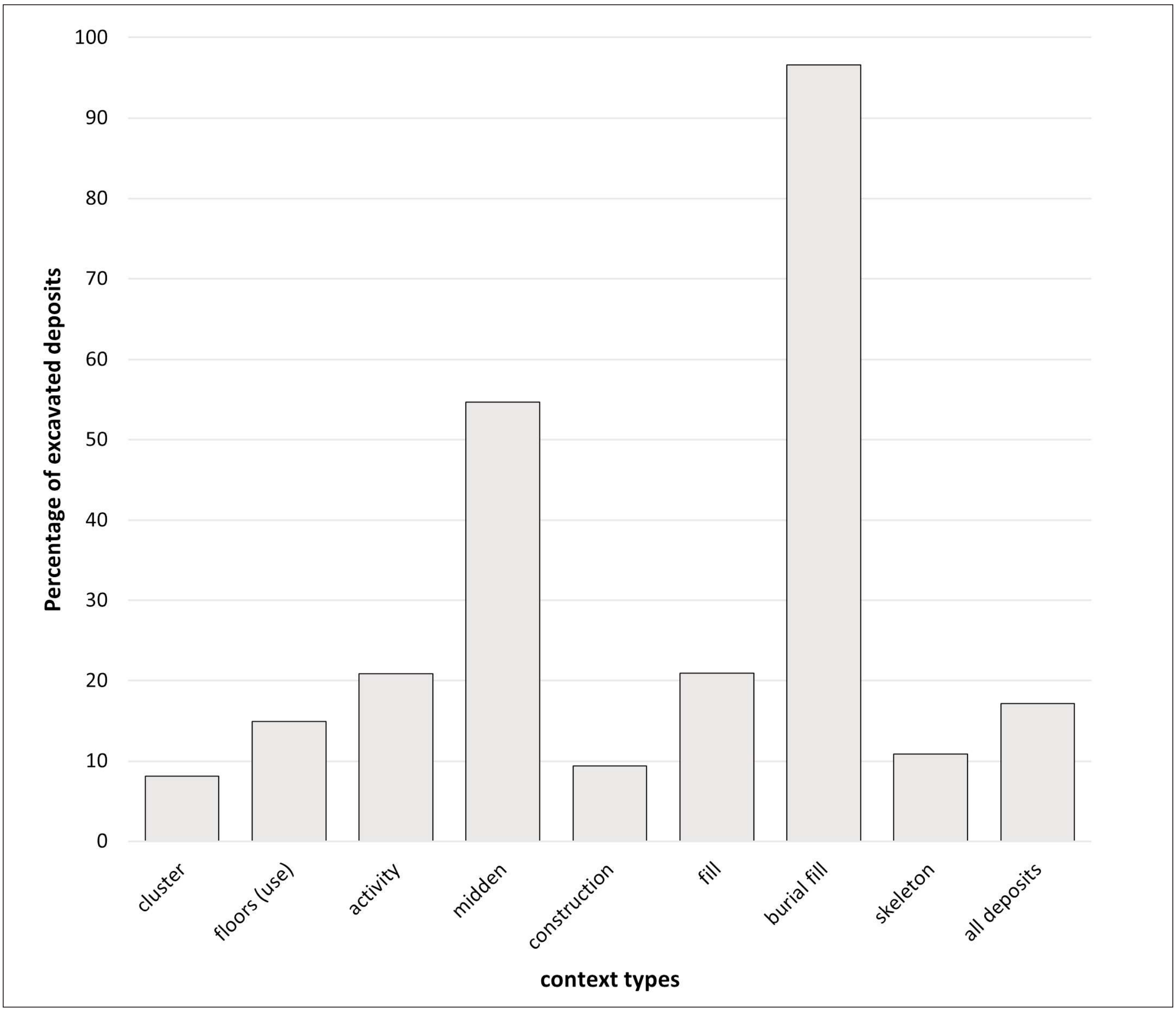

Figure 9.7. Proportion of excavated deposits with beads.

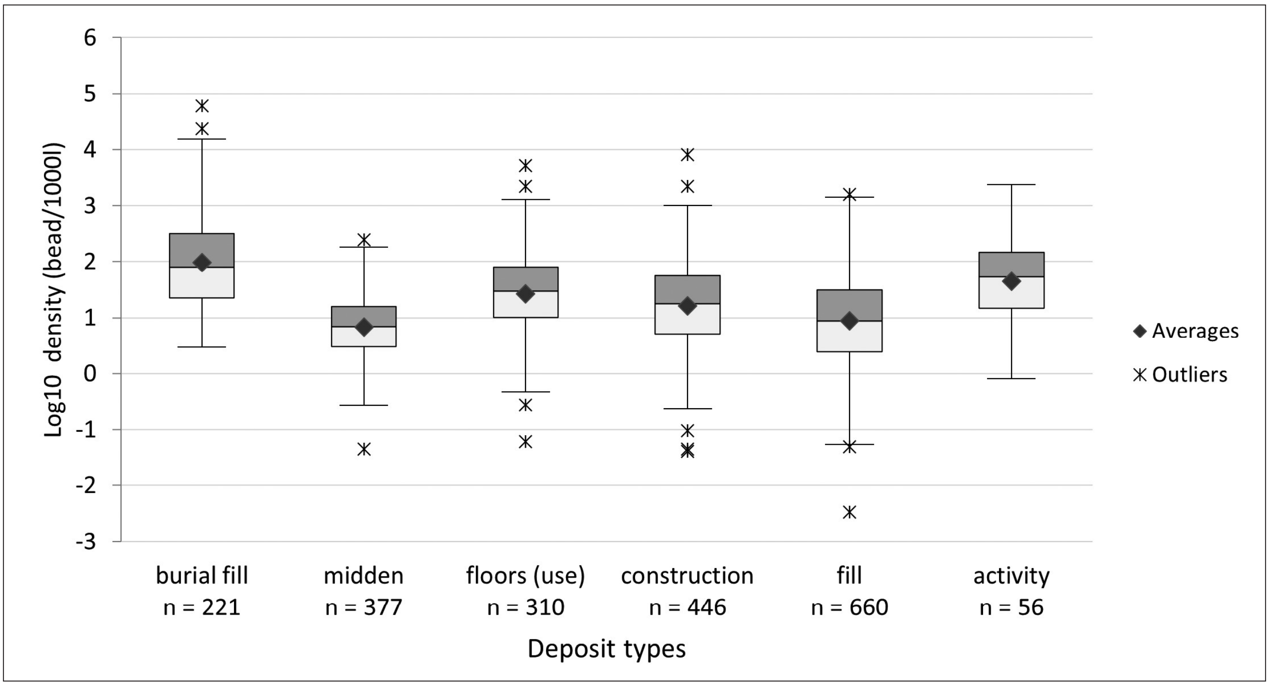

Figure 9.8. Bead density (Log10) in different deposits.

No. of beads	*Activity*	*Cluster*	*Floors (use)*	*Construction*	*Fill*	*Midden*	*Burial fill*	*Skeleton*	*Total deposits*
1 or 2	47	24	317	491	653	213	113	31	1,889
3–5	3	5	49	44	81	102	40	8	332
6–10	5	2	10	7	14	57	25	2	122
11–20	1		4	2	4	25	12	6	54
21–30	1		2	2	2	5	7	2	21
31–40				1		7	4	2	14
41–50			1		1	1	2	2	7
51–100		1	1				14	6	22
100+					1		19	10	30
Total deposits	57	32	384	547	756	410	236	69	2,491

Table 9.4. Number of deposits containing different quantities of beads.

Based on the mere count of beads per individual unit, deliberate placements of beads do stand out, as they are quite rare. For example, two clusters of beads were placed in B.56, immediately prior to its abandonment. A cluster of 69 naturally perforated *Xeropicta* shells (11691) was found in the wall blocking in the northwest part of the main room, and perforated pebbles and at least one *Viviparus* shell that was painted (13351) were found together on the floor next to the wall that was separating the main and side rooms. Similarly, a group of diverse beads was left on the floor (2798) of B.2 in the final phase of its occupation, and a group of *Nassarius* beads was found on top of a large quantity of animal bone in a packing deposit associated with an oven (8505) in B.114. Unlike other examples that represent activities related to building abandonment, the placement of these *Nassarius* beads and animal bone was attributed to an earlier (remodelling) phase of the use of this building (phase 88.2, see Stevanović 2012b).

There is also evidence of beads being occasionally buried or hidden in pits, as noted in B.64 and B.132. A group of 42 limestone disc beads were retrieved from a pit (14956) in B.64, and 107 disc beads and one imitation of a red deer canine bead, with traces of red ochre in the perforation, were found in the fill of a posthole (23638) in B.132. This posthole was located immediately next to the plastered and painted head that had obsidian in place of the eyes (21666) and was placed there during the construction phase of B.132 (see Lingle et al. 2015 for details).

