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A Green Obsidian Eccentric from Actun Uayazba Kab, Belize

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Introduction

Green obsidian artifacts, although comparatively unusual in the Maya lowlands, are not rare finds, for the most part. Based on their distinctive “translucent bottle green to green-black to a chatoyant shimmering golden-green” color (Ponomarenko 2004: 79), these artifacts are usually assigned to the Pachuca source in Central Mexico and have been primarily sourced visually (Santley 1983; Spence 1996; Moholy-Nagy 1999, 2003; Moholy-Nagy and Nelson 1990: 71). The Pachuca source has been variously known as Sierra de Pachuca, Sierra de las Navajas, Cerro de las Navajas, Cruz del Milagro, Huasca, Cerro de Minillas, El Ocote, and Rancho Guajalote (Cobean et al. 1991: 74) and the flow zone is now recognized as being composed of numerous sub-source areas (see Tenorio et al. 1998; Argote-Espino et al. 2012). Moreover, green obsidian may also originate from Tulancingo (El Pizzarin) or, less likely, Rancho Tenango, although this material is distinguished by a coarser texture and generally opaque black or grey coloring with a green tinge (Cobean et al. 1991: 74-75; Spence 1996: 22).

Green obsidian artifacts recovered throughout Mesoamerica, most commonly in Central Mexico, are typically thin lanceolate bifaces, thin stemmed bifaces, prismatic blades, and small eccentrics (Santley 1983; Spence 1996; Tolstoy 1971; see Clark 1986: 64). Throughout the Maya lowlands, they have been found at a number of sites, both large and small, in almost all regions (Figure 1), including southern Mexico and the Yucatan Peninsula – Becan (Rovner 1975; Rovner and Lewenstein 1997: 30, 39), Tonina (Sheets 1977: 147), Edzna (Nelson et al. 1983), Dzibilchaltun (Rovner and Lewenstein 1997: 40), Chichen Itza (Rovner 1975: 107-108; Braswell and Glascock 2002), Isla Cerritos (Andrews et al. 1989: 361, Table 4; Braswell and Glascock 2002), and Mayapan (Proskouriakoff 1962: 369ff); throughout Guatemala – Tikal (Coe 2008: 34; Moholy-Nagy 1975; Moholy-Nagy and Nelson 1990; Moholy-Nagy et al. 1984), Uaxactun (Kidder 1947: 10-11, 15, 24; Smith 1950: 104), Piedras Negras (Hruby 2006), El Mirador (Nelson and Howard 1986), Cancuen (Kovacevich et al. 2007: 1242), Kaminaljuyu (Kidder et al. 1946: 31, 138, Fig. 157a, c, f), Balberta (Bove 1990; Carpio R. 1993), La Sufricaya (Estrada-Belli 2003: 13), and Dos Pilas (Palka 1997); in Belize – Chaac Mool Ha (Braswell 2007: 104, 106), Nohmul

(Hammond 1985; Hammond et al. 1987), Pacbitun (Healy 1990: 259-260, 1992), Altun Ha (Pendergast 1971, 1979, 1990: Figs. 120-122), Caracol (Chase and Chase 2011: 10, Figs. 4-5, 12), Marco Gonzalez (Graham and Pendergast 1989), Wild Cane Cay (McKillop 1989: 45-46), and Putilha (Braswell et al. 2008: 58, Fig. 5); and into Honduras at Copan (Aoyama 1999, 2001a; Webster 1999), to name but a few. At these sites, green obsidian artifacts have most frequently been dated to either the Early Classic (AD 250 – 550) or the Terminal Classic to Early Postclassic transition (AD 900 – 1200); however, some examples are known from other time periods as well. The Early Classic specimens are attributed to the interaction of the lowland Maya with the central Mexican site of Teotihuacan, whereas those dated to the later periods are primarily the result of socio-economic and socio-political relationships with the so-called Toltec populations via the Yucatan Peninsula (Andrews et al. 1989; Pendergast 1990, 2003; Spence 1996; Cobean 2002: 41; Braswell 2003; Pastrana and Domínguez 2009).

