

# A true gift of mother earth: the use and significance of obsidian at Çatalhöyük

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## Abstract

This paper reviews 50 years of obsidian studies at Neolithic Çatalhöyük in the Konya plain, central Anatolia. A number of key issues are addressed: (1) the source of the site's raw materials, the means and forms by which the obsidian was introduced to the site and the role of Çatalhöyük in the supra-regional dissemination of these raw materials; (2) the alleged gender associations of certain obsidian goods in the burial record and beyond; (3) a more general consideration of the social significance of the circulation and consumption of obsidian at the site, including the phenomena of hoarding and gifting, plus the important role of projectiles in the creation of social identities and various forms of ritual behaviour, not least the termination of the life of a building/individual; (4) the technological and raw material variability through time; (5) the use of obsidian in daily practice and craft-working.

## Özet

Bu makalede, Orta Anadolu'da, Konya ovasında bulunan Neolitik dönem merkezi Çatalhöyük'te 50 yıldır yapılan obsidiyen çalışmaları incelenmiştir. Makalede, konuyla ilgili bir dizi temel sorun ele alınmıştır: (1) yerleşim yerinde bulunan hammaddenin kaynağı, yerleşimde kullanılan obsidiyen aletler ve biçimleri, ayrıca Çatalhöyük'ün bu hammadde bölgesel ve ötesinde yaygınlaştırılması açısından önemi; (2) mezar kayıtlarında ve diğer kayıtlarda bulunan bazı obsidiyen eşyaların iddia edilen cinsiyet ilişkileri; (3) yerleşimdeki obsidiyen tüketimi ve dağılımının sosyal açıdan öneminin daha genel bir değerlendirmesi, depolama ve hediye etme fenomeni dahil, ayrıca bir bina veya bireyin yaşamının sona ermesiyle sosyal kimliklerin ve bazı ritüel davranışların oluşmasında tasarıların önemi; (4) zaman içinde tekno-tipolojik ve hammadde değişkenliği; (5) günlük uygulamada ve zanaat çalışmalarında obsidiyenin kullanımı.

This paper offers a brief review of half a century of scholarship surrounding the procurement, significance and use of obsidian by the people of Çatalhöyük, the well-known Neolithic community of the Konya plain in central Anatolia (fig. 1). The site comprises two artificial mounds, or tells (fig. 2), with the larger and better-known Neolithic settlement on the eastern side of the small Çarşamba river and the Chalcolithic occupation on the other side (hereafter Çatalhöyük East/West respectively). Excavations were first undertaken on the East Mound over four seasons in the 1960s by James Mellaart, whose large-scale operations revealed a remarkable Neolithic settlement; the first example of an early farming community occupying such a harsh continental location in the eastern Mediterranean (Mellaart 1967). Through the rapid publication of his discoveries, not least via such popular journals as *Archaeology*, the

*Illustrated London News* and *Scientific American* (Mellaart 1962; 1963; 1964a; 1964b; *inter alia*), the site gained worldwide renown and remains a staple of introductory archaeology textbooks today (cf. Fagan 2007: 246–48; Renfrew, Bahn 2007: 46–47). Çatalhöyük was considered noteworthy for a number of features, including its densely-packed mud-brick settlement and its scale, which seemed more in keeping with an urban community, if not a city. It also boasted a rich symbolism, with wall-paintings (both abstract and figurative), an array of figurines (human and animal), plus architectural elaborations such as benches containing the plastered skulls of wild bulls. Concentrations of such symbolism led to the claim that certain buildings were shrines, with the corresponding argument that this was a community where priests were likely the 'bearers of authority' (Mellaart 1964b: 101).

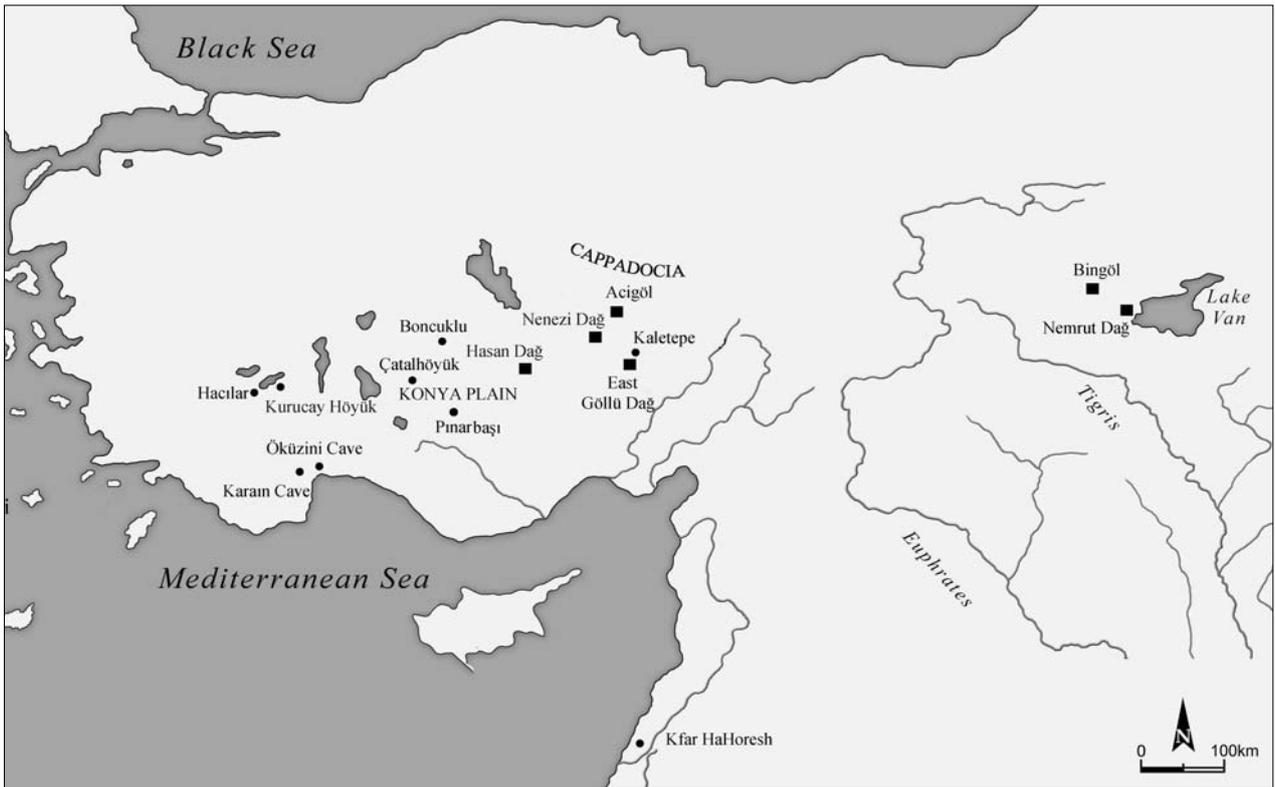


Fig. 1. Sites and obsidian sources mentioned in the text (drawing Danica Mihailović and Marina Milić)