Room fills tend to have a very low density of beads, and most units contain one or two beads. The most notable exception is one deposit in B.51. Building infill (11985) contained a cylindrical bead made of stone, one complete perforated *Cerastoderma*, one unperforated *Columbella* and over 20 perforated *Unio* shells. Such a large concentration of *Unio* shells has not been found thus far elsewhere (apart from a burial of a neonate (10400) with 14 *Unio* beads), and it is likely that they were deposited together. It should be noted, however, that this unit had a rather large volume, 3,680.6 litres of soil in total.

In the case of beads found in midden deposits, as these are typically not primary contexts, it is hard to discern the nature of their deposition, especially due to the fact that some of these deposits are quite large and include thousands of litres of soil. One of the rare exceptions is a midden deposit (14827) in an external area located below B.53. This unit had over 30 small stone disc beads that were all retrieved from a single flotation sample. Given the small volume of the sample and the observed uniformity of these beads, it is plausible that they were made together and likely that they were deposited together in a single event. Frequent occurrence of beads in external areas is continuous throughout the occupation of the settlement, but differences between external spaces do exist, with some of them (for example, Sp.181, Sp.279 and middens next to B.3) having a much higher quantity of beads than others.

Different types of beads, made of a variety of materials, occur in both burial and non-burial deposits. The use and discard of beads of certain shapes, colours and materials do not appear to be confined to specific contexts. With the exception of rare types and/or materials (that is, beads that appear only in a few deposits), similar beads were found left on floors, placed with the interred individuals in burials, or discarded in middens. However, some tendencies do exist, and activity and cluster deposits contain the smallest number of types (n=12), whilst the other deposits have over 20 different types. Some bead types occur across all deposits (T.1, T.2, T.7, T.11, T.13, T.24 and T.28), whilst an additional 12 types exist in all but cluster and/or activity deposits (T.3, T.4, T.5, T.8, T.9, T.13, T.15, T.22, T.23, T.25, T.26 and T.28). Types T.6 and T.31 (found in the 1960s) have been found in single burials thus far, and T.14 was recovered from two burials, whilst type T.30 exists only in burials and middens. On the other hand, a complete absence of *Viviparus* and 'bullroarer' types in burials has also been noted, whilst some beads occur only in burial fills, but not in direct association with the interred bodies (T.17, T.18 and T.19). Despite burials containing much higher quantities of beads than other deposits, a higher number of quite a few bead types was actually recovered from non-burial contexts (T.7, T.8, T.11, T.12, T.13, T.16, T.17, T.18, T.19, T.20, T.22, T.24, T.26, T.27 and T.28).

Stone beads occur relatively frequently across all deposits, but it is noteworthy that they are rather rarely present in cluster deposits (4.7%). This is quite surprising given that clusters are often associated with large numbers of a wide range of stone artefacts (Wright 2013; see also Tsoraki, this volume, Chapter 13; Tsoraki 2018). However, as demonstrated above, stone beads (as well as beads of other materials) do occur in placed deposits, and therefore their rare presence in clusters is likely to be a consequence of the ways in which cluster deposits were defined by the excavators. Nevertheless, it is quite odd that beads, regardless of their material, were not commonly combined with other types of artefacts, but instead were usually placed alone.

Bone T.1 beads were found in concentrations in two burials (4406) and (32762), but they are otherwise not very common and occur in only 15 other deposits. Similarly, larger quantities of T.23 bone beads were seen only in two burials (19460) and (15924), whilst they typically occur in smaller numbers (one or two) and were found in seven burials and 17 non-burial deposits. On the other hand, five or more beads of types T.8 and T.9 were found in eight burials, whilst an additional 16 burial features contained one or two beads. In addition, 82 non-burial deposits contained these beads, which attests to their more widespread use than the other types.

As previously mentioned, large concentrations of shell beads are found not only in burials, but also in a few placed deposits. On the other hand, outside of burials, clay beads tend to occur in smaller numbers, mainly in non-primary deposits. They are by far most common in midden deposits (18%) and burial fills (14.3%), although it should be noted that they do not occur very frequently in direct association with the interred bodies. Other types of deposits rarely contain clay beads (they are present in about 1–3.5% of different data categories).

The contextual distribution of beads demonstrates they were used in both daily life and ritualised activities such as funerary practices and practices related to building abandonment. Whilst their rare occurrence in floor deposits is likely to be due to regular sweepings, their strikingly high frequency in midden deposits cannot be simply interpreted as discard or beads being lost; rather, it could be indicative of activities taking place in the external areas. Bead production and stringing could have been one of the activities conducted outdoors.

Given the high diversity of bead strings in burials (see below), it is not surprising that some external deposits also show significant variability, and this would also explain their high occurrence in the midden deposits.

Beads and pendants in burials

Bodily decoration played a major role in funerary practices, as evident in beads being the most common type of burial associations (Vasić 2018; Vasić et al. Volume 13, Chapter 17). Due to the high level of disturbance in burials, a large number of beads moved and ended up in the burial fill rather than staying directly on the bodies of the interred individuals. Whilst some of these beads ended up in burials accidentally, the large majority seem to have been deposited deliberately. A very small number of beads (one or two) were found in burials of 82 individuals. Out of these, beads were definitely placed with 13 individuals, whilst the remaining examples are likely to have come with the soil used to fill the burial cut. For the features that contained three to ten beads, it is harder to discern the nature of their deposition, but out of 38 individuals, eight were found with beads directly associated with their bodies. Larger quantities of beads (10 or more) exist in burial features of 58 individuals, out of which only 11 were not found in direct association with beads. Nevertheless, as stated above, beads rarely occur in larger concentrations outside of burials, and it is therefore likely that most of these beads indeed belonged to the interred individuals in these features.

Burials demonstrate that beads were most commonly used in funerary practices as necklaces, bracelets or anklets, but there are also smaller numbers of beads (one or two) associated with the neck region. Although almost the same number of necklaces and bracelets was found (n=24 and n=23 respectively), at least 17 additional ornaments comprising small numbers of beads (one or two) were found in the neck region, which shows that neck adornment was favoured, whilst anklets were the least common (n=16).

Unio, fluorapatite and material of metallic lustre preliminarily identified as hematite were found in several burials under or next to crania, or in the neck region. There are also examples of beads made from other materials (for example, *Spondylus* and *Patella* were found with the adolescent (21802) in B.43), but artefacts of these three materials appear to be most commonly placed in small numbers (one or two) and associated with head or neck of the interred individuals. Hematite and *Unio* beads are almost never found on wrists or ankles, the only exception being *Unio* pendants on a bracelet of an adult male (32770) in B.132. Fluorapatite beads exhibit more diversity in their depositional patterns in burials. Apart from five individuals that had fluorapatite beads in the neck region, beads of this material were found on bracelets, necklaces and anklets with nine individuals in total.

Bead strings tend to be quite diverse and include beads made of a variety of types, colours, sizes and materials, though it should be noted that uniform strings of beads consisting of one type, size and colour do exist. Out of 67 strings, found with 37 or 38 individuals (a bracelet was found around a wrist, but it is not clear whether this wrist belongs to (19529) or (20685)), 27 strings consist solely of disc beads, whilst in an additional 26 strings, disc beads were combined with other bead forms. It appears that the strings were combined freely, although tendencies do exist. Some types (T.3, T.5, T.7, T.10, T.11, T, 15, T.21, T.22, T.23 and T.29) have thus far been found only on anklets and necklaces, and a few types (T.13, T.14, T.15 and T.24) exist only on necklaces, but it is likely that this is due to a relatively small sample. Bracelets are the most uniform in terms of colour and form, with 69.2% of them consisting of one type only and only three not including disc beads. Seven out of 17 anklets contained only one type, four of which comprised solely disc beads. Necklaces have the highest diversity, although uniform strings consisting of one bead type also exist, forming 36% (fig. 9.9). Necklaces also show high colour variability (fig. 9.10), and that is the case even for necklaces consisting solely of beads of one type.

Although the majority of strings are represented by single strands of beads, there is also evidence for multi-stranded ornaments. At least three rows of stone beads were found around the right wrist of an old adult, possible male (Sk32762), buried in B.132. Similarly, an adult male skeleton (32770), buried in the same building, had multiple strands of shell and stone disc beads around both wrists (fig. 9.11). Such firm evidence does not exist for anklets, although a child (11657) buried in B.44 might have had an anklet with two rows of beads around the left ankle (Çatalhöyük Excavation Database, Unit Sheet 11657). In the case of necklaces, evidence for multi-stranded examples comes from the burial of an adolescent (23126) whose neck was adorned with several strands of plaster and stone beads as well as beads of unidentified material of botanical origin (see below).