Most of the artifacts from the Maya lowlands and Pacific piedmont are prismatic blades and stemmed bifaces of various types excavated from ritual deposits such as burials and caches (Spence 1996). Nevertheless, at Tikal and Balberta, green obsidian blades have been recovered from domestic contexts, in addition to caches and graves (Demarest and Foais 1993: 164) and, at Copan, the majority of the green obsidian is found in domestic middens and construction cores. Most of these blades were used for basic utilitarian tasks based on microwear analysis (Aoyama 1999: 107). However, green obsidian eccentrics are much rarer, having only been found at Tikal and Altun Ha, and green obsidian artifacts of any kind recovered from cave contexts are almost unheard of. Exceptional cases include the proximal end of a green obsidian blade that was recovered from Glenwood Cave in the Sibun Valley of Belize (Peterson 2006: 72), and the two green obsidian bifaces or points recovered from Tiger Cave in the Sibun Valley (Peterson 2006: 72-73, Fig. 4.2) and Midnight Terror Cave in the Roaring Creek Works of Western Belize (Brady 2009).

Typically, eccentrics of both chert and obsidian are recovered in association with stelae, altars or temples in dedicatory caches, although they may also, but rarely, be found as grave goods (Hruby 2007: 76; Iannone 1992: 252-253; Iannone and Conlon 1993: 81; Meadows 2001:

73, Table 3.1, 83, Table 3.2, 90, Table 3.3; see Pendergast 1971, 1979, 1990). At Colha, some chert eccentrics were found in workshop middens and in some domestic contexts, but most of these are fragmentary and may have been discarded pieces (Meadows 2001: 83). Eccentrics in caves are essentially unheard of, with the exception of the chert eccentric found at Naj Tunich (Brady 1989: 310, 311, Fig. 6.16a). Consequently, the discovery of a small eccentric made from Central Mexican green obsidian at Actun Uayazba Kab, a limestone cave in the Roaring Creek Valley of the Cayo District of west-central Belize, is highly remarkable.

Description of Actun Uayazba Kab

The site of Actun Uayazba Kab was discovered as part of the investigations of the Western Belize Regional Cave Project in the upper Roaring Creek Valley, under the direction of Jaime Awe, in 1996. Actun Uayazba Kab has the distinction of being the cave that exhibits that greatest degree of variation in rock art, discovered to date, in a single site in Belize. Included in the site's corpus are negative handprints, pictographs rendered in charcoal, crude sculptures executed on speleothems, a row of petroglyphic footprints carved into flowstone, as well as a panel of geometric petroglyphs and a series of simple petroglyphic faces that accentuate the orbits and buccal areas (see Helmke and Awe 1998, 2001; Helmke et al. 2003). Actun Uayazba Kab, is located just over 500 m south of the by now well-known Actun Tunichil Mucnal, and approximately 400 meters west of Cahal Uitz Na. The latter is a large surface site containing several slate and limestone monuments (Awe and Helmke 1998; Conlon and Ehret 1999; Helmke 2009: 261-282). The entrance to Actun Uayazba Kab consists of two interconnected "chambers" that are sub-divided by a large stalagmitic column (Figure 2). One of these open chambers lies to the north and the other to the south of the column; they were designated as Entrance 1 and 2 respectively. Both entrances face east. Since Entrances 1 and 2 penetrate less than 10 m into the cliff and since their ceilings are over 12 m high, most of the entrance area is illuminated by daylight, save for a few recessed alcoves and tunnels that are penumbral. Given the small surface area of the entrances, the cave broadly resembles a rock-shelter more so than a cavern. The only area of the cave that is devoid of all light is the interior of the cave proper that extends west of the stalagmitic column that divides the two entrances.

Both entrances, particularly the northern entrance, were decorated with a variety of petroglyphs, sculpted faces, and



Figure 1. Map of Maya sites mentioned in the article, with Teotihuacan and the Pachuca source in the Sierra de las Navajas shown. In the inset map circles represent caves and triangles surface sites (map by Christophe Helmke).

architectural modifications. In contrast, the walls of the small and dark chambers within the cave proper contain several pictographs that include schematic drawings, four negative hand prints, and torch "tampings" (see Helmke et al. 2003: 115, 117).

