



# Culturing the body in the context of the neolithisation of the southern Levant

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## ABSTRACT

The body is a site of lived experience as people engage their social, cultural, and physical worlds through their bodies. As a product of both nature and culture, it can be modified to fulfil, challenge, or rebel against ideals and expectations. While not all the ways in which humans modify their bodies leave traces in the archaeological record, the use of personal ornaments is well documented. In this paper, we focus on the practice of body modification through personal adornment in the context of the neolithisation of the southern Levant. We argue that shifting subsistence strategies, settlement patterns, and social relationships (including relationships with ancestors) necessitated new ways of being in the world that were manifested in and through material culture including personal ornaments. In the Neolithic, living bodies did not need to be present for an individual to have a social “life” and personal ornaments as heirlooms likely played a fundamental and complementary role in “presencing” a person who would otherwise be absent.

## 1. Introduction

At its most basic, the body is a biological entity, a physical structure that includes skin, bones, muscles, and organs. It is also a site of lived experience as people engage their social, cultural, and physical worlds through their bodies (Mattson, 2021). As Croucher (2012) notes, the body is inherently biographical with diet, health, age, activities and experiences all having a lasting effect. As a product of both nature and culture, it can be modified to fulfil, challenge, or rebel against ideals of beauty and expectations related to age, gender, social status, kinship, ethnicity, group membership, sexuality, religion, and occupation (Nowell and Cooke, 2021). Accordingly, the body has been described as a “...medium for symbolic display, social discourse, and projection of norms or as a tool for individual meaning-making, empowerment, and resistance” (Mattson, 2021:18 and references therein).

Bodies are both culturally and historically situated (Croucher, 2012) and thus at different times and places, people have modified their bodies through various means including cosmetics, personal ornaments, managed hair, tattooing, scarification, cutting, branding, and other procedures (Nowell and Cooke, 2021). Because of our emphasis on the visual and the tactile, “It is easy as an archaeologist to imagine that there is a natural boundary where the body...ends, and cultural additions

begin. Anthropology as a broad discipline has repeatedly reminded us that this appearance is misleading. Some specific techniques, such as tattooing, reform the skin and thus displace the cultural into the surface of the flesh. Others, such as cranial modification, penetrate even deeper, reshaping bone to meet aesthetic expectations” (Joyce et al., 2024:vii). Similarly, Thomas (2021:521) argues that the body does not rest inert and unchanging beneath layers of clothing, cosmetics, and tattoos but rather bodies and objects come together in a process of co-creation, and it is from these engagements that human identities emerge and transform—often in unexpected ways.

Personal ornaments play a key role in these transformational processes. Personal ornaments are modified or unmodified objects such as beads, pendants, necklaces, bracelets, bangles, earrings, rings, or piercings that are worn on or within the body. They are manufactured from a wide variety of natural and human-made materials including ivory, stone, wood, shell, bone, teeth, and feathers, and in more recent contexts, glass, metals and plastic (Nowell and Cooke, 2021) (Fig. 1). Personal ornaments are particularly useful for the archaeologist because they are highly visible, durable and are assumed to be the product of shared meaning (White, 1992) and often have an authority that words lack (Byers, 1994). Despite this, their importance as objects of cultural meaning and expression have often been overlooked. For example, in a

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discussion of imagery from Eastern European Gravettian sites, [Oliva \(2000: 225\)](#) states that “disregarding numerous personal adornments, *real works of art* are known only from four large sites” (emphasis added; see also [Nowell, 2006](#)), suggesting that personal ornaments are *less than* other types of “art”.

In recent years, however, personal ornaments are often at the centre of attempts to understand the origins of modern cognition, memory, perception, musicality, numerosity, syntactically complex language and other symbolic behaviour ([Moro Abadía and Nowell, 2014](#) and references therein). Personal ornaments are particularly effective at what [Wobst \(1977\)](#) referred to as the “middle distance”—comprised of people who are not well acquainted with an individual but know enough about their culture to understand the meaning of their customs and stylistic conventions (see also [Kuhn and Stiner, 2007](#)). Furthermore, they can be used to study skill, exchange networks, regional and interregional preferences for materials and types as well as choices made by individual makers, apprenticeship, and knowledge acquisition ([Baysal and Yelözer, 2023](#)).