Strings in burials also frequently combined beads made of locally available materials with others that were harder to procure (for example, limestone and marine shells or carnelian). This is interesting, as it brings to the fore the large network of associations (people, places and origins) reflected in the creation even of a single bead string. Strings consisting of mostly beads of various

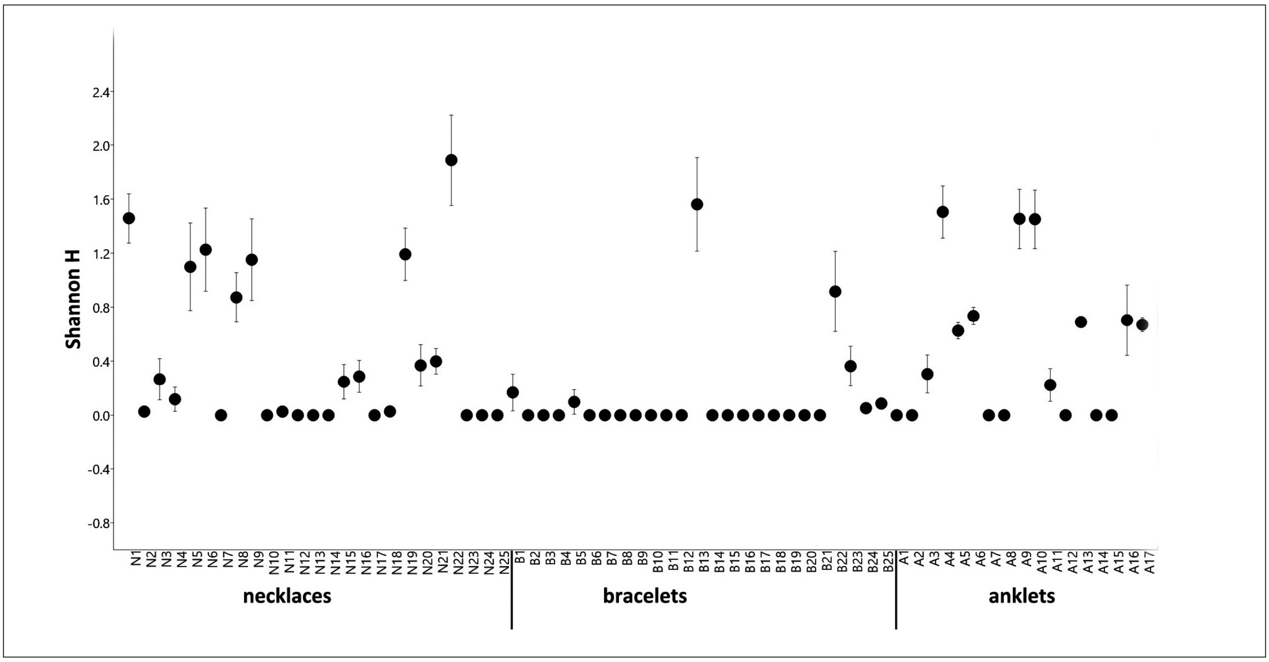

Figure 9.9. Diversity of bead strings (types).

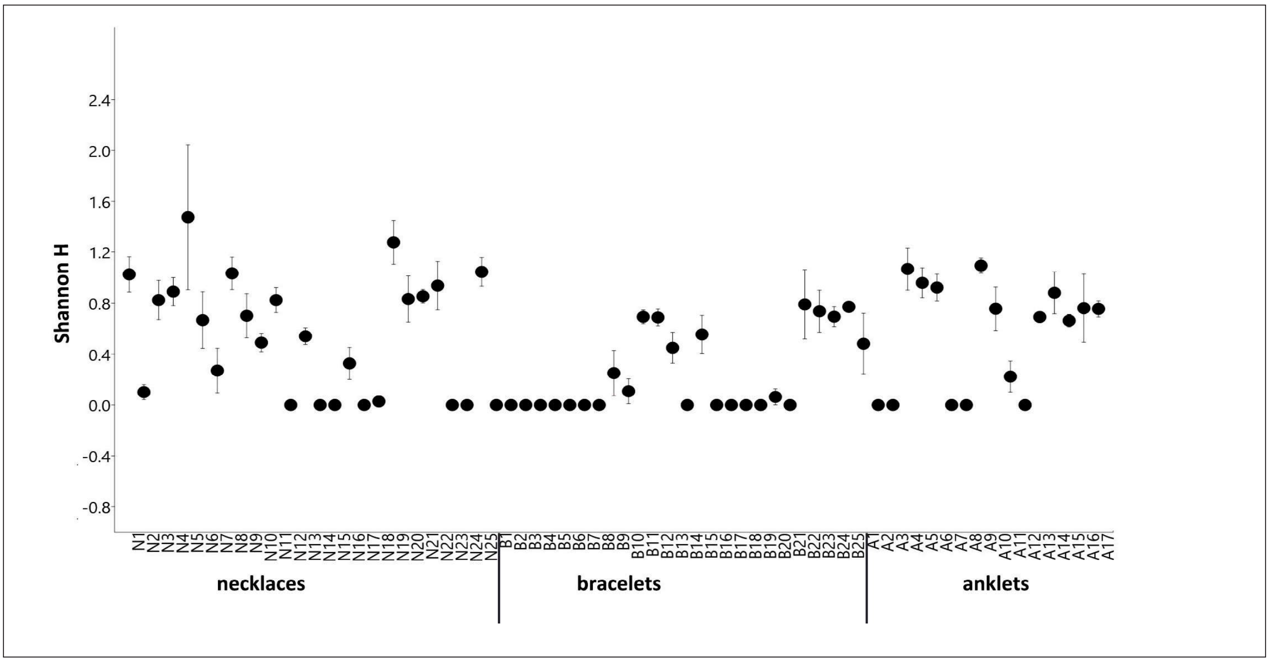

Figure 9.10. Diversity of bead strings (colours).

non-local materials (for example, a bracelet with (11306)) are quite rare, although strings consisting exclusively of beads of one marine shell species, such as *Antalis*, *Dentalium* or *Nassarius*, are relatively common.

Another interesting aspect is variability observed in cases where the interred is buried with multiple strings. This is convincingly highlighted in the burial of an adult individual (22620) in B.129. While bracelets consisted almost entirely of carnelian beads, a string of beads around the left ankle included beads made of phyllite, limestone and *Antalis*, and the right ankle was adorned with beads made from clay and phyllite. An additional 123 beads of similar materials (limestone, phyllite, clay, *Antalis* and carnelian, but also galena, fluorapatite and *Theodoxus*) were recovered from the burial fill, some, if not all, of which belonged to one of these strings. Wear analysis (see also Tsoraki 2017) suggests that all the carnelian beads, both those on bracelets and the ones recovered from the burial fill, were associated with the same production event and had been used for a similar

Figure 9.11. Multi-stranded bracelet with (32770) (for colour version, see online supplementary material).

duration prior to their deposition in the burial. Phyllite and limestone beads from the anklets show limited or no use whatsoever (Chapter 13), whilst in contrast, the *Antalis* beads display various degrees of use, with some clearly having been in use for a very long time. None of the fluorapatite beads from this burial display evidence of prolonged use; they were either used for a short period of time or not used at all.

Whilst beads in burials occur most commonly in the form of bracelets, necklaces and anklets, this was not the only manner in which beads seem to have been used/worn. For instance, in B.131 an adolescent, possible female (23126), was buried with a multi-stranded necklace and a potential *Antalis* bracelet, while a further 2,170 disc beads were found in association with the hands, left arm and lower legs, and an additional 616 beads were retrieved from the burial fill. Apart from the *Antalis* beads, phyllite, serpentinite, carnelian and plaster were identified, but the vast majority of T.1 beads were made of an unidentified material that is of wood/mineralised plant origin. They all share the same physical properties (a very distinctive fibrous texture, dark grey, almost black colour on the outer surface and light orange interior surface). These beads were found in multiple rows at various locations (lower limbs, hands, left shoulder and arm), following different directions, and it is unlikely that they formed bracelets and anklets (see Vasić et al. Volume 13, Chapter 17: fig. 17.5). Whilst no traces of cloth were recorded as having being associated with these beads during the excavation of this burial, and no use-wear suggesting attachment has been noted, soil samples taken from the area of the lower limbs contained textiles (Chapter 11). Therefore, it is plausible that these beads were indeed attached to either garments in which the adolescent was buried or the material that was used to wrap the body. Alternatively, it is possible that long strings of beads were wrapped around the body, as was previously reported to be the case with an infant (2105) buried in neighbouring B.1 (Cessford 2007b). Further evidence of multiple ways in which beads were used in funerary practices is seen in beads sometimes simply being placed on the body (for example, 15924.x2-x5 (15924)) and repeated occurrences of unfinished beads in burials, as well as the placement of beads in potential pouches (Volume 13, Chapter 17).