The concentration of cultural remains at the entrances to the cave suggests that these areas of the site were the focus of most prehistoric activity. Apart from the pictographs and torch tampings and a cluster of faunal remains, few artifacts were discovered within the interior dark zone of the cave. The absence of artifacts in this area may be the result of the intensive looting in the years preceding our investigations, but

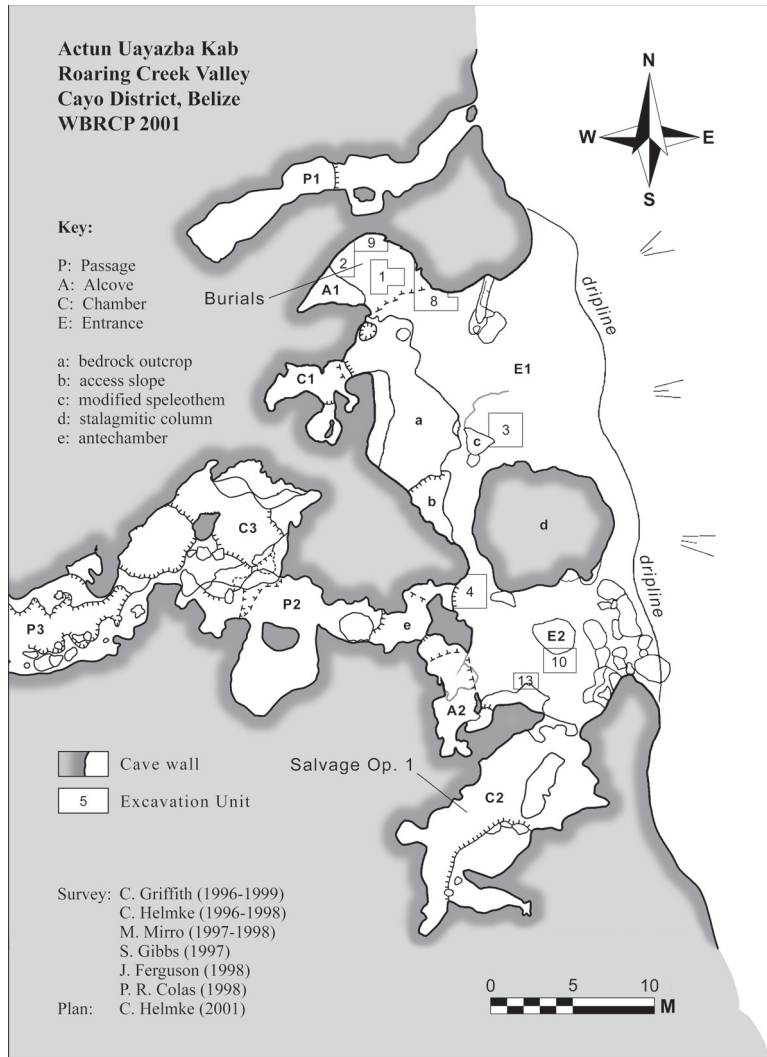


Figure 2. Plan of Actun Uayazba Kab showing the distribution of excavation units (plan by Christophe Helmke).

may also reflect genuine differences in prehistoric utilization. The faunal remains may also represent natural deposition rather than cultural features, thereby reinforcing the impression that prehistoric cultural activities were concentrated at the entrance to the cave. In keeping with the patterning noted, the eccentric was found as part of excavations of the northern Entrance 1.

Context of Discovery

The eccentric was in the northwestern alcove of the northern of the two entrances to the site within the penumbral area of the cave. This is a transitional space between the light and dark zones of the cave. The area was a focus of excavation efforts since initial reconnaissance of the site in 1996 identified a series of shallow looters' pits, wherein fragmentary human remains were clearly visible in the associated spoil heaps. Thereafter, during formal investigations at the site between 1997 and 1998 a series of 4 contiguous

excavation units (Units 1, 2, 8 and 9) were established in this alcove, which led to the discovery of 7 burials, that can be described as inhumations, although these may represent the remains of sacrificial victims (Gibbs 1998, 2000; Griffith 1998: 38-39; Ferguson and Gibbs 1999). As part of the excavations it was found that the northern entrance of Actun Uayazba Kab had been plastered over by two floors, thereby architecturally accommodating the natural setting of the cave. Specifically, the eccentric obsidian was peripherally associated with Burial 98-2 and was found in Level 4 (below the level of both floors), within the eastern extension of Excavation Unit 8 (see Ferguson and Gibbs 1999: 119). Analysis of the skeletal remains found that Burial 98-2 was a primary interment of an adult woman, approximately 20 years of age. The body was laid in a prone, semi-fetal position (flexed at the knees), with hands crossed at the pelvis, and head facing northeast (Ferguson and Gibbs 1999: 119). Although the archaeological features of the alcove were not directly associated with any rock art, it is noteworthy that a simple pecked face, designated as Petroglyph 21, was found directly overlooking the area in question (see Helmke and Awe 1998: 158-159, Fig. 8; Helmke et al. 2003: 119).