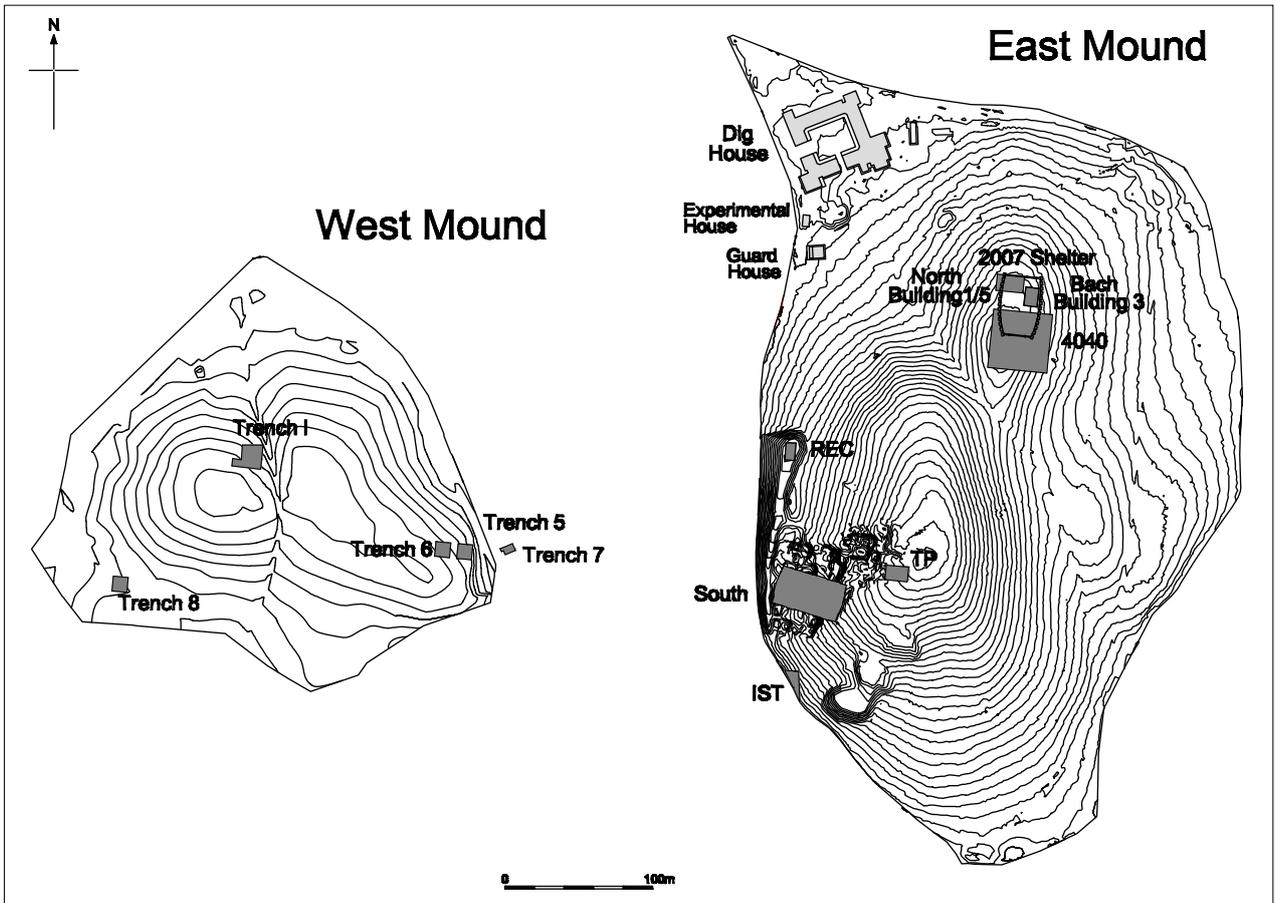


Fig. 2. Plan of Çatalhöyük East and West with their various excavation areas (drawing Çatalhöyük Research Project)

The occupation of Çatalhöyük East is now known to span the Aceramic to Late Neolithic, ca 7400–6000 BC (Cessford 2001; Cessford et al. 2005), comprising at least 16 architectural horizons, or ‘levels’, from Pre-XII.D at the base to Level 0 at the top, with a maximum population of between 3,500–8,000 approximately half-way through its occupation sequence (Mellaart 1967: 49–53; Cessford 2005; Hodder 2006: 7, fig. 18). The West Mound sequence is less clear, but may begin in the Late Neolithic (late sixth millennium BC) and continue through Early Chalcolithic I–II (until ca 5500 BC; Cessford et al. 2005), whereby Çatalhöyük provides us with almost 2,000 years of (pre)history. The focus of this paper will be the use of obsidian by the Neolithic community of Çatalhöyük East.

### Obsidian at Çatalhöyük: the 1960s view

Çatalhöyük is situated in a poor location with regard to artefact-quality lithic resources, whereby the community had to procure their raw materials from afar to make their stone tools. Obsidian was the dominant raw material, in excess of 90% of the flaked stone assemblage at any one time, despite the nearest sources laying 190km (linear distance) to the northeast in the volcanic region of Cappadocia (Carter et al. 2005a: 222, fig. 11.1).

On the basis of the amount of obsidian in circulation at Çatalhöyük, together with its appearance in burials and sub-floor caches, Mellaart claimed that the material had a major socio-economic and symbolic significance for the community, arguing that ‘it was a well-organized trade that produced the city’s wealth’, with the ‘trade in obsidian at the heart of this extensive commerce’ (Mellaart 1964b: 101). The obsidian was assumed to come from one of the many volcanoes of central Anatolia, the closest of which was only 80km to the east, and thus ‘well within the culture area of which Çatal Hüyük was the undisputed center’ (Mellaart 1964b: 101). More specifically, Mellaart argued that the primary source was Hasan Dağ (fig. 1), a double-peaked mountain occasionally visible from the site (despite being 133km to the northeast), whose eruption appeared to be represented on a wall-painting from Shrine 14, Level VII (Mellaart 1967: 176–77, pls 59–60). The volcano’s depiction was claimed to reflect the economic significance accorded the source of Çatalhöyük’s obsidian (Mellaart 1967: 177).

On a more symbolic level, Mellaart highlighted obsidian’s ‘transparency, reflective power and its jet black appearance’ and argued how its chthonic origin would have linked it to the underworld, the place of the dead, a ‘true gift of mother earth, and therefore imbued with magical potency’ (Mellaart 1967: 177). In turn, certain forms of on-site consumption had clear ritual

overtones, not least the burial of obsidian as ‘offerings’ in some of the shrines, while ‘groups of arrowheads, single spearheads, a few sickle-blades, knife-blades of obsidian or flint are very often buried with the male dead’ (Mellaart 1964b: 97, 103; 1967: 209).

### Obsidian studies at Çatalhöyük

While James Mellaart provides us with some forthright assertions as to the significance of obsidian to the Neolithic community, we have to turn to the work of his colleague Perry Bialor for the first detailed report on the Çatalhöyük material (Bialor 1962). His publication describes the material by stratigraphic level, providing a diachronic review underpinned by a typological approach that accorded significant attention to various forms of projectile points, scrapers and other formal tool types. While acknowledging typological variability, Bialor (1962: 67) described the Çatalhöyük chipped stone industry (Level VIII–II) as otherwise ‘homogeneous’ with regard to technology (blade-based) and the types of tools being produced, a view subsequently echoed by Mellaart (1966: 169).

Çatalhöyük’s obsidian assemblages have received a number of in-depth studies over the past 50 years, many of which derive from the long-term Çatalhöyük Research Project that was initiated by Ian Hodder in the early 1990s (Hodder 1996; 2006; Balter 2005). The output of this project, generated by a large team of international scholars, includes not only a series of excavation volumes (Hodder 2005a; 2005b; 2007a), but also numerous specialist publications (Hodder 2006; see also [www.catal-hoyuk.com](http://www.catal-hoyuk.com)). Through the investigation of new areas of the site, together with innovative methodological and theoretical approaches, the archaeology of Çatalhöyük is gradually being updated and to a large extent rewritten.

The post-Bialor/Mellaart work on the chipped stone has involved both reanalyses of the 1960s material together with studies of new assemblages, the analyses detailing not only the artefacts’ techno-typological characteristics and the raw material sources, but also including a consideration as to how the community’s traditions and practices fit into the larger Anatolian/Near Eastern Neolithic context (Balkan-Atlı 1994a; Conolly 1999a; Carter et al. 2005a; 2005b; *inter alia*).

In the following sections I will attempt to offer a précis of the current state of play with regard to our understanding of obsidian’s significance and use at Çatalhöyük through time. In achieving these aims I have decided to set a series of questions based on the assertions of Bialor and Mellaart mentioned above. This is purely a rhetorical device; it is not my intention to set up these scholars as ‘straw men’ to be discredited through the results of more recent research.

**Is it true that Çatalhöyük procured its obsidian from Hasan Dağ?**

Simply stated, no. We now appreciate that Hasan Dağ is not a particularly rich source, the obsidian is difficult to access and has a poor working quality (Cauvin, Balkan-Atlı 1996: 252; Poidevin 1998: 123). Furthermore, 50 years of characterisation studies have failed to record the presence of obsidian from Hasan Dağ at any archaeological site, suggesting that the source may never have been exploited (Chataigner 1998: 292–93). There are also those who believe that the Shrine 14 wall-painting does not depict the volcano but instead shows a stylised leopard skin, an argument based on representations of leopard-skin-clad hunters and the felines themselves at the site, and the lack of Hasan Dağ obsidian at Çatalhöyük (Meece 2006: fig. 3a–i). After some reflection, I now lean towards the idea that the painting *does* represent Hasan Dağ, and that our interpretation of the characterisation data has perhaps been too literal. As Barber (2010) has recently noted, there are ethnographic cases of people recollecting volcanic events over a thousand years later, whereby it is quite conceivable that the Çatalhöyük wall-painting represents a millennium-old eruption. The painting of this distinctive landmark may thus symbolise Cappadocia and its rich obsidian sources in general, rather than indicating the exploitation of this specific volcano.