In this paper, we focus on the practice of body modification through personal adornment in the context of neolithisation of the southern Levant. We begin by considering the role of ornaments in the creation of identity. We then review the emergent properties of the Neolithic in the southern Levant. Next, we present an overview of personal ornaments during this period. Then we discuss mortuary practices and the role of personal ornaments as heirlooms using butterfly beads as a case study. We conclude by arguing that shifting subsistence strategies, settlement patterns, and social relationships (including relationships with ancestors) necessitated new ways of being in the world that were manifested in and through material culture including personal ornaments.

## 2. Personal ornaments and body schemas

The conception of personal ornaments as active participants in the creation of self offers archaeologists a robust framework within which to explore the phenomenological experiences of those living in the past ([Nowell et al., 2024](#)). [Malafouris et al. \(2008:115–116\)](#) argues that the body is not “a passive external container of the human mind that has little to do with cognition per se but a constitutive and integral component of the way we think. In other words, the mind does not inhabit the body, it is rather the body that inhabits the mind. The task is not to understand how the body contains the mind, but how the body *shapes* the mind” (emphasis in the original). Bodies experience their worlds through sensorial experiences of taste, touch, hearing, sight, and smell ([Loren, 2022:218](#)) often in conjunction with objects. For example, [Malafouris \(2013\)](#) asks where a blind man’s mind/body ends and his world begins suggesting it is at the tip of his cane where the tactile is transformed into the visual.

This co-creation of bodies and objects runs even more deeply. [Malafouris et al. \(2008:116\)](#) argues, “if the body shapes the mind then it is inevitable that the material culture that surrounds that body will shape the mind also.” He (2008) gives a clinical example ([Berlucchi and Aglioti, 1997](#)) of a woman whose left arm is paralyzed as a result of a stroke. For ethical reasons, scientists are not able to study the functions of the human brain in the manner in which they study the brains of other living organisms and, instead, often rely on data related to pathologies. Neuropathology is the study of diseases of the eyes and of the nervous system including the brain and it can often reveal hidden relationships (e.g., specific aphasias and damage to particular areas of the brain). In the case cited by [Malafouris et al. \(2008\)](#), when viewing her paralyzed arm, the woman insists that it is not hers, that it belongs to someone else,



**Fig. 1.** Reconstructed bone and shell necklace, El Wad Cave, Natufian, 15,000–11,700 BP, Israel Museum (Jerusalem, Israel) (Photo: A. Nowell).

as do the rings worn on “that person’s” hand. When these same rings are worn on her right hand or presented in front of her, she recognizes them immediately. She is also able to describe the rings independently of looking at them. Malafouris et al. (2008) argues that those rings, habitually worn on her left hand, are so much a part of the woman’s arm that when she ceases to recognize that part of her body, she ceases to recognize them as well. Crucially, the woman was able to recognize her keyring and comb as belonging to her when held in her left hand because they had an existence that was independent of that left hand; i.e., they were not routinely associated with it (Berlucchi and Aglioti, 1997). Similarly, when we take off a ring or a necklace we are used to wearing, we feel its absence and often touch the place where the ornament should be (Nowell et al., 2024).

These sensory experiences are related to what Malafouris et al. (2008:115 and references therein) refers to as ‘body schema’ which is “the complicated neuronal action map associated with the dynamic configurations and position of our body in space...[it] is not a simple percept of the body, but it is closely associated with cortical regions that are important to self-recognition and recognition of external objects and entities...[it is] a powerful means for linking neural and cultural plasticity...” In a very real sense, the woman’s rings were not simply adorning her body, they were her body, and when she no longer associated herself with her left arm, her rings disappeared as well (Nowell et al., 2024). We feel this intuitively as in everyday parlance, we often describe a habitually worn object such as a watch or a ring, as an “extension” of a specific person.