Only 10.5% of individuals were found buried in direct association with beads. When the indirect associations (that is, beads recovered from the burial fills) are included, the proportion of interred individuals buried with beads increases to 27.9% (Volume 13, Chapter 17: fig. 17.6). Both direct and indirect associations show that adults were more commonly buried with beads, and the older they were when they died, the more likely they were to be buried with beads (Vasić 2018; Vasić et al. Volume 13, Chapter 17). On the other hand, sex did not form the major social axis in the placement of beads in burials, although female individuals are more commonly interred with beads than males are.

Some bead types occur more frequently with adults and others with subadults. Strings with the youngest individuals (<3 years) tend to have one or two bead types, with the exception of one infant (23231) that had a necklace comprised of seven different types (fig. 9.12). Single occurrences of types T.6, T.13, T.14 and T.19 have thus far been noted only with subadults. On the other hand, types T.7, T.24, T.26, T.28 and T.30 have been found only with adult individuals. Females are associated with more bead types, and so far the direct associations of T.3, T.5, T.7, T.21, T.23, T.24, T.26, T.27 and T.30 have been observed only with females. Colour does not seem to have played an important role in the differentiation of funerary practices, as beads of different colours were found with both subadults and adults, and with males and females.

A similar diversity of necklaces and anklets has been noted with both subadults and adults; that is, there are no significant differences in terms of how beads were combined. On the other hand, 50% of bracelets found with adults contained at least two bead types, with the bracelets placed with an old adult female (11306) and possibe male (32762) being the most diverse. As previously suggested, bracelets generally display the highest level of uniformity and typically contain one bead type, and whilst this is the case for all bracelets found with subadults, it seems that adults were buried with bracelets of a higher variability. The sample is quite small, consisting of 14 bracelets that were found with eight (or potentially nine) adult individuals, and further excavations will show if this pattern holds true.

Spatial distribution

Buildings display a remarkable variability in bead assemblages that does not seem to be a result of either their location in the settlement or the period in which they were used. This variability has been observed in the occurrence of beads in different types of deposits, as well as in their densities in floor deposits (fig. 9.13).

Figure 9.12. Necklace with (23231) (photograph by Ekin Ünal) (for colour version, see online supplementary material).

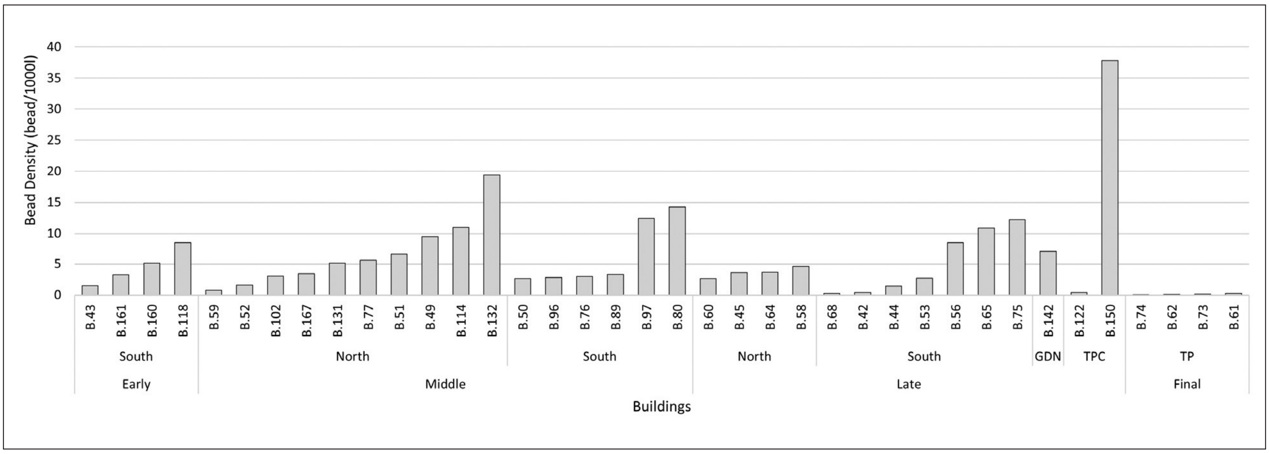

Figure 9.13. Estimated bead densities in floor deposits.

Individuals buried in the same building rarely have the same bead combinations, and neighbouring buildings do not necessarily contain similar beads. Although types do occasionally repeat (especially the disc beads and other common types), individuals are rarely adorned with similar items, although cases of similar beads being placed in several burials have been noted. For example, two neonates buried in B.42 had hematite pendants associated with the neck region, and two infants were buried in B.52 with two blue and blue/green beads, one on each side of the crania, but one of the infants had a large concentration of limestone discs in the abdominal region, whilst the other one had no other direct associations. Similarly, several individuals in B.77 were adorned with strings composed solely of *Nassarius* beads. Over 70% of the entire *Nassarius* assemblage has been recovered from these burials and one placed deposit in the adjacent B.114. Strikingly, no other contexts in these two buildings contained *Nassarius* beads.

Three adjacent and roughly contemporary buildings – B.1, B.131 and B.77 – can be taken as a good example to illustrate both the variability of the bead assemblage and the observed repetition of bead ornaments in burials. These buildings contained a large number of inhumations, some of which were heavily disturbed due to being located under the same platforms. For that reason, only direct associations were taken into consideration.

Only four out of 61 individuals interred in B.1 were found directly associated with beads. A blue stone bead and a deliberately burnt bead made of bone were found on the neck of a male (1924). In addition, this individual had a bracelet composed solely of *Dentalium* beads on his upper left arm. Lying between the femur and the pelvis of a female individual (1955) was a large green pendant with two perforations. The body of an infant (2105) was wrapped with hundreds of disc beads, whilst similar-looking beads were found together with a single *Dentalium* bead on the neck of a child (1913). Outside of burials, a bone T.2 and a stone T.1 were recovered from two deposits interpreted as clusters, whilst 31 beads of a variety of materials (*Dentalium*, animal bone, phyllite, marble, limestone and clay) were found in the floor deposits.

The neighbouring B.131 contained 41 inhumations, out of which at least six were buried with beads. Interestingly, all individuals adorned with beads seem to have been females. As previously discussed, an adolescent (23126) was found with hundreds of beads associated with different parts of the body, an adult (23115) was found with two unfinished steatite preforms, and an adolescent (31705) had four shell T.1 beads and a carnelian T.3 bead associated with the lower left limb (however, a large quantity of beads was recovered from the burial fill). Two females were found buried in a mirrored position (see Volume 13, Chapter 17: fig. 17.15); one of them (22661) had a single pendant on her neck, whilst the other female (32324) was buried with a necklace consisting of T.1, T.2 and T.20 beads and two bracelets, one of which was located on the right mid lower arm (T.1, T.9, T.28 and T.29/T.11) and the other on the right wrist (T.1, T.8, T.9 and T.28). In addition, 12 concentrations containing over 600 beads (see above) were recovered from the fills of three burial features and are likely to have been deposited with either (30044) or (30040). In contrast to the large quantity of beads found in burials, no beads were recovered from clusters in this building, and the floor deposits contained a very small number of beads (n=10).

A similar number of inhumations (n=39) was found in the adjacent B.77. Peculiarly, individuals interred under the north and east platforms were not found directly associated with any beads, whilst at least seven out of 15 individuals buried under the northeast platform (F.6051) were adorned with beads. In total, 1,270 beads were recovered from these burials. The earliest inhumation belongs to a child (21681), buried with a large number of beads (n=269) of various types and materials, the large majority of which were limestone T.1 beads. During the next occupation phase (B.77.2C), four individuals were interred, with only one of them (19529) potentially being adorned with a *Dentalium* bracelet (alternatively, this bracelet could have belonged to (20685)). A single individual, an adult male (20685), was buried in the following phase (B.77.2D) and was adorned with a *Nassarius* bracelet. In addition, 22 beads made of a variety of materials (galena, turquoise, greenstone, copper etc.) were recovered from the burial fill. A single individual (19535) was buried during the phase B.77.5, and a group of *Nassarius* beads were found under her hip. The final occupation phase, B.77.7, included interment of four individuals. Over 700 beads of different types (T.1, T.3, T.5, T.9, T.21, T.23 and T.25) were found with a female (20683) and appear to have formed at least two ornaments, one of which was likely to have been a necklace. In addition, long bones of two possible males ((19541) and (19554)) were placed in a pile together with a large concentration of *Nassarius* beads. Similarly to the adjacent B.131, a very small number of beads were recovered from the floor deposits (n=9), and two beads were recovered from clusters. A very large pendant (19532.x1) was found incorporated between two layers of plaster on the northern platform (F.3617), which is surprising, given that burials below this platform did not contain beads.

In contrast, a block of buildings B.80, B.76, B.96 and B.97 in the South Area that are roughly contemporaneous with the northern buildings discussed above did not have large quantities of beads. Out of 44 individuals interred in these buildings, it appears that only one male (18701) buried in B.76 was adorned with beads. A group of galena disc beads were found on his left shoulder, whilst imitation red deer canine beads were found in the waist area, potentially in a pouch. Although burials in B.80 did not have direct associations of beads with the interred individuals, 13 beads were recovered from a clay surface (22421) in the dirty area of B.80, 25 beads were found in a packing layer below the floor (22425) and, similarly to B.77, a large pendant was incorporated between two plaster layers (20013) in the eastern platform.