As well as taking Hasan Dağ out of the equation, the past 50 years of sourcing studies have provided a detailed insight into which sources the community were exploiting, with hundreds of artefacts analysed from both the East Mound and West Mound. In the 1960s four blades from Çatalhöyük were included in the first Near

Eastern obsidian sourcing study (Renfrew et al. 1966), after which three separate projects analysed a further 11 artefacts using both elemental and isotopic means of characterisation (Wright 1969; Gale 1981; Keller, Seifried 1990). In 1999, as part of the new Çatalhöyük Research Project, I initiated another obsidian sourcing programme, which has since developed into a major international collaborative project involving a number of different laboratories and analytical techniques. Over 700 artefacts have now been analysed, by far the largest number of samples assessed from a single site in the eastern Mediterranean, of which just under 300 have been published in detail (table 1).

On the basis of these analyses, the following general statements can be made concerning Çatalhöyük’s long-term use of obsidian. (1) The southern Cappadocian sources of East Göllü Dağ and Nenezi Dağ were the most important through time (fig. 1); (2) these obsidians were often consumed differently with regard to how they were worked and what was made from them, distinctions that cannot be explained through reference to mechanical properties alone; (3) the relative proportions of these raw materials changed through time; (4) post Level VI (later Early Pottery Neolithic) we find tiny quantities of obsidian from northern Cappadocian sources, specifically West Acıgöl and East Acıgöl ante caldera; (5) later Early Pottery Neolithic and Early Chalcolithic assemblages include a handful of pressure-flaked blades made from the eastern Anatolian sources of Bingöl and/or Nemrut Dağ, sources located some 650–825km distant, the furthest west these obsidians have ever been found (Carter et al. 2008a; Pernicka 1992).

Laboratory	Artefacts	Techniques	Publication
Grenoble (LGCA-CNRS)	100	ICP-AES; ICP-MS	Carter et al. 2005b; 2006a
Aberystwyth	35	LA-ICP-MS	Carter et al. 2005b; 2006a
Berkeley	42	EDXRF	Carter, Shackley 2007
Bordeaux (CENBG-CNRS)	72	PIXE	Poupeau et al. 2010
Bordeaux (IRAMAT-CNRS)	51	SEM-EDS	Poupeau et al. 2010
Berkeley	24	EDXRF	Poupeau et al. 2010
Berkeley	48	EDXRF	Carter et al. 2008a; in prep.
Paris (C2RMF-CNRS)	42	PIXE	Carter et al. 2008a; in prep.
Stanford	45	ICP-AES	Carter et al. in prep.
Çatalhöyük	253	pXRF	Carter 2009; Carter et al. in prep.
<b>Total artefacts</b>	712		

Table 1. Total number of obsidian artefacts sourced under the aegis of the Çatalhöyük Research Project by laboratory and techniques used (ICP-AES/-MS = inductively coupled plasma-atomic emission spectroscopy/-mass spectroscopy; LA = laser ablation; EDXRF = energy dispersive X-ray fluorescence spectroscopy; PIXE = particle induced X-ray emission; SEM-EDS = scanning electron microscopy-energy dispersive spectroscopy; pXRF = portable X-ray fluorescence spectroscopy)

### Is it true that Çatalhöyük controlled the obsidian trade?

Some 40 years after Mellaart claimed that Çatalhöyük ‘controlled the source and organized the trade’, we now know that Cappadocian obsidians were being used over a wide area for thousands of years before Çatalhöyük was even established. East Göllü Dağ and Nenezi Dağ products are attested in early Epi-Palaeolithic strata at the Öküzini and Karam Caves of the Antalya region, dated to the late 17th/early 16th millennia BC (Renfrew et al. 1966: 42–43; Carter et al. in prep.), while the former obsidian is also known from late Epi-Palaeolithic sites of the middle Euphrates and southern Levant dating to 12,000–10,000 BC (fig. 1; Cauvin, Chataigner 1998: 330–31). In turn, during the period of Çatalhöyük’s occupation most Cappadocian obsidian was being consumed by people living to the east and south of the sources, i.e. in the opposite direction to the site. While the people of Çatalhöyük may have played a role in supplying settlements to the west and southwest in the Lake District (for example, Hacilar, Kurucay Höyük *inter alia*; Duru 1999), one cannot substantiate the thesis that the community controlled ‘the obsidian trade’.

So how did the inhabitants of Çatalhöyük acquire their own obsidian? Through time, the processes involved in procuring Göllü Dağ and Nenezi Dağ products are likely to have changed. In the earliest settlement we think that the community remained part-mobile (i.e. it was not fully sedentary), with a wide array of resources from the basal strata indicating that the people exploited a relatively large territory (Carter et al. 2005a: 278–79). It might thus follow that obsidian was directly procured from the Cappadocian sources, which lay ‘only’ 250km distant (the more circuitous journey around the edge of the Konya plain taking in water supplies).

There is a slight paradox in forwarding a model of self-sufficient obsidian procurement during the Aceramic Neolithic, when this is one of the few periods when we actually have evidence for contemporary settlements between Çatalhöyük and the sources, such as Canhasan III and Musular (fig. 1; Carter et al. 2005a: 271–76). Moreover, the techno-typological commonalities of these chipped stone assemblages implies close ties between these peoples, whereby one might talk of shared ‘communities of practice’ underpinned through the exchange of marriage partners, acts of commensality and the circulation of socially meaningful goods, such as Canhasan III inscribed points (Ataman 1986; Carter et al. 2005a: 277). Thus, while one can make a good argument for much of the obsidian from Aceramic Neolithic Çatalhöyük being procured directly by members of the community, one can also envisage certain obsidian artefacts reaching the site

via intermediary exchange. This is an important point to appreciate; throughout the occupation sequence, the people of Çatalhöyük received their obsidian in a variety of forms and it need not follow that these preforms/cores/end-products all circulated together, or were valued in the same ways, or passed along the same routes, or were procured and exchanged by the same people at any one time.

For example, throughout the Neolithic, projectiles were made on blanks manufactured at specialist quarry-based workshops (the final point then being shaped on site). Given the social significance accorded hunting (see below), these products would have represented symbolically powerful media and thus were precisely the type of object appropriate for gifting between individuals. This may have occurred between members of different communities – say Canhasan III to Çatalhöyük – as well as between inhabitants of the site itself, perhaps in the form of bride wealth. In these instances, one has to view the movement of obsidian from source to site less in terms of traditional conceptualisations such as ‘direct procurement’ versus ‘down-the-line’ modes of raw material dissemination, but more in terms of ‘circulation’. Here we have the notion of ‘characterful’ objects that moved between people, perhaps in a manner not dissimilar to the famed *Kula* ring of Melanesia (Malinowski 1922; see also Munn 1986; Mauss 1990; Weiner 1992), in an ongoing process of gifting that ultimately tied people together in a materially mediated social entanglement/enchainment through space and time (cf. Appadurai 1986; Fowler 2004: 53–78; Lazarri 2005; Hoskins 2006).

The idea of social relationships being developed between inhabitants of Çatalhöyük and members of neighbouring communities is something we can think about with relative ease for the Aceramic Neolithic and Early Chalcolithic, because these are the periods when we have contemporary populations in the Konya plain (Baird 1996; 2002; 2010). So to what extent does the evidence suggest that Çatalhöyük controlled the flow of Cappadocian obsidian into the region during these periods? At nearby Sancak, a Late Aceramic Neolithic site broadly contemporary with Level Pre-XII.C–D Çatalhöyük, the evidence shows that this community procured and worked its own obsidian in much the same ways as those at both Çatalhöyük and Canhasan III, i.e. one cannot make any case for dependency (Baird 2010: 214–15). For the Early Chalcolithic things are not yet so clear, and for the intervening Early Neolithic (seventh millennium BC), we have no evidence for contemporary societies within the Konya plain (Baird 2006), a fascinating archaeological conundrum, albeit one that transcends the scope of this paper.