However, unlike tattoos, scarification, and other forms of body modification, personal ornamentation is flexible, and can be transitory, and impermanent. This allows the individual to play with and negotiate their identity, adding and removing ornaments at will. Increased production and diversity of personal ornamentation from the Epipaleolithic to the Pre-Pottery Neolithic B may reflect shifting notions of identity as people come together in larger communities while expanding social networks to new regions. Alarashi et al., (2023:3) argue that changes in social structure that are characteristic of the neolithisation of the Levant are “rarely approached from the individuals’ perspective, as active subjects within their socioeconomic and cultural milieus.” Thus, personal ornaments offer a window onto an underexplored aspect of this process.

### 3. Emergent properties of the southern Levantine Neolithic

The process of neolithisation in the southern Levant impacted all facets of life including human-animal/plant interactions, the built environment, mobility, and symbolic cultural practices. These changes were not “revolutionary” but were long-term, protracted patterns which lasted for thousands of years. Evidence of the behaviours formerly identified with the Neolithic, such as burials in houses and the production of bread, are now evidenced in earlier Epipalaeolithic periods (Maher et al., 2012; Arranz-Otaegui et al., 2018; Maher et al., 2021), indicating that cultural changes associated with neolithisation preceded the processes of domestication. The slow and patchwork development of ‘Neolithic’ cultural practices across southwest Asia continued into the Pre-Pottery Neolithic A (PPNA) with increasing cultivation and human/plant interaction, as well as early evidence of plant domestication in the form of figs (Kislev et al., 2006). During this time there is increasing use of architectural structures, including evidence of communal buildings which would have served as gathering places for the community, as well as storage features suggesting long term resource sharing (Finlayson et al., 2011; Kuijt and Finlayson, 2009). Communities continued to aggregate into the Pre-Pottery Neolithic B (PPNB), with the development of larger and more densely populated settlements (Hole, 2000; Kuijt and Goring-Morris, 2002). During this period many larger communities in Mediterranean zone regions relied heavily on domesticated cereals and pulses, along with domesticated sheep and goats (Kuijt and Goring-Morris, 2002). While in the arid regions, hunter-gatherer

communities continued to flourish, exploiting wild resources such as gazelle (Henton et al., 2018). Farming and hunter-gatherer communities interacted and traded resources, with the potential for people also moving between these different lifeways (Rosen, 2019). The transition from mobile hunter-gatherers to sedentary agriculturalists was not a sudden transformation, but a protracted process that continued in fits and starts across the southern Levant for many generations.

Beginning in the Early Epipaleolithic, we see evidence of aggregation sites, where multiple hunter-gatherer communities came together for community interactions (Garrard and Stanley-Price, 1977; Garrard and Byrd, 2013; Maher, 2019; Macdonald and Maher, 2022). Epipaleolithic sites like Kharaneh IV, Uwaynid 14, and Wadi Jilat 6 in the Azraq Basin highlight the vast and diverse assemblage of material culture and faunal remains that can accumulate at aggregation locales (e.g., Garrard and Byrd, 2013; Macdonald et al., 2018). Despite the long trajectory for the development of Neolithic cultural practices in the region and evidence of early placemaking by Epipalaeolithic hunter-gatherers (Maher, 2019), by the PPNB there is clear evidence of population growth and increased density, with some established communities developing into “mega-sites” by the mid-PPNB (Verhoeven et al., 2006). This increased interaction of people within settlements, and the inability to easily fissure away from the group, would have necessitated new methods of conflict management and social cohesion during this period. Further evidence of community cohesion is seen at sites like Nahal Hemar, which includes beads made from ‘exotic’ materials such as carnelian (Groman-Yaroslavski and Bar-Yosef Mayer, 2015) and lithic artifacts that appear to be transported to the site (Borrell et al., 2020), suggesting that different communities may have been traveling to the location. This interpretation is strengthened by stone masks and other “symbolic” materials recovered from the site, which suggest a ritual function to the locale (Fig. 2). Other potential mechanisms of social cohesion during the PPNB include feasting events. For example, at the PPNB site Kfar Hahores, a pit feature with multiple aurochs’ skeletons was uncovered. These massive wild cattle would have fed a large group of people, providing more meat than a small family would require (Horwitz and Goring-Morris, 2004). Associated with funerary rites, this feature suggests that ritualized feasting had become common in the PPNB, perhaps to bring together people from within and outside the community to build cohesion.