The Eccentric

The eccentric is made on a medial prismatic blade segment of translucent green obsidian (Figure 3). The segment is trapezoidal in section. Based on the ripples of force associated with conchoidal fracture when the blade was originally punched from a polyhedral core, the 'prongs' of the eccentric are on the proximal end of the artifact, whereas the rounded, circular portion represents the distal end. In terms of its dimensions, the eccentric is 16.1 mm long; the maximum width of the distal end or 'head' is 9.9 mm, the maximum width for the proximal end or 'tail' is 11.0 mm. The maximum thickness of the distal end or 'head' is 1.5 mm; whereas the maximum thickness for the proximal end or 'tail' is 1.3 mm. The segment was produced from a blade before it was perforated or any edge retouch was undertaken.

Edge retouch is bifacial, for the most part. The blade segment was pressure flaked on both the dorsal and ventral surfaces to transform it into its current form. The notching is bifacial for the sides, but unifacial for the proximal end with the pressure flaking on the dorsal surface. The hole in the middle of the blade segment body was not ground or drilled. Instead, the perforation was most likely initially created using a punch, despite the risk of snapping the blade segment into two or more fragments, and then flaked most likely using a pressure, or possibly indirect percussion,

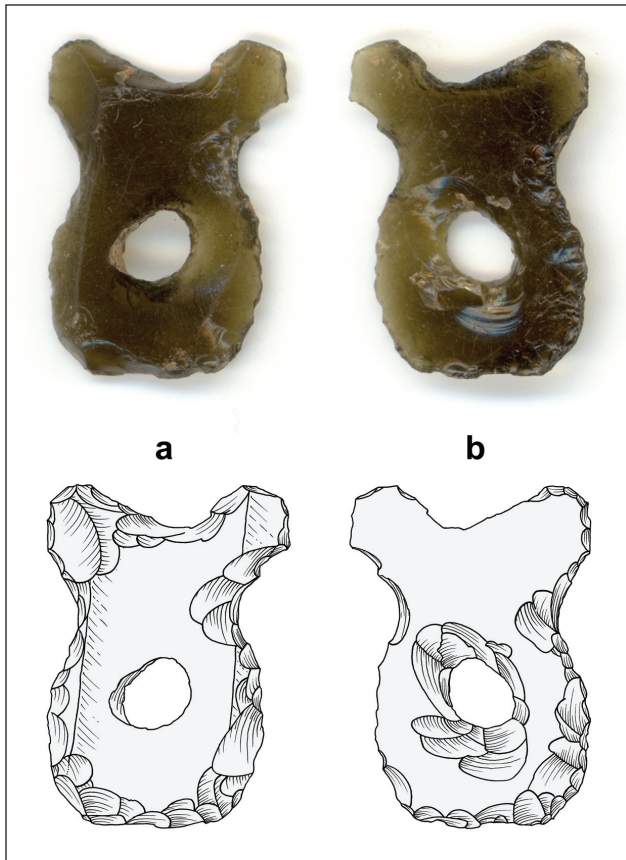


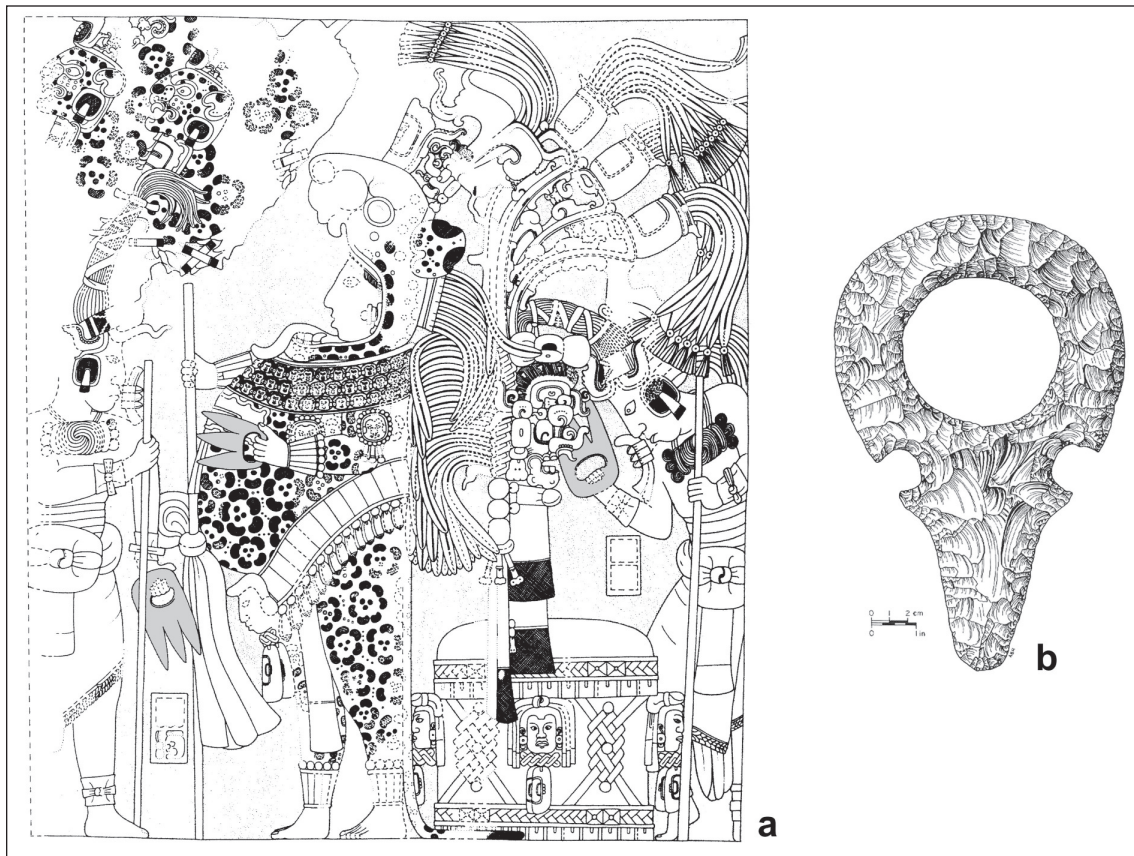
Figure 3. The eccentric found in Actun Uayazba Kab. **a)** dorsal side; **b)** ventral side (scans by W. James Stemp, drawings by Christophe Helmke).

technique applied to the dorsal surface. The flaking was unidirectional around the circumference of the hole based on the fact that all of the flake scarring is on the ventral surface around the perforation. None of this flake scarring is present on the dorsal surface. It is possible that the dorsal surface of the blade segment was partially ground or was abraded or scored first to thin the obsidian, and then it was perforated prior to being flaked. Based on the mechanics of pressure or indirect percussion flaking, the perforation must have been created such that some exposed edges were produced in order to start pressure flaking.

This technique is likely similar to that described by Kidder et al. (1946: 138) for the 61 ‘flake sequins’ from the medial segments of green obsidian blades at Kaminaljuyu (Sheets 1977: 142).