Ultimately, detailed characterisation studies are the only way forward to assess the relationship between Çatalhöyük and its contemporaries with regard to the flow and dissemination of Cappadocian obsidian. By this, I mean that one has to move beyond merely quantifying the assemblages and talking about linear distance, to an explicit consideration of raw material consumption. For example, given that Hacilar is located further from the sources and obsidian comprises only 42% of its Late Neolithic/Early Chalcolithic assemblage (Mortensen 1970), compared to Çatalhöyük's 95%, it could be argued that the former might have been reliant on the latter as an intermediary in a down-the-line form of exchange that funnelled the material westwards from Cappadocia. Yet, to prove this thesis of dependency, one needs to consider the exact nature of the two data-sets, i.e. one would like to be able to demonstrate that at Çatalhöyük and Hacilar we have exactly the same implements, made in exactly the same way, made from exactly the same raw material(s), but that the former has the greater range of production debris while the latter has only the end-products/a more restricted range of the reduction sequence.

**Is it true that some obsidian artefacts have clear gender associations?**

Based on grave good/burial associations, Mellaart (1967: 208–09) claimed that certain obsidian artefacts and their related practices had exclusive gender relations, such as spears/hunting with men and mirrors/adornment with women (though he does record a mother and child interred with an adze and flint dagger; Mellaart 1967: 208–09). Naomi Hamilton's reanalysis of the 1960s material suggests that these claims are difficult to substantiate (Hamilton 1996: 244–49). The same study did recognise a temporal pattern to the funerary record,

with chipped stone implements only appearing in post Level VI burials, i.e. in the later Early Ceramic to Late Neolithic (Hamilton 1996: 249). More recent work largely supports this argument, with obsidian and flint grave goods absent from the earlier Early Ceramic Neolithic Level XII–VIII burials excavated during 1995–2008. The relationship between sex/gender and specific chipped stone tools/activities is a topic of continuing interest to us, with tantalising evidence from the past five years that provides some support for Mellaart's original assertions.

Firstly, it should be emphasised that the vast majority of burials – usually sub-floor intramural inhumations – do not contain grave goods (Mellaart 1967: 204–10). Secondly, of those inhumations accompanied by artefacts, only a handful have contained chipped stone tools. Of the 49 graves excavated during 1995–1999 (representing 94 individuals) *none* have contained chipped stone grave goods (Andrews et al. 2005). The 2000–2008 work did produce a few; four case studies will be referenced here.

The first is the latest in date (Level III) and arguably the most interesting – burial F.1515 from Building 42 in the South Area (fig. 2). It contained the partly articulated (disturbed) remains of an adult male, accompanied by three large tools that had been placed upright in a fan-like arrangement next to the pelvis (fig. 3). Two of the implements are made of Nenezi Dağ obsidian. The first is a 14cm-long opposed platform blade that almost certainly represents the blank for a spearhead, given its length and triangular cross-section (Carter et al. 2008b), while the second is an 8cm-long side-scraper made on a large flat flake. The third tool is an end-scraper on a 10.5cm-long chert blade that also has a small amount of 'sickle gloss' on one edge; its dorsal ridges are also highly polished,

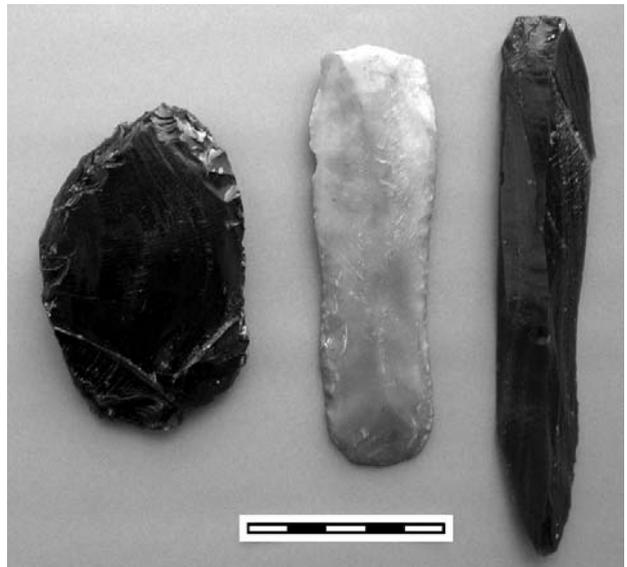


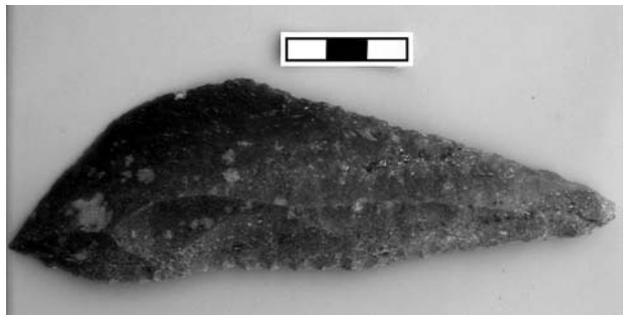
Fig. 3. The in situ arrangement of the chipped stone grave goods from burial F.1515, Building 42 (South Area, Level III) and the chipped stone after removal (photos Jason Quinlan/Çatalhöyük Research Project)

arguably from having been kept in a leather sheath and handled over a long time (cf. Grace 1990). We have found nothing like this grave assemblage previously, though the vertical arrangement reminds us of the upright projectile placed behind a plastered skull in a PPNB burial at Kfar HaHoresh in the southern Levant (Goring-Morris 1994: 432; Goring-Morris et al. 1995: fig. 11.8).

Turning to the symbolism of the assemblage, while the products are all exotic in terms of raw material and place of manufacture, their function and form are varied. The tools might ultimately relate to hunting, with the obsidian blade being a spearhead preform and the scrapers used for working the skins of the slain animals. The gloss on the chert blade from working silica-rich plants does confuse the issue somewhat. It should be noted that this burial assemblage is one of a number of interesting features from Building 42, that overall suggest the structure was of some importance, one of Hodder's 'history houses' (Hodder 2010: 17; Hodder, Pels 2010). It also contained a foundation burial with a crouched adult female holding a plastered skull (the first from Çatalhöyük), while two figurines from the building are made of stone and depict 'elaborated human forms... the rarest finds of the current excavations' (Hodder 2006: 148, pls 13–14; Meskell et al. 2008: 146–48, figs 5–6).

Two other burials with chipped stone were revealed in Building 50, an earlier Level VII structure in the South Area. Burial F.1702 was a large grave, containing not only an adult male, but also a complete lamb (Russell, Düring 2006). On top of the man was placed a worked bird bone and a bone point, while a large, 14.5cm-long, chert blade was found behind his left scapula (fig. 4) and traces of red pigment sprinkled on his body were noted. The blade is part-backed on one side leaving an opposing sharp, curved working edge which has clear use-wear from a linear cutting motion. Given its size, weight and long working edge (such pieces are very rare at this time), it would have made for a perfect butchery tool and/or sacrificial knife, be that for the preparation of an animal for a socially significant repast or the decapitation of a decomposing ancestor. Concerning the latter thesis, a headless burial (F.492) from nearby Building 6 of a slightly earlier date (Level VIII) had clear traces of cut-marks on its atlas vertebra that we believe could only have been made by such a large blade (Andrews et al. 2005: 267–73, fig. 11.9–15; Farid 2007: 274–75).

Burial F.1709 contained another adult male, found with a small (4cm-long) barbed and tanged arrowhead, a cluster of five chert blades (4–9cm long), plus an antler pressure-flaker that was kept in a pouch hung off the individual's belt. With four of the blades modified into perforators, it seems that this was a small craft-working kit, perhaps for piercing hides or perforating wood and/or bone, all of



*Fig. 4. Large chert butchery tool from burial F.1702, Building 50 (South Area, Level VII) (photos Jason Quinlan/Çatalhöyük Research Project)*

which might relate to clothing and associated fasteners, with the arrow used to hunt the animals whose skins were to be worked. While such a literal reading of the data is not unproblematic, one might still view an underlying male craft/hunting symbolism in the grave goods, themes that take us back to some of Mellaart's original assertions.