In addition to enlarging communities, during the PPNB there was also a continued expansion of social networks across the region. While we see early evidence of long-distance trade beginning during the early Epipalaeolithic (Richter et al., 2011), specifically of perforated marine shells which were used as personal ornamentation, these long-distance networks scale up later in the Pre-Pottery Neolithic. These ever-expanding networks of interaction helped to circulate raw materials, objects, cultural practices, and people across the region. Arguments have been made that regional networks continued to expand during the PPNB because of the increased desire for exotic materials, many of which were used to make personal ornaments and beads (Goring-Morris and Belfer-Cohen, 2022). Increased diversification of raw materials used for personal ornamentation may also reflect new ways of negotiating and mediating social relationships, both within and between communities. Expanding the materials used for personal ornamentation also expanded the ways of making, which would have necessitated new communities of practice, where makers learned from each other with new materials. This builds an interrelated network from the local to the wider region, with the desire for self or group-differentiation pushed by increasing aggregation and density, which in turn drove the need for new exotic materials, expanding regional networks. With the influx of new materials, new local communities of practice would have developed to learn techniques of shaping and making personal ornamentation with foreign materials.



Fig. 2. Stone mask, Nahal Hemar Cave, PPNB Israel Museum, (Jerusalem, Israel) (Photo: A. Nowell).

#### 4. Personal ornaments and the neolithisation of the Levant

The oldest evidence of humans culturing their bodies is in the form of pigment use (Nowell and Cooke, 2021). Although there are mundane uses for pigment, selecting for a specific shade of color, both by differential collection or heat-treating are activities that are generally seen to be indicative of a non-utilitarian function (Nowell and Cooke, 2021). By 266,000 BP, there is evidence of preferential collection and abrasion of specularite, a type of hematite with reflective metallic flakes that “glitter” and leave either a dark red metallic streak or a blue-black and silver residue on the body (Barham et al., 2000; Coulson, 2016; Watts et al., 2016). By contrast, evidence of personal adornment appears relatively late in the archaeological record (Chang et al., 2020). Currently, the oldest known ornaments are perforated shells, dating to > 142,000 BP from Bizmoune Cave in Morocco (Sehassheh et al., 2021). In the Levant, the oldest possible ornaments are shells dating to approximately 100,000 BP (Vanhaeren et al., 2006) from Qafzeh and Skhul, two Middle Paleolithic cave sites in the Mount Carmel region of Israel (Vanhaeren et al., 2006; Bar-Yosef Mayer et al., 2009). The shells at Qafzeh are naturally perforated but are argued to have functioned as either containers because they contain traces of ochre or as personal ornaments because the holes exhibit wear consistent with being strung (Bar-Yosef Mayer et al., 2009).

Early ornaments, recovered from sites in southwest Asia, Anatolia, and across Africa are primarily manufactured on marine shells. *C. rustica* and *N. gibbosulus* are the most commonly used species in the earlier Epipaleolithic, while dentalium is preferred in the Natufian (Bar-Yosef Mayer, 2005). The ornament makers often used the natural shape of the shells as the ornament, whether it was dentalium or small univalves (marine snails), accentuating the form through minimal modifications. This might include slicing dentalium shells to make small disc-shaped beads or perforating the aperture of a marine snail shell to string on thread or sew onto clothing.