The disparity between the occurrence of beads in burials and in other primary contexts in individual buildings is quite remarkable, as it appears that buildings with large numbers of beads in burials rarely contain a high quantity of beads in other deposits. This has been noted in the buildings discussed above, but also in other buildings across the site. For example, only four limestone disc beads were recovered from the floor deposits of large and elaborate B.52, which is assumed to be contemporary with B.1, B.131 and B.77. Two clusters found in bins contained a small number of beads (five in total) made from different materials (naturally perforated pebble, marble and marine shells), whilst one bin infill also had a complete 'bullroarer' type made of antler. On the other hand, several individuals interred in this building were adorned with beads. One burial feature (F.7127) contained an adult, possible male, and five subadults. The adult (30514) had a black bead with metallic lustre under his cranium, and one of the subadults, an infant (30511), was buried with a green bead on each side of the cranium. Similarly, as previously discussed, another infant (30523), buried in another feature had two green/blue beads in the same position, but this infant also had a string of beads around the left ankle and at least three rows, with over 100 limestone disc beads, found in the abdominal region. Finally, an infant (23805) was buried with a necklace largely consisting of pink limestone T.1 beads but also a few T.1 beads of other materials and highly damaged roughly sub-spherical plaster beads whose type could not be determined. As no stratigraphical link could be determined between this burial and the platform's surface, it is unclear whether this burial represents the first inhumation in the northwest platform of B.52 or if it belongs to the building below, B.167 (Barański, personal communication). In addition, this infant had grey/black T.1 beads around the right wrist and a string of alternating black and white T.4 beads around the left ankle (fig. 9.14). Strikingly, this combination of black and white T.4 beads also exists in a bracelet in a burial in nearby B.132, as well as in a necklace in one burial in B. 43 in the South Area.

Although beads are most commonly present in burials, a complete absence of beads has been observed in burials of B.59 and, strikingly, B.75 and B.18, buildings that contained clear evidence of continual bead production, as witnessed in the presence of preforms and roughouts throughout their occupation. It should be noted, however, that B.75 contained only three inhumations, and the other two buildings had one burial each. The absence of beads in burials in these buildings could therefore be a result of a small number of inhumations, as well as the age-at-death categories of the buried individuals. Their absence could also be related to the fact that B.18 was partially excavated by Mellaart, and B.75 was a heavily eroded building with only one part preserved. A very small number of beads (five or less) were recovered from burials in B.54 and B.58 (see Volume 13, Chapter 17 for further discussion) in the North Area and B.80, B.160 and B.97 in the South Area, likely reflecting accidental deposition. In addition, only eight beads were recovered from 16 burials in B.114, and

Figure 9.14. Anklet with (23805).

16 burials in B.65 contained 16 beads in total. Only two beads were recovered from four burial features in the subsequent B.56, whereas two strings of beads were left on the floor prior to its abandonment.

Some buildings, however, contain a high quantity of beads in both burial and non-burial deposits. For example, 216 beads were recovered from three burial features in B.150. At the same time, a number of beads were found in the floor deposits, with 51 beads originating from a single 30 litre flotation sample from one unit (23739). Both burials and floor deposits contained limestone and fluorapatite beads.

Four out of ten individuals interred in B.132 were adorned with beads. Three adult individuals ((21685), (32741) and (32762)) had beads that are likely to have represented necklaces, and (32741) also had a multi-stranded bracelet comprised of limestone T.1 and limestone and serpentinite T.4 beads. Another individual, a young adult male (32770), who was also adorned with a belt hook and eye and four rings, had bracelets on both wrists with T.1, T.2, T.9 and T.22 beads. Unlike the buildings discussed above, this building also contained a large concentration of beads in a posthole pit (see (23638) above), and 46 beads were recovered from the floor deposits, out of which 37 were stone T.1 beads. These beads were made from different materials (limestone, tufa, serpentinite, marble, phyllite, steatite, quartz). Overall, the presence of finished beads with fresh appearance and no obvious use-related traces, and debitage from equivalent materials (limestone, tufa, marble, quartz) strongly suggests that B.132 was associated with bead production along with other stone working activities (Chapter 13), which is reminiscent of the picture we get in the later B.75 in the South Area (Bains 2012; Bains et al. 2013) (see discussion above).

Occurrence of beads does not seem related to either the size or the elaboration of buildings. This is evident in the lack of correlation between the count of beads in burials, clusters and floors or other deposits and size and elaboration index. As a result, some of the large and elaborate buildings such as B.77, B.131 and B.52 have lower bead density in the floor deposits in comparison to not-so-elaborate and smaller houses (figs 9.15 and 9.16).

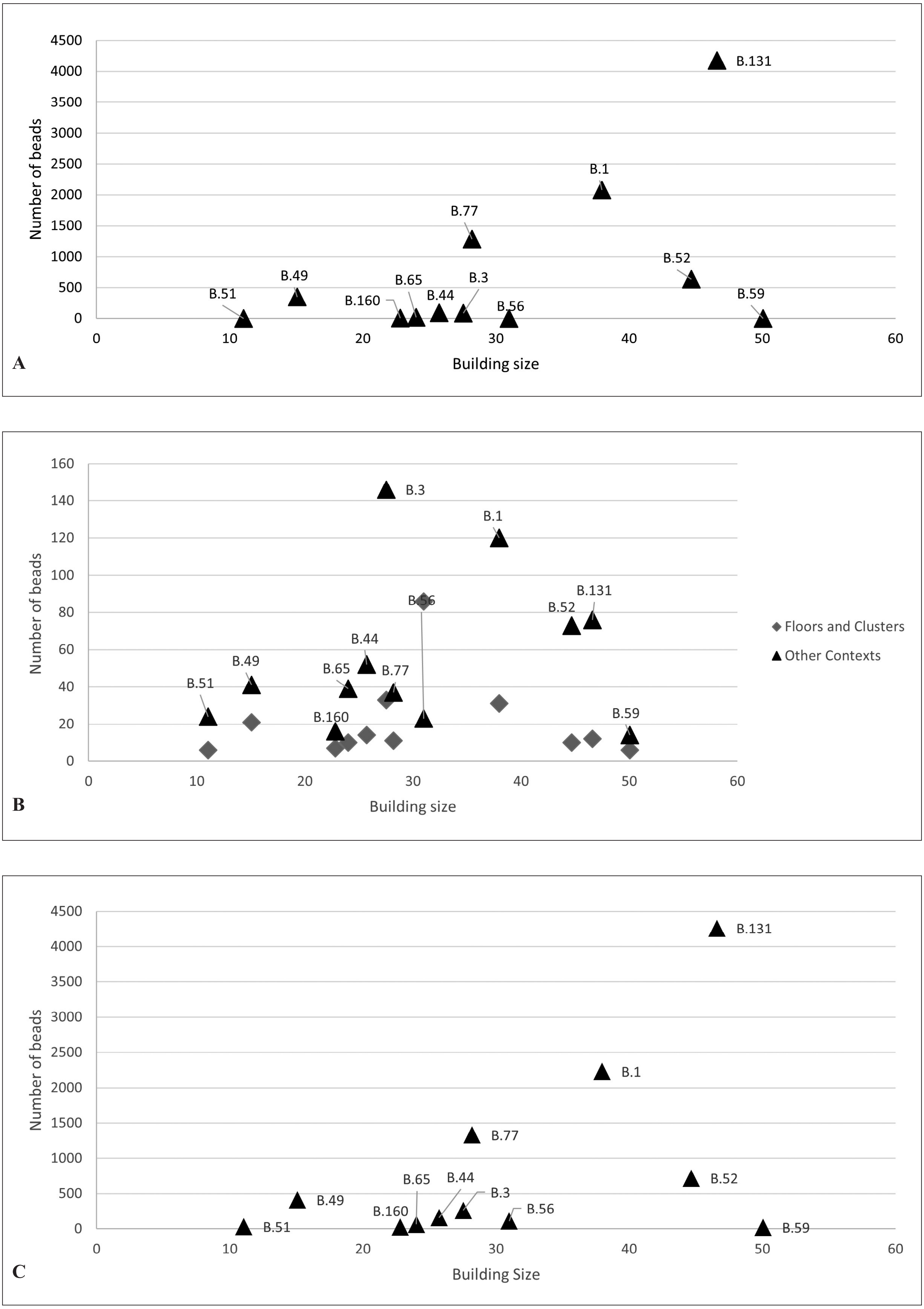

Figure 9.15. Beads and building size: (A) burials; (B) non-burial contexts; (C) all contexts.