The final assemblage comes from burial F.2843 in Space 17 of the 4040 Area (fig. 2). The grave contained the remains of at least two individuals which are tentatively assigned to Level VII–VI (Shahina Farid, personal communication). The latest articulated inhumation was an adult female who had been buried with a bone needle, a shell

bead and a small container on her shoulder (evidenced by a spread of phytoliths) within which were another two bone needles, plus two pairs of fine prismatic blades made of Nenezi Dağ obsidian, 7–10cm long. These are highly significant pieces, as they represent an extremely rare association of chipped stone implements with a female burial. Given their association with the needles and bead, it can be argued that the blades formed part of a ‘toilet kit’ related to adornment and body modification through depilation and/or scarification (cf. Carter 1994; 2008).

Ultimately, in thinking about these grave goods, we should not be using types of raw materials or artefacts as interpretative points of departure, as both are ultimately modern constructs. While the exotic origin of some of these materials might indeed have part-constituted these objects’ significance, it is likely that the people of Çatalhöyük were more concerned with the funerary consumption of ‘hunting equipment’ or ‘items of body modification’, rather than ‘pieces of Nenezi Dağ obsidian’ or ‘projectiles’.

#### **Is it true that some obsidian artefacts were consumed ritually?**

Yes, though one should be wary of assuming that the inhabitants of Çatalhöyük made a significant distinction between the sacred and profane, as a good case can be made that the rhythm of their everyday life was underpinned by spirituality (Hodder, Cessford 2004; Testart 2006; Hodder 2010; Keane 2010; *inter alia*). Aside from the aforementioned grave goods, there are two other main forms of consumption that appear to be clearly ritualistic in nature. The first is the practice of burying sub-floor obsidian hoards (Mellaart 1964b: 103), the second relates to the deposition of distinctive artefacts (projectiles in particular) during episodes of building modification and/or closure (Carter et al. 2005a: 243, 283).

Buried hoards of obsidian are known from buildings spanning at least half of the Early Neolithic sequence. The earliest examples excavated by the current team come from Level IX (Building 2 in the South Area), while the latest are associated with Level V–VI (Building 60 in the 4040 Area; Conolly 2003; Carter et al. 2006b; Carter 2007: 350, table 2). We are not sure if the practice continued into the later Neolithic, though the 1960s reports document caches from Levels III and II, the first of projectile preforms from House 2, the second of 12 laurel-leaf ‘daggers’ and two projectiles from House 1 (Bialor 1962: 95–96, 99–103, figs 9, 11–12). That said, no such caches have been found during recent work on the East Mound’s uppermost strata (Level 0–III excavated in the TP Area and the Building 10-44-56-65 sequence, approximately Level I–IV); nor have hoards been recorded from the Early Chalcolithic West Mound.

It is difficult to ascertain how common this practice of hoarding was, in part due to the difficulties of quantifying the 1960s data, together with the fact that so many of the buildings investigated in the 1990s were heavily truncated and/or not fully excavated. In turn, we know that many, if not most, of these hoards were buried with the intention of subsequent retrieval; it is not always easy to recognise the empty pits where the obsidian was once buried, as the fills often blend in with the surrounding soil matrix. For what it is worth, between 1995 and 1999 ten hoards were found in seven buildings (Carter 2007: table 2), some 39% of the structures investigated during that time (n=7/18). This figure has to be taken as a bare minimum, as a number of these structures were heavily disturbed or part-dug (Hodder 2007a). Only Building 1 was undisturbed and fully excavated by the Çatalhöyük Research Project, and it produced a very fine cache of opposed platform Nenezi Dağ blades (Conolly 2003: 64, fig. 5.19).

Throughout time, this habit of burying obsidian involved a carefully regulated set of practices. Contextually the hoards were always placed in small pits dug in the building’s so-called ‘dirty area’, i.e. that part of the house where one finds artefact-rich ashy deposits made up of the by-products of cooking and craft debris. One can thus talk of these caches as being located in ‘transformative zones’. Furthermore, these caches were always interred *during* the life of a building, not prior to construction. As such, they cannot be viewed as foundation deposits in a literal sense, although most were buried very early in these structures’ lives, whereby there may have been a foundational aspect to their burial. Through time, the contents of these hoards can also be consistently viewed as being constituted of somewhat exclusive and meaningful objects; specifically, the vast majority seem to be projectile preforms. Stylistically and technologically these blanks change through time – from East Göllü Dağ ovate bifaces to triangular sectioned Nenezi Dağ blades – but all appear to be blanks procured from source-based specialist workshops that were then shaped into spearheads and arrowheads back at Çatalhöyük. As such, one can conceptualise the obsidian from these caches as being forms of ‘raw material’, that, once retrieved, were transformed by thinning and retouch into finished weapons, the knapping taking place next to the hoard retrieval pit and the flake debris contributing to the ‘dirty area’ deposits (Carter et al. 2005a: 236, 502–03; Carter 2007).

While structurally and conceptually analogous through time, variability can be noted in the size and distribution of these hoards amongst the various buildings. For instance, the ten hoards mentioned above ranged from three to 77 pieces and between 190g to

>10kg. These assemblages also embody differences with regard to raw material, technology and typology. For instance, while the practice of sub-floor caching was almost exclusively restricted to obsidian (Carter 2007: 344), we see differences through time with regard to which source products were being interred, only occasionally finding East Göllü Dağ and Nenezi Dağ artefacts buried together. Similarly, while the earlier hoards tend to be flake-based, the later examples are dominated by blades, though, as noted above, these items are conceptually analogous as they represent ‘raw material’ for making projectiles.

So what makes these hoards ritual in nature? Could they not simply represent caches of a valued commodity, or ‘capital’ (Mellaart 1964b: 103), or a pragmatic storage of a razor-sharp material that the inhabitants wanted off the floor? We believe this not to be the case for a number of reasons. Firstly, a number of these hoards have been recovered from what Mellaart considered to be ‘shrines’, on the basis of their size, architectural elaboration, artwork and finds, whereby he viewed the obsidian’s interment as a form of offering. While today we might take issue with Mellaart’s description of these buildings (cf. Ritchey 1996), it remains that certain structures are more elaborate, contain more burials and have longer ancestral histories (Hodder 2006: 151–63), and a number of these buildings have indeed produced hoards (for example, Buildings 1, 6, 16 and 60 from the recent excavations). Secondly, the vast majority of the obsidian in these hoards was intended to be used to make arrows and spearheads, weapons that would have been used for hunting, a socially significant and symbolically loaded practice for Çatalhöyük’s inhabitants, as evidenced through the wall-paintings and feasting deposits of wild animal remains (Mellaart 1967: 132, 168–76; Russell, Martin 2005; Hodder 2006: 197–204).

So why were these blanks buried in the first place? Elsewhere I have presented a number of interpretations concerning the significance of these hoards (Carter 2007), which have variously considered the notion of burial as a necessary process of domesticating a ‘wild’ resource (following Hodder 1990) and how these caches relate to the gifting of socially meaningful goods in the community, based on our understanding of how these items came to be put into circulation, their likely value and their nature of burial and subsequent redistribution back at Çatalhöyük.

Firstly, it appears that the contents of these hoards were initially procured ready-flaked from workshops at the southern Cappadocian sources; it is currently unclear as to whether these ateliers were organised by ‘foreigners’ (as in the Aceramic Neolithic; cf. Balkan-Atlı, Binder 2001) or by skilled knappers from Çatalhöyük itself.

Either way, the obsidian that was brought to the site for burial in these hoards has to be viewed as a special form of material culture, not accessible to all. Secondly, we have estimated that only a very few members of the community in any one year would have taken part in the approximately month-long, ca 500km round trip to the sources, i.e. these expeditions were exclusive, socially significant affairs, a *rite de passage* for the few involved (Cessford, Carter 2005). On returning with the bag(s) of obsidian blanks, the material was then taken to a building for redistribution and/or immediate burial. One wonders if this was the house of the person who had travelled to the sources (notions of patronage) or another building altogether, the obsidian representing a form of gift that further facilitated that person’s inclusion into a new social group, perhaps as bride-wealth to be given to the head of an important lineage (for a related argument, see Carter et al. 2008a).