The technical skill involved in obsidian production, including the manufacture of eccentrics, is argued to be quite high (Hruby 2007: 74-76; see also Meadows 2001: 133) and

Figure 4. Examples of so-called “knuckle-duster” eccentrics. **a)** Three individuals wielding trident eccentrics (highlighted), detail of Lintel 2, Temple 3 (Str. 5D-3-1st), Tikal (drawing by William Coe). **b)** Chert eccentric from Altun Ha, Belize (drawing by Amy B. Henderson, published in Whittaker 1994: 48, Fig. 3.20).



is well demonstrated by the work of Gene Titmus (Titmus and Woods 2003); however, the eccentric from Actun Uayazba Kab would not have been an extremely difficult object to make for a reasonably good knapper assuming s/he was not responsible for initial core preparation and maintenance or platform preparation of the core from which the blade used to make the eccentric was struck (see Hruby 2007: 74; Crabtree 1968). The only difficult part would have been the creation of the hole in the center of the eccentric. This eccentric is clearly not as elaborate as some of the intricately flaked specimens, for example those from Quirigua and Copan (Morley 1956: 421, Pl. 102e; Agurcia Fasquelle and Fash 1991) or some of the large chert specimens from Altun Ha, Colha, and Lamanai (Meadows 2001). In fact, most eccentrics produced on obsidian tend to be relatively small artifacts and are not as complex in their design or difficult in their execution compared to others (e.g., Coe 1959, 2008; Hruby 2007; Iannone 1992; Coe 2008). Excellent examples of this on green obsidian are the so-called ‘little green men’ from Altun Ha (Pendergast 1971, 2003: 238-240, Fig. 9.1). Despite this observation, the esoteric knowledge and possibly ritualized nature of obsidian eccentric production was likely passed down from craft-person to craft-person and may have been closely guarded within particular workshops from the rest of the population, perhaps in association with status differentiation (Hruby 2006; 2007: 71-74; see Clark 1989: 305 for Lakantun Maya arrowhead production). As stated by Meadows (2001: 133): “The iconography embodied in these forms illustrates that [...] crafters possessed an intimate knowledge of the linkages between their own surroundings, important historical events, and the cosmological underpinnings of the Maya universe.”