##### 4.1. New materials

As noted, shell is the predominate material in the Levantine Upper Paleolithic although ornaments are generally rare in assemblages from this period (Rosenberg et al., 2020). Although some early/middle Epipaleolithic sites such as Kharaneh IV have a wide diversity of marine shell ornaments (Richter et al., 2011), by the Natufian increase in the diversity of marine shell species chosen for use as ornaments is widespread, along with an increase in dentalium (Bar-Yosef et al., 1991; Bar-Yosef Mayer, 2005) with some researchers arguing that dentalium use is a hallmark of the Natufian (e.g., Kurawaska et al., 2013 but see Reese, 1991, Richter et al., 2011). It is during this period that ornaments are increasingly constructed from new materials such as stone, bone, and teeth with the occasional use of exotic materials such as greenstone, and the use of Red Sea and Nile shells is also noted (Belfer-Cohen, 1991; Weinstein-Evron and Belfer-Cohen, 1993; Valla et al., 2007; Bar-Yosef Mayer and Porat, 2008; Power et al., 2014). According to Power and colleagues (2014), the greater sedentism of this period led to “new social pressures that influenced belief systems and behavior...[leading] to unprecedented expansion of symbolic activity in the Natufian.” Thus, this expansion of raw material use may be related to an emerging sense of territoriality in the Natufian, symbolizing group affiliation and ties within and between groups (Bar-Yosef et al., 1991; Bar-Oz, 2004).

By the PPNB, ornament makers worked with an even wider variety of materials than noted in previous periods. This includes increased diversity of stone, with a preference for the color green, including beads made from green Dabba marble in eastern Jordan (Wright and Garrard, 2003), malachite and rosasite from pre-pottery deposits at Yiftahel in Israel (Garfinkel, 1987), and amazonite in sites from southern Jordan (Fabiano et al., 2004). Some researchers have suggested this color preference may symbolize the importance of agriculture or a preoccupation with fertility more broadly (Bar-Yosef Mayer and Porat, 2008). In

situations with unique preservation conditions such as at Nahal Hemar Cave, archaeologists have documented wooden and plaster beads, some with strings still attached, hinting at the diversity of material types that may have been used in the past. The appearance of ostrich eggshell beads, and especially the mass production of these beads, is much later in the Levant than in Africa (Miller and Willoughby, 2014). While shell beads continue to be made, this period evinces a greater diversity of mollusk species.

##### 4.2. Bead typologies

In addition to the use of new materials, the introduction of new types of personal ornamentation increases over time. During the earlier Epipaleolithic periods, beads tend to be disc-shaped dentalium beads (where dentalium shells are segmented into thin discs) and perforated marine shells (Richter et al., 2011). Some evidence of bone, tooth, and stone beads are also present from Epipaleolithic sites; however, these are rarer in the archaeological record. As one moves towards the late Epipaleolithic Natufian period, a wider diversity of types starts to be manufactured. A typological classification of beads from late Epipaleolithic to Pottery Neolithic sites in Israel highlights a wide diversity of forms during these periods (Bar-Yosef Mayer, 2013). The most prevalent bead form throughout these periods are disc-shaped beads, which can be made from a variety of materials including shell, bone, and stone. Over time, new shapes begin to take hold, including cylindrical forms (Bar-Yosef Mayer, 2013). The PPNB also saw the introduction of ‘butterfly beads’ across the Levant (Fig. 3). These beads are characterized by their large, flat shape, and come in a range of forms including rectangular, circular, trapezoidal, and elliptical (Alarashi, 2016). The forms of these beads change over time, beginning with more elliptical shapes, followed by diamond forms in the Middle PPNB, then by the development of larger forms in the Late PPNB, and finally the emergence of true butterfly pendants with pronounced ‘wings’ in the Pottery Neolithic (Alarashi, 2016). One of the main trends seen throughout these transitions is the increased length of the perforated hole, highlighting new skills and techniques needed to make these beads. We return to a discussion of butterfly beads below.