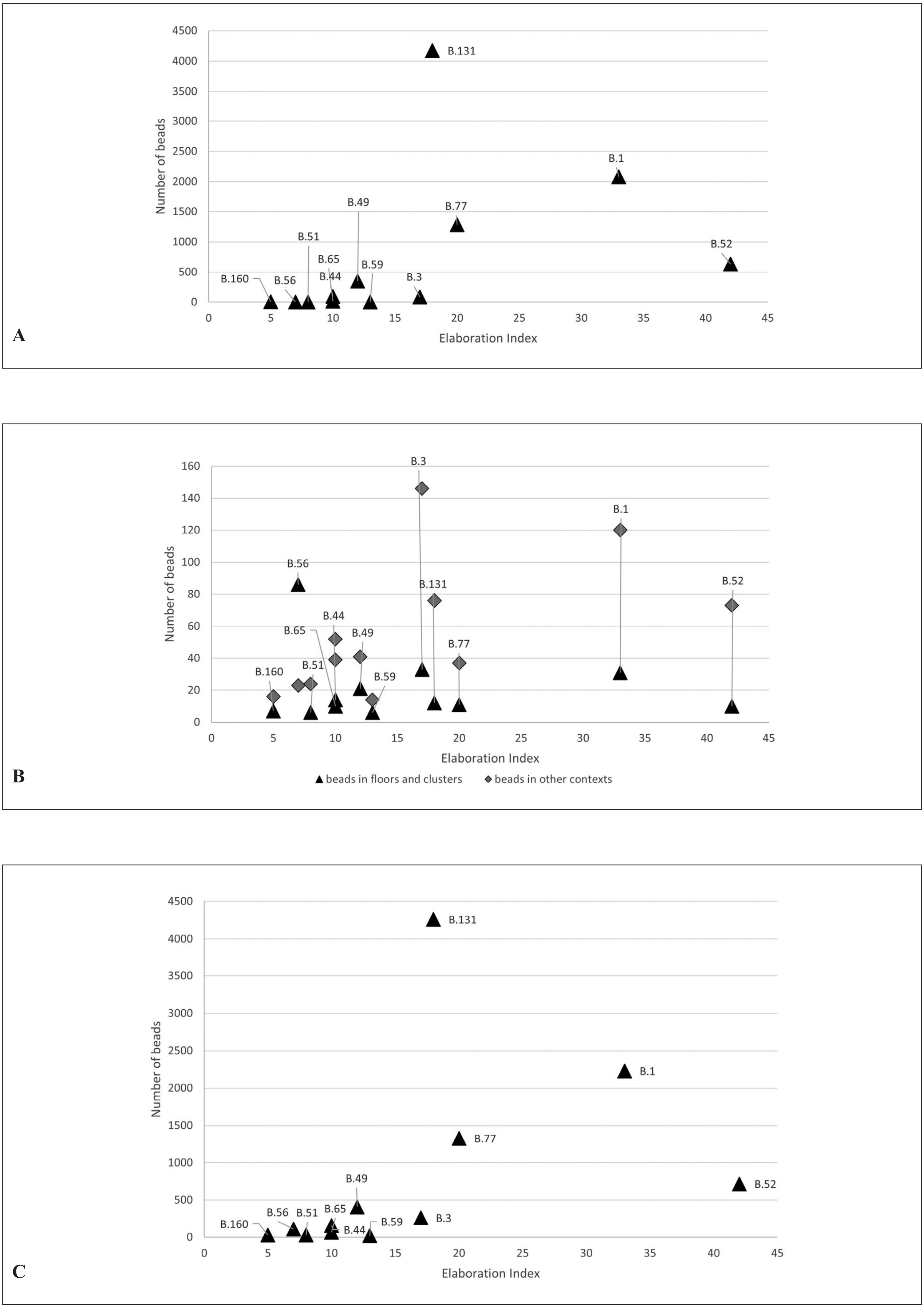

Figure 9.16. Beads and elaboration index: (A) burials; (B) non-burial contexts; (C) all contexts.

Given the variability observed in individual houses, the lack of clear differentiation between the areas in the settlement is not surprising. Similar beads occur in the same types of contexts in the North and South Areas, which does not suggest clear-cut differences between people occupying different parts of the settlement. Nevertheless, it is clear that use of beads, items that are one of the most potent mediums for the expression of identity, does not reflect any restricted access to resources, nor does it suggest that (groups of people) occupying and/or being buried in individual buildings in the various areas of the settlement had an exclusive 'right' to adorn themselves with specific beads.

Temporal distribution

The earliest deposits at Çatalhöyük (Sp.181) demonstrate that the vast majority of bead types were already in use from the beginning (T.1, T.2, T.7, T.8, T.9, T.12, T.13, T.15, T.16, T.17, T.20, T.22, T.24, T.25, T.26, T.28 and T.29), and several types seem to have been introduced towards the end of the Early period, in Levels South K and/or South L (T.4, T.5, T.10, T.11, T.14, T.21 and T.27). The Middle period also brought a few new types (T.12, T.18, T.19, T.23 and T.29), whilst only three new types (T.6, T.30 and T.31) appeared in the Late period. Strikingly, despite the clear distinction in the material culture of the Final period (for example, the burial chamber in the TP Area), no novelties in the bead assemblage have been noted, and people continued using and creating the same bead types in the Final levels of the occupation as they did before.

Despite the existence of most of the bead types from the beginnings of life at the settlement, the diversity of beads increases through time; that is, the assemblages from the Late and Final periods have a much higher diversity than those of the Early and Middle periods (fig. 9.17). Although disc beads are the most common type in every period, their relative quantities significantly drop after the end of the Middle period.

Similarly, an increased variability has been observed in the expansion of raw materials used in bead production. For example, carnelian beads, along with fluorapatite and turquoise, first occur in the Middle period, and the use of these materials continues throughout the Late and Final periods. The earliest evidence of copper beads has been recorded in Levels South K and South L, although it should be noted that the ÇRP excavations did not produce copper beads from levels earlier than South M/North G. Copper beads are quite rare; they have thus far been found in a small number of burials, but they exist in a few non-burial contexts as well.

T.3 beads in the Early period were made from clay and bone only, whilst the use of stone for the manufacture of this bead type is attested in the Middle period. Similarly, T.7 beads exist only in clay in the Early period, whilst stone and wooden T.7 beads appear in the Middle period. The material selection for the production of T.8 beads expands as well, as witnessed in the use of only animal bone for the manufacture of these beads in the Early period and the addition of clay and stone materials in the Middle period. On the other hand, whilst T.2 beads were made from bone (Level South G), stone (Level South L) and shell (Level South H) from the Early period onwards, the use of clay for the manufacture of cylindrical beads seems to have started in the Middle period. Interlocking beads (T.23) made of animal bone start appearing in the Middle period (Level North G), but a few Late period contexts demonstrate that the selection of material expands to include stone as well.

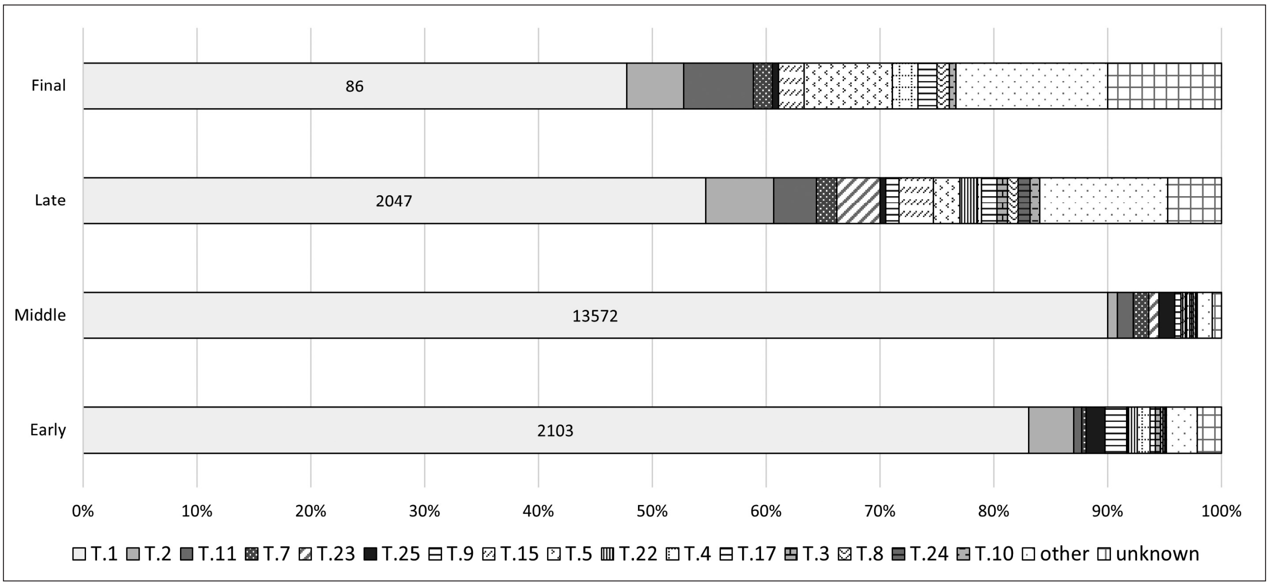

Figure 9.17. Types through time.