In relation to better-known eccentrics found at other lowland Maya sites, the one from Actun Uayazba Kab can be superficially compared to so-called “knuckle-duster” eccentrics, which entail a perforated circle that is topped by a series of pointed prongs or triangular serrations (see Meadows 2001: 160, Ill. 5.1, 161) (Figure 4). At Tikal, this type of eccentric has been labeled as Type 4A (see Moholy-Nagy 2008: Figs. 1-26; also see Coe 1959: 21, Fig. 18d for Piedras Negras; Morley 1956: 421, Pl. 102a for El Palmar) and examples are known of this type of eccentric in Classic Maya iconography (Follet 1932: Figs. 31, 32; Morley 1937-1938: 226-234, 1956: 394, Pl. 91; Ricketson and Ricketson 1937: Fig. 118h; Satterthwaite 1954: Fig. 11). Somewhat similar forms from Northern Belize are also classed as ‘barbed and serrated rings’ (Meadows 2001: 165-166). If this comparison is viable, this would imply that the example from Actun Uayazba Kab is essentially a miniature form, or effigy, of the larger “knuckle-duster” eccentrics.

Nevertheless, the possibility remains that the Actun Uayazba Kab eccentric may be better related to another artifact class entirely. In particular, the eccentric can be aptly compared to a particular set of small shell *adornos* that essentially seem to represent the frames of Day Sign cartouches of the Tzolkin calendar (Figure 5a). Artifactual examples have been found at several Maya sites, including

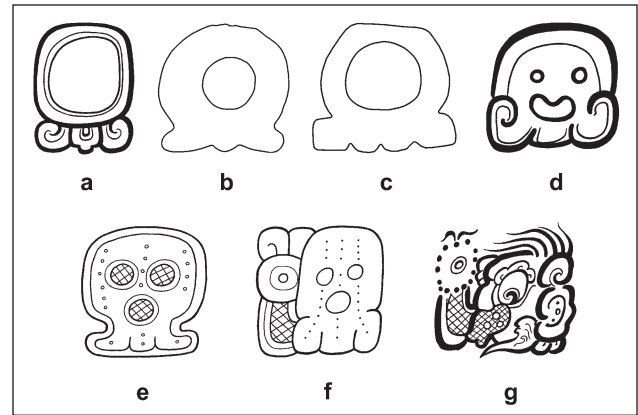


Figure 5. Possible epigraphic and artifactual counterparts to the eccentric from Actun Uayazba Kab. **a)** The frame of Day Sign cartouche of the Tzolkin calendar, Temple 19, Palenque; **b)** shell *adorno* from the Laberinto de las Tarántulas; **c)** matching artifact from Petroglyph cave; **d)** logogram T628, Temple 19, Palenque; **e)** logogram T543, Naranjo Stela 21; **f)** **cha-CH'AB?** ‘wax, hive’, Temple of the Cross, Palenque; **g)** the name of a quasi-supernatural entity nicknamed Casper, possibly spelled **cha-CH'AB?**, Temple 21, Palenque (drawings by Christophe Helmke).

San José (Thompson 1939: 177, Fig. 94k, 181) and Altun Ha (David Pendergast, personal communication, 1999). Possibly due to the fragility of these shell *adornos*, well-preserved examples are from several caves sites, including the Laberinto de las Tarántulas and Petroglyph Cave (Helmke 2009: 230, Fig. 4.17a-d) (Figure 5b-c).