##### 4.3. Technological innovations

As noted, as the diversity of bead types and materials increased throughout time, so did the technological innovations needed to produce different types of personal ornamentation. Early and Middle Epipaleolithic shell personal ornaments were often manufactured by either piecing the whorl of univalve shell to make a hole, or grinding the whorl to make a perforation. Alternately, shells with natural perforations may have been collected and strung together, without the need for subsequent modifications (Baysal, 2019). For the longer dentalium shells, experiments have shown that it is possible to thinly cut dentalium with lithics, grinding the cut surfaces on stones to make disc-shaped dentalium beads with smooth faces (Whitehurse, 2021). Evidence of hand drilling and pump drilling is seen in the Natufian, with drilled gazelle phalanx ornaments (Torres et al., 2020). During this same period, the bow drill is used for the perforation of soft stones (Marechal and Alarashi, 2008) and hard animal materials (Stordeur, 1988) (Fig. 4).

Drilling techniques continue to be used throughout the Pre-Pottery Neolithic, with continual refinement of methods and skills as new types of personal ornaments were manufactured (Alarashi, 2016). The use of hard stone materials during the Middle PPNB for the construction of butterfly beads necessitated the use of bow-drills; this is corroborated by use-wear analyses of butterfly beads (Alarashi, 2016). Refinement of skill in bead production during the Middle PPNB is linked with increasing craft specialization, as the knowledge and *savoir-faire* needed to produce large and finally worked butterfly beads would not have been possible for all households (Alarashi, 2016).

In sum, the ever expanding bead typologies, diversity of materials,



**Fig. 3.** Carnelian “butterfly beads” Nahal Hemar Cave, Pre-Pottery Neolithic B, ca. 10,000–8000 years ago, L 3.3 cm, W 2.5 cm | IAA 2013–1356. Israel Antiquities Authority (Photo © The Israel Museum, Jerusalem by Elie Posner).



Fig. 4. Reconstructed drills Flint (original), wood and rope (contemporary) L 10.5–34 cm, W 0.6–25.5 cm | Gift of Felix Burian and Erich Friedman, Tel Aviv | IMJ 87.136.139, 140, 142 Photo © The Israel Museum, Jerusalem by Elie Posner.

different bead shapes, movement towards more durable formats, and more difficult manufacturing techniques suggest an increasing importance and role for culturing the body accompanied the neolithisation of the southern Levant. While the ability to produce these variations was present earlier, they were only deployed incrementally as constructed identities became ever more complex. Specifically, it was the increasing aggregation and density of settlements characteristic of the Neolithic that likely led to the need for self and group identification which in turn spurred trade in exotic raw materials, technological innovativeness and the development of new communities of practice.

##### 5. Case study: mortuary practices, butterfly beads and the persistence of heirlooms

Mortuary practices from the Epipaleolithic to the Late Neolithic in the Levant varied greatly within and between sites. As Croucher (2012:212) notes, “there was not a uniform practice throughout the region during the Neolithic, but different communities focused on different methods of disposing of the deceased, or even practiced a range of methods within sites.” While a detailed consideration of these practices is beyond the scope of this paper, two notable characteristics will be discussed here. First, during these periods, it was considered important to keep the dead physically close to the living. We initially see this practice begin to take shape during the Early Epipaleolithic, with the presence of human remains within a hut structure at Kharaneh IV (Maher et al., 2021). During the Natufian, people were buried in open-air sites (Bocquentin and Garrard, 2016), in caves or just outside them or under buildings. Initially, the latter were interpreted as sub-floor burials but it is now believed that more often houses were subsequently built upon existing graves (Boyd, 2006; Jammo, 2022) highlighting a growing

association with place (Croucher, 2012). By the PPNA and PPNB, there was a shift in the location of burials, with dead commonly buried underneath floor boards of existing houses (Croucher, 2012). At times, (but not exclusively) during the MPPNB, a small number of these individuals were exhumed six to nine months after deposition, once the soft tissue had decayed, and the heads removed from the post-cranial skeleton. Some of the skulls were covered with plaster, painted and given shells for eyes, creating new, naturalistic faces for the dead (Schmandt-Besserat, 2013) (Fig. 5), thus transforming them into “collective, perhaps fictive ancestors for the entire community in an emotionally charged, cyclical process, creating social memory that contributed to stability across generations” (Van Dyke, 2019:213; see also Kuijt, 2008).