Whoever was the ultimate recipient of these bags of obsidian, it seems inconceivable that the inhabitants of each building procured this material themselves on an annual basis. Instead, it is likely that some of these blanks would have been redistributed amongst kin or members of some other form of corporate group. Whether this occurred before and/or after the burial of these hoards is currently uncertain. Drawing on a rich ethnographic record of gift-giving in small-scale societies, one can further suggest that the material we have recovered archaeologically as hoards represents a portion that was intentionally kept, rather than some forgotten commodity. Following the work of Mauss (1990), Weiner (1992) has shown that in societies with ‘an economy and a moral code dominated by gift-giving’ there is, paradoxically, a great emphasis placed on retaining certain goods (*‘keeping-while-giving’*), often those considered more fine, rare or valuable (Godelier 1999: 32–36). The hoards could thus have enjoyed a symbolic value that served to partly constitute the identity of the building’s gift-givers.

I want to turn now to the evidence for the ritual significance of projectiles at Çatalhöyük. Aside from the overt symbolism of the hunt, as celebrated in the renowned wall-paintings (Mellaart 1967: 132, 168–76), we can also point to numerous instances where points were intentionally deposited as ‘temporal markers’, buried at important moments in a building’s life, not least during episodes of modification and closure. This is perhaps most clearly evidenced in the case of a series of abandonment deposits where a used obsidian projectile was placed into the base of the central post-retrieval pit of a building’s western wall, prior to the structure’s final infilling (Carter et al. 2005a: 283). We have ten examples of this practice from eight buildings spanning Level X–III,

from both the North Area (Buildings 1, 3 and 5) and South Area (Buildings 2, 17, 23, 42 and 43). In some of the later structures there are numerous cases where projectiles were either deliberately left on the floor or placed in a bin, particularly in those buildings that were destroyed by fire, such as Buildings 52 and 77, plus Shrine VIB.70 (Mellaart 1964c: 103; 1966: 175; Twiss et al. 2008: 52), or deposited within the final infilling event, as with Buildings 45 and 52 (fig. 5). The temporal changes in this practice might in part relate to architectural developments, with internal posts a far less common feature of the later Neolithic structures. One of the best examples comes from Building 52, where projectiles were placed in three separate bins prior to the structure being destroyed by fire (deliberately, in my opinion), after which a bundle of six large points (up to 11.5cm long; fig. 5) was interred in the infill of the southern part of the building (Twiss et al. 2008). All these acts might be conceptualised as forms of closure ritual, perhaps even a symbolic killing of the building (in certain instances projectiles might have been fired into a burning structure), that likely marked the death of an important inhabitant (Hodder 2006: 129–33).

One also notes the stylistic and scalar variability of the projectiles, both diachronically and synchronically; differences that we do not consider to be related to functionality alone. On the basis of ethnographic parallels, we argue that the wielding and use of these weapons was closely related to the creation, maintenance and expression of social identities, such as age grade status, kin group and ethnicity (cf. Wiessner 1983; Larick 1991; Bayman 1995: 53–54). Furthermore, the technical and stylistic elaborations of these weapons make them eminently appropriate media for the conveyance of social information (cf. Gero 1989). Their idiosyncratic forms and sizes would have facilitated their recognition, as being associated with specific people, places and events, for example as the weapon that brought down a particular leopard/bull/warrior. In the Aceramic Neolithic at Çatalhöyük we even have examples of obsidian points with designs inscribed upon them, the so-called ‘Canhasan III’ types (Ataman 1986; Carter et al. 2005a: 277), a further means of distinguishing the projectile and its owner. A weapon could also be individualised by hafting and fletching. We imagine that these weapons played a dynamic role in the lives of the Çatalhöyük inhabitants, above and beyond their use in hunting and interpersonal conflict. Through the bearing of these weapons *in* the settlement, perhaps at specific communal events or more private indoor gatherings, we envisage these projectiles having been employed to signal a series of meanings to those who viewed them. One can perhaps best imagine this at the more personal level, where the passing around of a treasured and long-lived spear would form a tactile



Fig. 5. Six obsidian projectiles from the final infilling of Building 52 (4040 Area, Level VI) (photo Tristan Carter)

device for the relaying of a narrative, the listeners reliving the stories of ancestors, owners, hunters and fighters – the prick of a broken edge, the sheen of the oiled bindings, the rustle of the vulture-feathered fletching, sensorial referents to a famed past, the blood spilled, the characters made, the links from now to then, from us to them...

The fact that two of the four projectiles with incised decorations came from Early Neolithic and Early Chalcolithic strata that post-date their Aceramic Neolithic production by hundreds of years (Carter et al. 2007) might suggest that some of these weapons enjoyed extremely long lives, being passed down through the generations, and thus, by extent, making points poor chronological markers for the archaeologist.

While variable in form, these projectiles embody a carefully structured and constant tradition with regard to their production, or rather their coming-into-being. While the technical specifics and raw materials changed throughout the Neolithic, it remains the case that points were always made on non-locally produced blanks, the preforms having been procured from specialist quarry-based workshops. During the Aceramic Neolithic (Level Pre-XII.D–XII) these blanks were in the form of opposed platform blades made of East Göllü Dağ obsidian, after which we have hoards of unfinished bifaces from Level X–VII (earlier Early Ceramic Neolithic) that were made at the Kaletpe (Sector M) workshop atop the Kömürçü outcrop on the eastern flanks of Göllü Dağ (Cauvin, Balkan-Atlı 1996: 257, fig. 7.1-2; Carter et al. 2005b; Carter 2007). During the later Early Ceramic Neolithic (post Level VI.B), we witness a major shift in projectile type, with the reintroduction of opposed platform blades, albeit this time from skilled ateliers on Nenezi Dağ, occasionally supplemented by technically analogous products of East Göllü Dağ obsidian.

While the blanks for Çatalhöyük's points were made off site, their final transformation (birth) occurred on site. During the earlier Early Ceramic Neolithic this seems to have occurred in most buildings, with the rich knapping detritus from the 'dirty areas' of these structures including hundreds of tiny flakes removed in the process of thinning and shaping the Kaletepe biface preforms. For the latter part of the Neolithic sequence, it is less clear as to how widespread projectile manufacture was; we have the feeling that they may have been produced only in certain structures. Recent work by my colleague Marina Milić has described at least two instances of *in situ* projectile modification in Buildings 75 and 56 in the South Area (Levels V and III), evidenced by preformed/broken points on thick opposed Nenezi Dağ platform blades accompanied by hundreds of fine flakes from retouching (Carter et al. 2006b; 2008b).

To conclude, whether all the above modes of procurement, distribution and consumption can be lumped together under the rubric of 'ritual' is debatable. It does seem quite apparent, however, that in *certain forms* and at *certain times and places*, 'obsidian' was important to the people of Çatalhöyük in ways that transcended the material's utilitarian/quotidian significance.

### **Is it true that the Çatalhöyük obsidian industry was 'homogeneous' through time?**

In this section I will discuss the alleged homogeneity of the Çatalhöyük chipped stone. This was the view propounded in the 1960s by Bialor after only one season of excavation and essentially repeated by Mellaart at the end of the fourth season – by which time a sondage had taken them through a millennium of occupation down to Level XII – when he described how the early material showed 'no break in the cultural pattern' (Bialor 1962: 67; Mellaart 1966: 169).

A major reassessment of these claims was produced by James Conolly in the late 1990s in his detailed study of the 'Mellaart material' during the early years of the Çatalhöyük Research Project (Conolly 1996; 1999a). Conolly argued that there was in fact clear evidence for a 'profound change' in how obsidian was worked after Level VI.B (about halfway through the occupation sequence), with a shift from flake- to blade-based industries and a concurrent transformation in blade technology from percussion to pressure-flaking, with the organisation of production becoming a more exclusive affair (Conolly 1999b). This shift to pressure-flaked blade production was allegedly related to contemporary agricultural intensification (which required a more appropriate toolkit), while at the same time it represented a practice that facilitated the creation of social distinction within the

community. The latter argument was based on a wealth of literature that documents the highly skilled nature of this technology (cf. Crabtree 1968; Tixier 1984; Pelegrin 1988) and the potential social ramifications for the adoption of a craft that patently lends itself to specialisation (cf. Clark 1987).