In addition, an increase in the relative quantities of shell and clay beads in the Late period, in which they form almost 30% of the assemblage, has been observed. Almost all shell species were used from the earliest levels and throughout the sequence, with marine shells being prevalent in the assemblage of each period. Nevertheless, similarly to observations from previous publications (Bains et al. 2013; Bar-Yosef Mayer 2013; Vasić 2018; see also Veropoulidou, this volume, Chapter 10), the studied assemblage suggests that the proportion of local shells (*Unio*, *Xeropicta* and *Viviparus*) significantly increases in the Late period, but an increase in *Columbella* beads has also been noted. At the same time, fossils such as *Anadara turoniensis*, *Clavatula calcarata* and *Athleta ficulina* occur only in Late period deposits, albeit in small numbers.

Therefore, there is an evident continuity with beads slowly diversifying through time. Stone disc beads remain dominant, but the use of other materials and types becomes more common. Similarly, the use of larger beads becomes more frequent in the Late and Final periods (fig. 9.18), and consequently the average number of beads on strings drops through time.

Whilst the increase in overall diversity is evident, different types of strings do not individually follow the pattern, as there are still uniform bracelets, necklaces and anklets in the Late period. The sample is small, but the occurrence of uniform strings demonstrates that the increased diversity did not necessarily mean that strings consisting of one type of bead disappeared. For example, only one bracelet from the Late period (found with the adult (11306) with a plastered skull), which is also the most diverse bracelet thus far, contained multiple types of beads, whilst the other five bracelets included one type of bead only. On the other hand, increasing diversity has been noted on anklets, with three out of six from the Middle period containing one type, whereas only two out of eight Late period anklets were composed of one type.

The presence of beads in different kinds of deposits seems pretty consistent through time, with an evident decrease in their presence in burial features over time (fig. 9.19). Bead density, on the other hand, demonstrates a gradual decrease through time in the most types of deposits, with the largest difference seen in the Final period (fig. 9.20). As discussed above, buildings are highly variable, regardless of the period in which they existed, although it should be noted that in the Middle period, northern buildings tend to have higher bead density in the floor deposits, whilst the floors in the South Area buildings have a higher density in the Late period (see fig. 9.13).

Discussion

Although bodily ornamentation at Çatalhöyük included a variety of objects, such as bangles, finger rings and boar tusk collars, and probably other organic materials such as feathers that do not survive in the archaeological record, beads formed its main component. This is evident in their relatively frequent occurrence throughout the entire occupation of the settlement, but also their prevalence in burials in comparison to other artefacts. Judging by their frequent occurrence, bodily decoration with beads also represented one of the main aspects of funerary practices.

This chapter builds upon previous studies, with the purpose of exploring how beads were made and used at Çatalhöyük. The recent analyses shed more light on manufacturing techniques, with perhaps the T.1 assemblage providing the most substantial evidence and producing interesting results regarding its manufacture. We are still missing important elements of the *chaîne opératoire*, however, mainly in relation to the number of people involved in the procurement of raw materials and the production of individual beads, as well as the beads' exchange and use.

Some strings in burials included beads of a variety of local and non-local materials, and it is unlikely that a single individual would have travelled to each of the sources to procure the raw materials and make each of those beads themselves for personal use. Therefore, it is more reasonable to assume that a group of people were involved in the creation of these strings. This is also evident in different types of technological know-how that were observed on some bead groups. Raw materials were probably traded within the site, as well as with individuals from other settlements, and finished products as well.

As discussed in the previous sections, there is substantial evidence to suggest that the use of beads was quite fluid, and that individual beads served multiple purposes and formed part of different objects; this is evident in individual beads on the same string exhibiting various degrees of use-wear, but also in the possibility of beads being used for different purposes (clothing attachments and necklaces, bracelets etc.) throughout their use-life.

Combinations of beads on strings found in situ in burials do not exhibit any strict patterning. Beads seem to have been combined freely and their order appears to have been a matter of personal preference. Similarly, individual choices and preferences may explain the lack of strong correlations between bead types, colours of materials and types of strings (that is, necklaces, bracelets, anklets), as well as their occurrence with individuals of specific age and/or sex, although these choices are likely to have depended at least to some

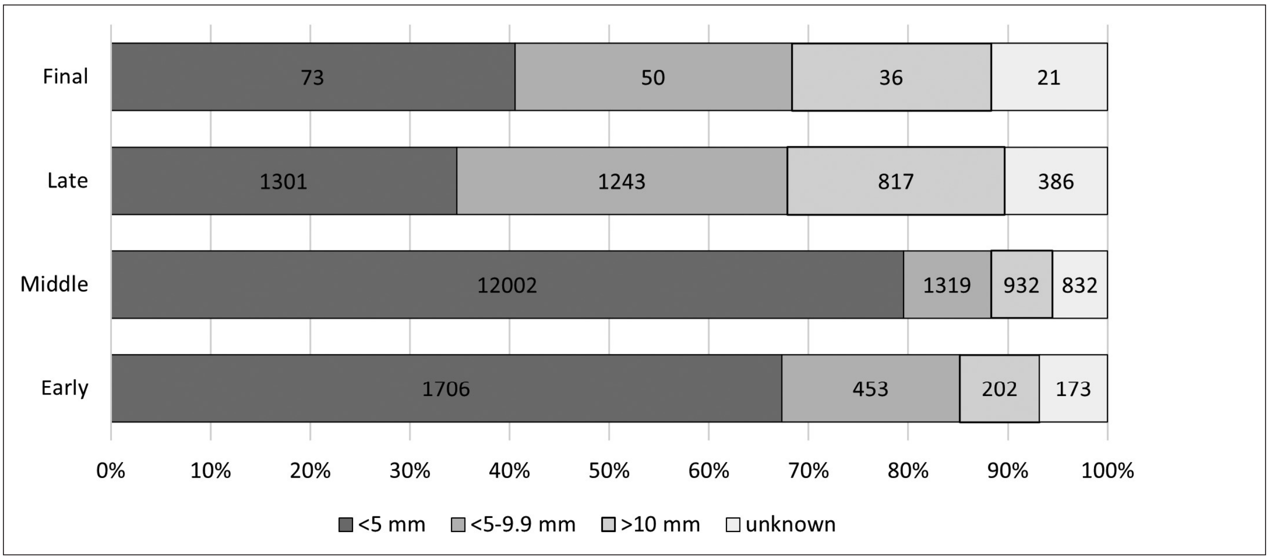

Figure 9.18. Bead size through time.

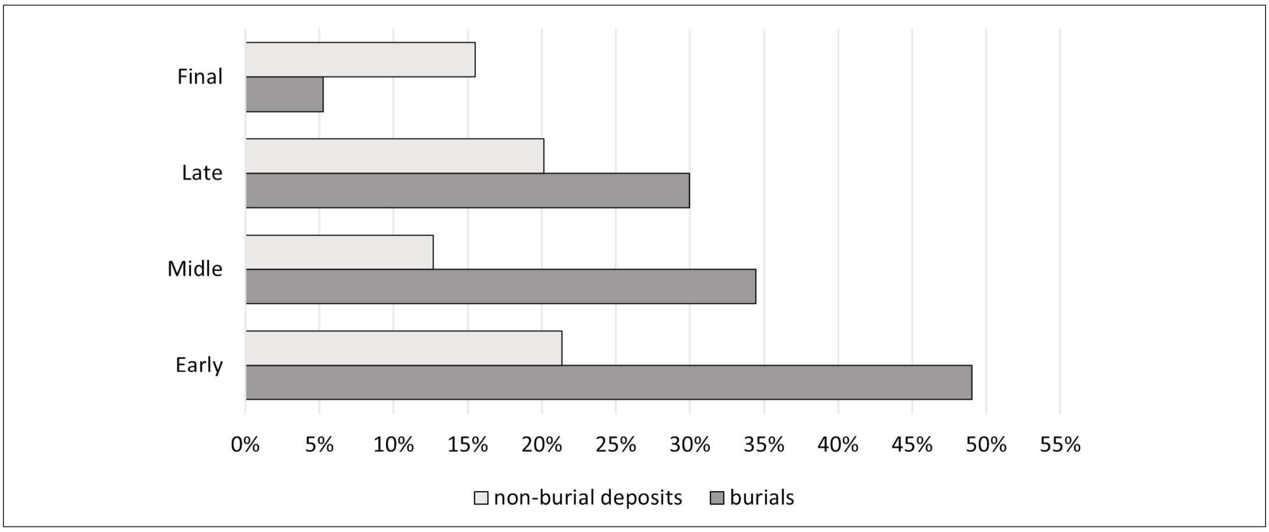

Figure 9.19. Proportion of excavated units with beads in each period.

extent on the availability of beads at the given moment. It is important to bear in mind that strings in burials are just palimpsests; that is, they only represent the final combination of individual beads before they were taken out of circulation through their placement with the deceased. As previously suggested, rather than personal possessions, some of the bead strings in burials represented newly created objects that were possibly formed by a group of people (Vasić 2018).