Skulls were often reburied in caches and/or with other bodies and many evinced extensive wear and damage suggesting that they were actively used and displayed before reburial. Croucher (2012:93) argues that these skulls are emotionally evocative and “demonstrate a close link between the living and the dead, blurring boundaries of person and object, as well as showing that the dead still maintained a meaningful role in the lives of the living.” In this sense, death was not an end but rather a new phase of social interaction. Plastering skulls may have been a way of venerating ancestors and marking lineages (Arensburg et al., 1989; Croucher, 2012; although see Bonogofsky, 2003 for other interpretations). For Kuijt (2008:171), these mortuary behaviors “transcended the past, present, and future, reiterating the expectation of future mortuary events while simultaneously recognizing continuity with the past through the crafting of memory. Collectively these patterns represent a complex web of interaction involving ritual knowledge, imagery, mortuary practices, and the creation of intergenerational memory and structures of authority.”

The second salient characteristic of mortuary practices associated



Fig. 5. Plastered skulls from the PPNB site of Yiftahel (Israel), on exhibition at The Steinhardt Museum of Natural History (Tel Aviv, Israel) (Photo: Oz Rittner).

with the neolithisation of the Levant is the growing entanglement of people and objects beginning in the Natufian with the increasing occurrence of personal ornaments in graves. Croucher (2012:116) argues that.

...people were integrated with their environments, with strong links between humans and animals, and an emerging understanding of new technologies that enabled the creation of new objects and artefacts among interrelated networks of people, animals, and things. There is perhaps more likelihood that a person would be venerated for their ability to understand and relate to stone, animals, plants, or the dead—it may be these persons who were chosen to remain particularly close to the living—retained, reused, and eventually reburied, to contribute to the cycles of life and afterlife.

With the increasing importance of ancestors in the everyday lives of Neolithic peoples, an interesting question to explore is whether personal ornaments served as heirlooms. Heirlooms are important sites of memory similar to the human body, monuments, landscape, and texts (Van Dyke et al., 2003; Van Dyke, 2019). They materialize memories and histories, often acting as mnemonics reminding the living of a link to their ancestral past. They may also play key roles in intergenerational knowledge transfer through oral stories and histories. As heirlooms are passed from family member to family member, so do the stories behind those objects. Ethnographically, heirlooms are typically associated with economic productivity and social reproduction (Lillios, 1999). Personal ornaments are particularly effective in this regard. Lillios (1999) argues that it is likely in the past that only certain classes of artifacts and specific types within each class would have been considered worthy of heirloom status at any given time.

Identifying heirlooms in an archaeological context can be challenging but typically they will date to an earlier period than other objects in an assemblage (Lillios, 1999). One possible example of this in the Levantine Neolithic is a specific type of double holed barrel pendant typical of the PPNA that was uncovered in a PPNB layer at Nahal Hemar Cave (Bar-Yosef Mayer, 2013). The presence of this older PPNA bead in the younger PPNB deposits suggests that it could have been passed from one generation to the next. Heirlooms tend to be portable and are normally made of durable or semi-durable materials (Lillios, 1999). For this reason, clay and shell beads are less likely to have functioned as heirlooms.