Previous analyses of eccentrics of both chert and obsidian have led to suggestions that these artifacts are ceremonial items that served multiple functions in Maya ideological and religious systems (Iannone 1992; Meadows 2001; Hruby 2007). Iannone (1992: 249-251; Iannone and Conlon 1993: 82; see Schele and Miller 1986: 49, 73) has argued that these artifacts are symbolic depictions of ancestors and gods and, as such, were used to represent a ruler’s bloodline and were connected to ancestor worship in significant places like temples or near stelae. Similarly, Helmke (1996), Meadows (2001: 239-241), and Hruby (2006, 2007: 68) have suggested that they are effigies of deities or ancestral figures. However, based on his analysis of the large chert eccentrics from Northern Belize, Meadows (2001: 241) posits a number of additional possible uses for eccentrics based on their forms, including depictions of historical figures, personifications of particular events, abstract representations of Maya cultural aesthetics, and ritual weaponry.

Use-Wear Analysis

Using a Unitron MS-2BD metallographic microscope, we conducted an examination of the eccentric for traces of use-related wear and residues to potentially shed some light on how this artifact may have been specifically used in cave ritual activity. In his work, Meadows (2001: 259-260), using SEM and electron-dispersive spectrometry, found evidence of textile fragments and mineral residues on a small number

Table 1. Elemental composition (ppm) of UK98-OB-058 and the MAX Lab standard RGM-2.

Sample	Ti	Mn	Fe	Ni	Cu	Zn	Ga	Rb	Sr	Y	Zr	Nb	Ba	Pb	Th
UK98-OB-058	1181	957	18525	0	3	262	32	214	7	108	1019	96	-26	37	27
RGM-2	1458	324	13928	4	8	39	15	146	106	26	233	9	823	24	11

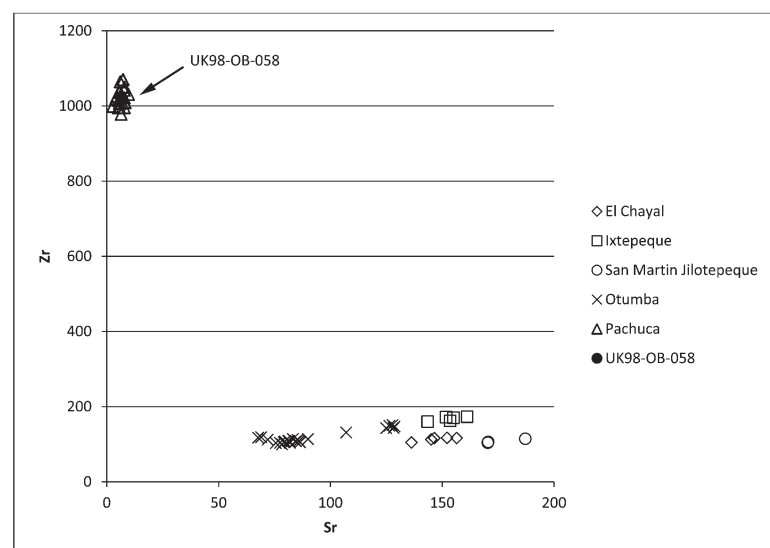
of chert eccentrics, which led him to conclude that at least some eccentrics were wrapped or bundled in fabric prior to deposition and that some were decorated (colored or painted) and therefore contained much more detail than observed on the examples in their current states (see also Agurcia Fasquelle and Fash 1991). As such, all surfaces of the green obsidian eccentric were examined under both low (40x) and high-power (200x) magnification to visually determine the possible presence of similar organic or inorganic residues. Both the dorsal and ventral surfaces of the eccentric possess large quantities of variably-sized, multi-directional sleeks and striations. Long, short, deep, shallow, wide, narrow striations all cross-cut one another in various directions that had no clear directional patterns emerge. Coupled with the presence of fairly severe pitting and edge attrition randomly distributed across both surfaces, it appears the wear on this artifact is the result of the post-depositional environment, most likely due to contact with the cave sediment and pedestrian traffic, stepping on the object as it lay in the ground (Stemp 2001: 122, 241-242, 244; Tringham et al. 1974: 182, Fig. 6, 192; Vaughan 1985: 25; see Lévi-Sala 1986, 1993). Some of this sediment is trapped in the microcracks of the flake scars on the eccentric. Whether some of this sediment contains or masks the presence of other residues or pigments is not known at this time. There are some very small patches of polished/rounded surface on the eccentric, which might indicate contact with a slightly softer material, perhaps hide, but the severity of the post-depositional scratching and surface abrasion makes this wear difficult to interpret. This evidence raises the possibility that the eccentric was carried in a bag or affixed to clothing or a leather thong, but this cannot be unequivocally substantiated.