The subsequent publication of the 1995–1999 excavation material, in conjunction with our major new obsidian sourcing programme, led to a significant addition to Conolly's arguments (Carter et al. 2005a; 2005b; 2006a). I shall now offer a précis of our current thoughts as to the organisation and nature of obsidian procurement and working at Çatalhöyük during the Neolithic. The temporal structure employed should not be taken as a reflection of absolute divides; it merely serves a heuristic purpose.

### *Level Pre-XII.D to Level Pre-XII.C*

On the basis of elemental characterisation and visual discrimination, it is estimated that in excess of 95% of the obsidian from these earliest Aceramic Neolithic levels (second half of the eighth millennium BC) came from East Göllü Dağ, the remainder from Nenezi Dağ (Carter et al. 2005a; Poupeau et al. 2010). Much of the former material has a black-blue hue, which makes us believe that it came from the Kömürcü outcrop. The East Göllü Dağ material was consumed through a range of technologies and likely procured in various forms. While genuine unmodified raw nodules of obsidian have never been recovered at Çatalhöyük, one of the primary means by which the raw material entered the site was in the form of relatively large, thick, part-cortical flakes, sometimes modified into scrapers, occasionally with heavy percussive use-wear. We think that these 'quarry flakes' might be ancient detritus from the surface of the renowned ninth millennium BC Kaletepe blade workshop, specifically large core shaping/nodule reduction flakes that were collected a millennium later as a form of 'raw material'. These thick blanks were then reduced back at Çatalhöyük, the knappers using a low-skilled percussive technique to produce small, unstandardised blade-like flakes. East Göllü Dağ obsidian was also brought to the site in the form of unipolar pressure-flaked microblade cores, whose modified microlithic products (asymmetric trapezes *inter alia*) represent part of a local Epi-Palaeolithic knapping tradition, as attested, for example, at nearby ninth to eighth millennium BC sites such as Pınarbaşı and Boncuklu Höyük (Baird 2006; 2007a; 2007b). Unfortunately, with the archaeology of Level Pre-XII.D–A all in the form of midden deposits, we have no idea as to where on site these technologies were performed and, by extent, the organisation of production.

Another distinct *chaîne opératoire* involving the consumption of East Göllü Dağ obsidian is represented by a small quantity of blades knapped by percussion from opposed platform cores. This technology has a very different heritage to that responsible for microblade manufacture, being a quintessential feature of the central Anatolian Aceramic Neolithic and the Pre-Pottery Neolithic world of the Levant more generally (cf. Balkan-Atlı 1994b; Wilke, Quintero 1994; Cauvin 2000: 78–80; Balkan-Atlı, Binder 2001). The material is represented by the full range of blade products (initial series to *plein débitage*), plus a few platform rejuvenation pieces suggesting that some of the community were at the very least procuring preformed cores and then knapping them on site, though recognisable nuclei are absent. Amongst the various uses of these skilled blades was projectile manufacture.

Interestingly, these early strata also contained a handful of products relating to the same opposed platform technology, but made from Nenezi Dağ obsidian and only in the form of blades, suggesting they were made off site, perhaps at source. Finally, there is a small quantity of unipolar prismatic blades from these early strata, all of which are made of East Göllü Dağ obsidian and appear to have been procured ready-made.

#### *Level Pre-XII.B to Level VI.B*

From Level Pre-XII.B onwards (later Aceramic Neolithic) we lose both the microblade/microlithic tradition and the large opposed platform blade technology. It is the manufacture of percussion blade-like flakes from East Göllü Dağ obsidian that now dominates and continues into the Early Ceramic Neolithic (ca Level XII–VI.B). ‘Quarry flakes’ continue to be imported, and from Level X they represent a recurrent component of sub-floor caches (see above; Carter 2007), the thick flakes again coming from the Kaletepe outcrop on East Göllü Dağ.

Circulating alongside these blanks (and found together in hoards) are large unfinished ovate bifaces made from the same raw material, produced at the Kaletepe ‘Sector M’ workshop (Cauvin, Balkan-Atlı 1996). These ‘quarry flakes’ and projectile preforms were then reduced/finished inside the buildings, immediately next to where they had been buried, conceivably worked by the same knappers.

Nenezi Dağ obsidian continued to form a minority component of these assemblages, usually represented by ready-made specialised unipolar blades, many of which were used to make projectiles. Blades of a similar technology are also occasionally represented in East Göllü Dağ obsidian, again seemingly imported as final products.

#### *Level VI.A to Level 0*

After our first large characterisation study we argued that Conolly’s proposed shift from flake to blade technologies halfway through the Neolithic sequence was part of a larger reorganisation of production, with a concurrent move from reliance upon East Göllü Dağ obsidian to a dominance of Nenezi Dağ products (Carter et al. 2005b; 2006a). Indeed, we move from a situation in Level VII–VI (later Early Ceramic Neolithic) where there is almost a 50:50 ratio between the two raw materials (based on an analysis of 120 artefacts) to over 95% of the obsidian from Level IV deposits coming from Nenezi Dağ, i.e. a complete inversion of what we have in the Aceramic Neolithic assemblages (Carter et al. 2006b; Carter, Shackley 2007: fig. 7). From this point onwards the data are less clear, as none of the obsidian from the uppermost strata of the Team Poznan excavations has been characterised (late seventh millennium/early sixth millennium BC). We do know that by Early Chalcolithic I–II we seem to have reverted to a 50:50 ratio between East Göllü Dağ and Nenezi Dağ products (based on ca 200 analyses). However, the pace of change will remain unknown until we analyse material from Level III–0.

During the later Early Ceramic Neolithic (Level VI.A upwards) we have a radically different type of obsidian assemblage to the preceding strata, with the collection primarily composed of blades and related production debris. Dominant are unipolar technologies, mainly using Nenezi Dağ obsidian, with both pressure-flaking and skilled percussion traditions attested. There is also a small amount of blades made from East Göllü Dağ raw materials, albeit no longer the blue-black type we associate with Kaletepe, but a translucent purple-grey variant, possibly from the Bitlikeler locale on the East Kayırlı outcrop (Poidevin 1998: 115–21; Balkan-Atlı et al. 1999: 136–37). While these later assemblages contain exhausted cores and rejuvenation material (for example core tablets), we lack the initial stages of the reduction sequences of these blade technologies. Aside from the typical absence of blanks with cortex/natural surfaces, we are also missing the important stages pertaining to the initiation of blade removal. Given the length of these cores (6–12cm), we know that the nucleus would have required cresting in order to facilitate the removal of the first blades, a process that is appreciated to be one of the most difficult aspects of an already highly skilled technique (cf. Crabtree 1968: 451). With these distinctive crested pieces missing from the Çatalhöyük assemblages it can be suggested that the community was in the habit of procuring preformed and part-initiated blade cores from off site, again conceivably from specialist quarry-based workshops (cf. Balkan-Atlı et al. 1999).

Finally, we have also recovered handfuls of finely made blades from large opposed platform cores, a technology whose products were last attested in the Aceramic Neolithic levels. These implements are made almost entirely of Nenezi Dağ obsidian and represent the blanks for projectile manufacture (the biface preform tradition having been lost ca Level VI.B), with unmodified examples attested in hoards (Conolly 2003; Carter 2007).

In sum, this brief diachronic review is intended merely to demonstrate that the Çatalhöyük obsidian assemblages are far from homogeneous through time. At any one period they embody numerous *chaînes opératoires* that involve two main raw materials being consumed in a variety of ways, their end products enjoying different uses and values.