The butterfly bead is another possible example of a category of heirlooms. As noted, the butterfly bead is one of the most typical personal ornaments of the Levantine PPN although the earliest examples date to the Natufian (Baysal, 2019). It is a relatively large, flat bead with a central, transverse lenticular or diamond shaped perforation bifurcating its length into two symmetrical “wings” giving it a somewhat butterfly-like appearance (Alarashi, 2016; Basal, 2019). Some “collared” butterfly beads have the ends of these perforations intentionally thickened (Alarashi, 2016). Made from a variety of mostly non-local stones such as amazonite, obsidian, agate, turquoise, amethyst, carnelian and more rarely talc and serpentine, these beads often form part of necklaces, bracelets, and diadems (Alarashi, 2016). Over time, makers began manufacturing larger butterfly beads and choosing brighter, more colorful stones (Alarashi, 2016). The variety of materials from which the beads were made necessitated different techniques of manufacture (e.g., sawing, abrasion, fluting, polishing) (Alarashi, 2016) and particularly the long central perforation would have required great skill to produce (Baysal, 2019). Butterfly beads are particularly fragile along this perforated channel. Sometimes the fractured halves are repurposed by smoothing the sharp, broken edges of the channel and re-perforating the beads (Baysal, 2019). Recycling beads speaks to both their value and their longevity (Baysal, 2019).

One approach to identifying personal ornaments as heirlooms is to reconstruct the object’s biography or life history. As Croucher (2012:287) observes, objects worn on the body “may be understood as imbued with meaning and identity in relation to the wearer, even as

inalienable objects, which can be worn, given away, circulated, and exchanged, building up biographies and reflecting relationships.” Longevity can be documented through evidence of wear, damage, mending, repurposing and reshaping. In her study of usewear on butterfly beads from the Euphrates region, Alarashi (2016) discovered both lightly used ornaments and ones with heavy wear, and evidence of breakage and recycling. She (2016:508) argues that the former may have been worn only on special occasions while the latter is indicative of “a long period of use, even after the damage, as demonstrated by the intense polish of the fractures, and probably transmission from one generation to another as a family or group heirloom.”

Croucher (2012) argues that the evidence suggests that in Levantine Neolithic, identities were (re)created around a “web of relationships that focused not only on the living, but included the living and the dead, as well as entangled identities with animals and objects.” In the same way that bodies can be broken up and shared so too could personal ornaments (Thomas, 2000), what Fowler (2004) refers to as dividual relationships, where parts of a whole are divided but essences are retained. In this sense, personal ornaments such as butterfly beads were affective and relational as “different meanings are placed on objects if they are considered to be components of a person” (Croucher, 2012:208), (e.g., owners, wearers and/or makers) rendering them ideal candidates as heirlooms. As we have seen, in the Neolithic, living bodies did not need to be present for an individual to have a social “life” (Croucher, 2012) and heirlooms likely played a fundamental and complementary role in “presencing” a person who would otherwise be absent (Mattson, 2021). Passing beads from one person to the next transfers the memory of those individuals to future generations. Like the plastered skulls, personal ornamentation has the potential to carry forward the identity of ancestors, working to bring the deceased into everyday social life.

## 6. Conclusion

In this paper, we considered the role of personal ornaments in the (re)creation of identity. We then outlined the emergent properties of the Neolithic in the southern Levant. During the neolithisation of the southern Levant shifting subsistence strategies, settlement patterns, and social relationships (including relationships with ancestors) necessitated new ways of being in the world that were manifested in and through material culture including, and perhaps especially, personal ornaments. Throughout the neolithisation of this region, it was important to keep the dead close to the living not only by burying them under the floorboards of houses but in some cases, exhuming their cranium, decorating, and plastering the skulls, and bringing them back into the world of the living. Affective and evocative, skulls were curated, displayed, and often reburied to perhaps enter yet another phase of the “life course”. Death was not an ending but the beginning of a new means of social interaction. When curated as heirlooms, personal ornaments likely served an important and complementary role in presencing the dead in the everyday lives of the living, bringing objects through time to continue the memory and connection to the departed.

## CRediT authorship contribution statement

**April Nowell:** Conceptualization, Writing – original draft, Writing – review & editing. **Danielle Macdonald:** Writing – original draft, Writing – review & editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

No data was used for the research described in the article.

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