Due to their transformative properties, bead strings could have been continually strung and restrung, and this could be the reason why there are so many complete and still usable beads in a variety of contexts, especially in the external areas. Whilst some of them might have been lost, it is plausible that a relatively frequent occurrence of a small number of beads (one or two) in, for example, midden deposits could in some cases have been a result of them being superfluous after the stringing of an ornament (for example, a bracelet) was completed. Although the bead assemblage displays a high variability, there are not that many unique beads and pendants that would be easily recognisable when worn. Some shapes are quite distinguishable (for example, pyramid or bird beads), but generally speaking, it would be hard for people to recognise individual beads on a string as something they created, or to associate particular bead(s) with a specific individual. In that sense, apart from a few beads that are unique, the gestalt of the created multi-composite strings would have played a bigger role in the negotiation of identities than individual beads ever could, and bead making and the creation of strings might have

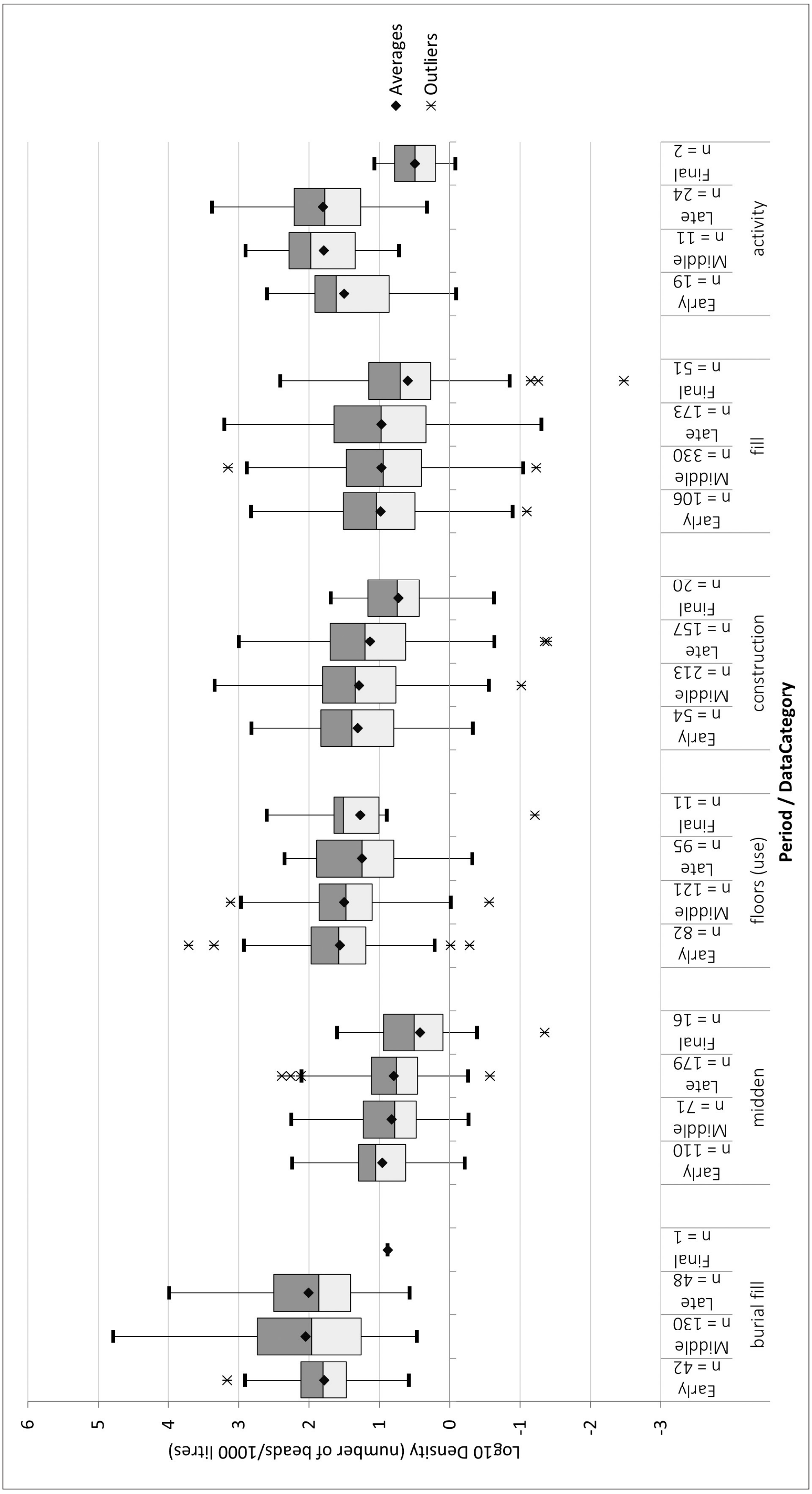

Figure 9.20. Bead density in different deposits through time.

been as significant as the final products themselves. Stringing beads might have been a communal affair, with a group of people coming together, exchanging beads and creating individual strings.

Bodily decoration is a powerful medium for propagating individual and social identities and an active tool in the creation of social meaning. Beads – as the main type of adornment at Çatalhöyük – actively participated in the formation, expression and renegotiation of identities. The production and use of beads, and possibly the procurement of raw materials, were highly social processes. If beads were used to create and/or strengthen relations within the settlement, as well as with other communities, strings with multiple beads made of a variety of materials would reflect complex networking and a high level of sociality at Çatalhöyük (Vasić 2018).

Whilst sequences of buildings built on the same spot (that is, 'history houses') exhibit a remarkable continuity in various aspects of material culture (Hodder, Pels 2010), the burial associations and beads specifically stand out due to their high variability. Some individuals were adorned with beads, others had none. To take the B.65-B.56-B.44 sequence as an example, out of 36 individuals buried in these buildings, only one child (11657) in B.44 was found in direct association with beads. (In total, 19 additional beads were recovered from seven burial features, likely reflecting accidental inclusion, as no beads were found in direct association with these individuals.) In cases in which subsequent buildings do have beads in burials (for example, B.77 and B.132), beads are quite diverse. It is clear that people were buried with different things in these buildings, which is in contrast with the overarching sense of continuity observed in these houses. Therefore, people using and/or being buried in these buildings did not have distinct adornment, something that would distinguish them from other groups, and they were buried with beads similar to those that occur across the settlement. It is possible, however, that the diversity of beads in these buildings reflects complex networks and affiliations of individuals buried there with other people in the settlement, a suggestion also supported by the rich ground stone assemblage from B.77 (Tsoraki 2018).

Without downplaying the increased diversity of beads throughout the occupation of the settlement, the bead assemblage displays an overall sense of continuity, in terms of both manufacture and the ways in which beads were used. For example, the production of stone beads was carried out alongside other stone-working activities, and this is a recurrent pattern for the Middle period (B.132) and Late period (B.142), and perhaps for the Early period too (B.17). Common production locales of bone and stone beads were also noted previously in B.18 (Bains et al. 2013). In other words, our sample of bead materials and the study of debitage and nodules from a wide range of buildings does not support the existence of specialised bead workshops operating at Çatalhöyük.

The spatial distribution of beads and the lack of clear-cut differentiation in the bead assemblages of each of the areas of the settlement go along with the other lines of evidence that suggest a high complexity of social networks that were crisscrossing the settlement (Hodder 2014c). The use of beads reflecting complex social relations and networks would be a reason why B.75, which had clear evidence of tufa T.1 bead manufacture, did not contain any finished products nor beads placed in burials, or why buildings with large groups of beads in burials did not necessarily contain a high quantity of beads on floors and/or in placed deposits. Bead strings as composite artefacts depended on a group (or groups) of people that were involved in different steps of the *chaîne opératoire*; from procurement of raw materials to their manufacture and use, beads were part of socially entangled practices (Hodder 2012) that brought a network of people together. Beads were a fundamental part of life and death at Çatalhöyük and were socially embedded in both daily activities and ritualised practices. They could have been used to propagate individual identities, but it is clear that they were also the means of proliferation of social networks. Given that the assemblage exhibits the high level of sociality in their use, beads represented social adornment as much as they were items of personal adornment (Tsoraki, Vasić in preparation). Beads were able to mediate complex notions of personhood and identity, through relations within and outside the site, as well as between the living and the dead.

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Supplementary material

For supplementary material related to this chapter, please visit https://doi.org/10.18866/BIAA/e-14. It comprises colour versions of figures 9.2, 9.3, 9.5, 9.11 and 9.12.