### **What can the Çatalhöyük obsidian tell us about daily practice and craft?**

While this paper has discussed what the Çatalhöyük obsidian tells us about the community's off-site relations, technical traditions and the organisation of production, symbolic behaviour and value regimes, we should not forget the fact that we are also dealing with a range of tools that were employed in daily household practices and craft-working. Admittedly, much less time has been dedicated to considering the more quotidian, functional aspects of the Çatalhöyük obsidian. This is largely due to the fact that most of the chipped stone comes from secondary contexts, whereby a detailed contextual analysis of obsidian tools/faunal remains/craft debris is often impossible. The basis of our archaeological problem is the manner in which the buildings at Çatalhöyük were abandoned. Over the past decade we have come to appreciate that there were regimented practices (rituals) surrounding how a building's life was ended, commencing with the careful removal of all material culture prior to structural dismantling. This involved more than the curation of useful objects; it was an intense cleaning of all surfaces whereby even the micro-detritus from our water-sieved floor samples rarely shed a clear light upon the activities that occurred in these buildings – including those which used obsidian (Cessford with Mitrović 2005). Of course there are the burnt structures where we do find significant quantities of *in situ* material culture, faunal and archaeobotanical remains, as with the recently published Building 52 (Twiss et al. 2008; 2009). Alas I do not believe that these assemblages clarify the use of obsidian in these buildings. In the 'accident or arson' debate I am a firm believer that these buildings were deliberately burnt as part of the abandonment rituals, viewing many of the

finds as carefully staged props in a theatrical performance rather than representing a moment of a Neolithic structure's life captured in time.

In general terms, the evidence from the earlier strata (Level X–VIB) suggests that the occupants of each building were making their own simple tools for such daily/annual household tasks as preparing food (cutting meat and plants) and clothing (piercing hides, cutting fibres). Moreover, the distribution of more specialised implements, such as projectiles and sickles (made from non-local obsidian and chert blades that were shaped on site), is quite even, suggesting that members of the social group inhabiting these buildings were hunting and harvesting. The use of obsidian in butchery practices – whether of wild or domestic animals – has until recently been less clear, with 'the overall incidence of cut marks (0.2 per cent) quite low' (Russell, Martin 2005: 85), though experiments suggest that a skilled butcher using razor-sharp obsidian will only occasionally mark the bone (Dewbury, Russell 2007). That said, the early inhabitants were only making small and irregular obsidian implements that did not offer long or straight working edges. One thus wonders if such special acts such as butchery – or the decapitation of an ancestor – were the preserve of more specialised non-locally manufactured tools, such as the large chert 'butcher's knife' from the burial in Building 50 (see above), implements whose exotic origin, skilled crafting and distinctive form made them appropriate equipment for such meaning-laden events as the butchery of an auroch or the disinterment of a revered relative.

Alongside the post Level VI.B adoption/arrival of new skilled and exclusive modes of obsidian working (see above), we also see the emergence of more specialised crafts. We also view a far higher proportion of formal 'tools' made on locally knapped products (such as backed and notched blades), plus the reappearance of large scrapers made on large rejuvenation flakes imported from Nenezi Dağ opposed platform blade workshops. Milić has focused on some of the more specialised tasks performed in these later levels, such as the use of 'carving tools'. These are blades with intensive grinding of one or both edges, a form of wear that we associate with cutting stone (see also Conolly 1999a: 50), specifically the incision of lines on some of the rare stone figurines of these later levels (cf. Nakamura, Meskell 2009: fig. 1). The use of obsidian blades to work stone can be viewed as a tradition that was introduced alongside pressure-flaked blade production from southeastern Anatolia (Carter et al. 2008a: 906). Indeed, from the same strata we have local examples of 'Çayönü tools' (Carter et al. 2006b), highly distinctive double-backed/waisted blades that were used for stone carving in southeastern Anatolia

and the northern Levant during the Aceramic and Early Ceramic Neolithic (cf. Caneva et al. 1994: 254–259, fig. 4.12; Özdoğan 1994: 271, fig. 2). Alas, our carving tools are mainly from secondary contexts such as middens; thus, while the stone carvers of Çatalhöyük might have been a select group, we have little idea as to where they plied their craft.

Another context does, however, provide us with good evidence to support the theory that craft-working was organised on a more exclusive basis in the later Neolithic (cf. Conolly 1999b), with a mass of bead-making equipment from Building 75 in the South Area (ca Level V). Here, Milić has detailed the manufacture of chert microblades that were then retouched into pointed implements for drilling suspension holes through stone beads, with a number of blanks found in the same context (Carter et al. 2008b). This concentration of drills and bead blanks is unique, suggesting this craft was not organised at the level of small social groups, but performed by specialists who supplied a wide range of community members across the site.

### Final thoughts

There is not much more that I wish to add at this junction in what has become a far longer review than was originally intended. While general long-term patterns have been elucidated and/or suggested, it remains that a great deal of nuance still needs to be teased out of the archaeological record. For instance, we need to produce more subtle distinctions with regard to what was happening in contemporary buildings. In turn, I have continued to provide the impression that changes in raw material procurement and technology were quite rapid and clearly demarcated; this we are beginning to appreciate might not quite be the case, and it is something we are currently investigating, not only with regard to the pace of change, but also to *where* these changes occurred. Preferential access to new technical practices would have been an important means of creating and expressing social distinction (Conolly 1999b), i.e. we should not assume that a technology such as pressure-flaking was introduced to every social unit at Çatalhöyük simultaneously (Carter, Shackley 2007: 449–51).

Concerning other research lacunae, a detailed consideration of tool use is long overdue. While functional studies continue to improve in their methodological approaches and archaeological applications, be that via microscopic analyses of use-wear (cf. Astruc 2002; Coşkunsu 2008) and/or the study of residues, proteins and DNA (Hardy et al. 1997; Shanks et al. 1999), one is perpetually faced by the problem that at Çatalhöyük most tools come from secondary contexts. As such, future projects might either commence with those few well-

preserved *in situ* assemblages or query long-standing morpho-functional assumptions, i.e. that ‘scrapers’ were indeed used to scrape and that ‘projectiles’ were in fact used as spearheads and arrowheads, etc. The question of projectile function and the discrimination between spearheads and arrowheads are of particular interest to the project due to the high profile of these implements (see above); at the time of writing, a doctoral research project has just been initiated on the subject by Lilian Dogiama.

In turn, we really need to address the long-term bias towards obsidian studies at Çatalhöyük; while the ‘flint’ never exceeds 7% of a level’s assemblage on the East Mound (Carter et al. 2005a: 221–22, fig. 1), the artefacts themselves tend to be skilled products that were often employed in socially significant practices, some of which have been detailed above. It pains me to admit that for the first decade of the project we added virtually nothing to Mellaart’s original assertion that the community’s ‘flint’ likely came from southeastern Anatolia (Mellaart 1967: 213). Indeed, over the past 40 years it remains that *none* of the raw materials employed to make these artefacts has ever been provenanced. Recently, steps have finally been taken to characterise, and then provenance, Çatalhöyük’s various cherts and radiolarites whose varied colours, textures and modes of consumption suggest a potentially diverse range of geological sources and community intermediaries (Carter et al. 2007; see also the work of MacDonald in Carter et al. 2008b). These research questions are also now being asked in the context of another PhD project (Nazaroff 2010).

Amongst a number of other ongoing projects, we need a clearer understanding of the relationship between the modes of consuming obsidian in the latest levels of the East Mound and the earliest strata of the West Mound. With regard to raw materials, characterisation studies suggest that in Level IV–II Nenezi Dağ obsidian comprises up to 87% of the obsidian assemblages, yet by Early Chalcolithic I–II the ratio between the products of our two major southern Cappadocian sources is approximately 50:50. Hopefully, the forthcoming publication of the uppermost strata of Çatalhöyük East and the investigation of the basal levels of Çatalhöyük West will allow us to detail the pace and nature of these changes (cf. Marciniak, Czerniak 2007). We also wish to understand more clearly the major changes in projectile technology by the sixth millennium BC (through contextualisation with faunal remains), with small trapezoidal points virtually the only form of point documented on the West Mound (cf. Rosen 1997: 39–44, fig. 3.2).

Over the past 15 years an enormous amount of intellectual energy has been spent on grappling with one of the most complicated data-sets that I have ever come across. The Çatalhöyük chipped stone is wonderfully

complex, with a wide variety of raw materials being consumed by multiple technical traditions at any one time. Some of the distinctions are clear, while others are remarkably subtle (such the later unipolar blade technologies), requiring new approaches, meticulous recording and fresh eyes. I feel that we have only very recently gained a clear vision as to the nature and organisation of chipped stone tool production at Çatalhöyük. As such, the next five to ten years should see the project reaping rich rewards from this material, as our comprehension of the material's basic characteristics permit us to engage in more socially-driven questions concerning practice, tradition and inter-personal relations amongst members of this remarkable community across some 2,000 years of prehistory.

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