Visual Sourcing and Elemental Characterization

Although most green obsidian artifacts from the Maya area are visually sourced based on the physical characteristics of the stone from which they are made, there is more than one source of green obsidian in central Mexico and recently there have been attempts by archaeologists to determine intrasource variation among those from different sub-sources or flows. The green obsidian for the eccentric from Actun Uayazba Kab is believed to be from the Pachuca source based on visual identification of the peralkaline raw material (Argote-Espino et al. 2012; Ponomarenko 2004); however, to be certain

elemental characterization of the artifact was conducted at the McMaster Archaeological XRF Lab [MAX Lab] as part of a larger study of obsidian assemblages from Maya sites in Belize. The analysis was undertaken using energy dispersive x-ray fluorescence spectroscopy [EDXRF], a non-destructive technique that is rapid, relatively cheap, and capable of determining elemental concentrations at the ppm level, with reproducible high-quality data. Specifically, the eccentric was analyzed by a Thermo *Quant'X* EDXRF spectrometer, having first been cleaned in an ultrasonic tank with distilled water for ten minutes. The analytical protocols and methods follow those devised by Shackley (2005, appendix; Poupeau et al. 2010).

The eccentric's elemental profile was compared to those of several geological samples from obsidian sources that were used by ancient Maya populations in Belize. These included the three major highland Guatemalan sources of El Chayal, Ixtepeque, and San Martín Jilotepeque (Río Pixcaya), as well as the central Mexican sources of Otumba and Pachuca. The distinctive high zirconium levels (1019 ppm) and low strontium (7 ppm) indicative of peralkaline obsidian (Table 1) allows the artifact's raw material to be confidently assigned to the Mexican source of Pachuca using a simple bivariate contents plot (Figure 6). The Pachuca source is now understood to comprise a number of spatially and geologically distinct flows, some of whose products were recently discriminated elementally by ICP-MS analyses

Figure 6. Bivariate Sr vs. Zr contents plot of the green eccentric (UK98-OB-058) and geological samples from major Mesoamerican obsidian sources.

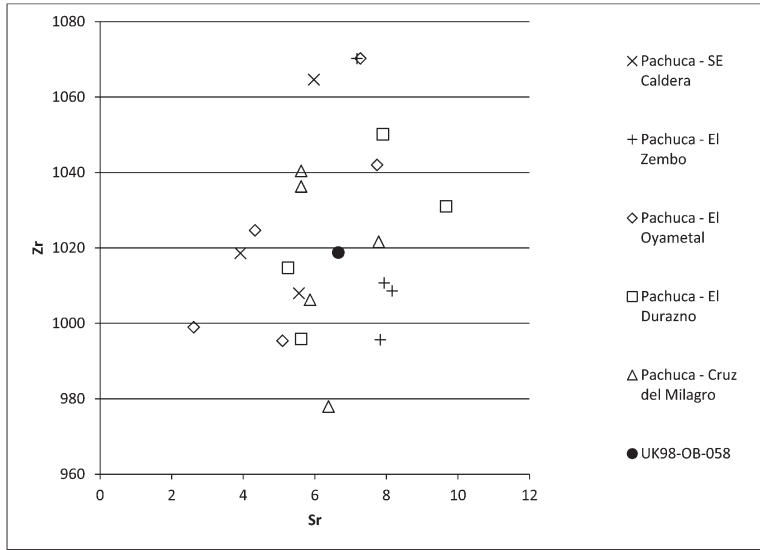


Figure 7. Bivariate Sr vs. Zr contents plot of the green eccentric (UK98-OB-058) and geological samples from the various sub-sources of the Sierra de Pachuca.

and multivariate statistics (Argote-Espino et al. 2012). Unfortunately, in keeping with the recent statement by Argote-Espino et al. (2012: 49), it is not currently possible to achieve a successful separation of these sub-source materials through the use of XRF techniques (Figure 7).

Although our EDXRF analyses failed to achieve chemical discrimination of the Pachuca sub-source materials there is an alternative approach with which we can attempt to at least remove some of the outcrops from consideration. Drawing on the analyses of Ponomarenko (2004), Argote-Espino et al. (2012) were able to determine that the distinctive green and gold obsidian from the Pachuca sub-sources El Zembo, Oyamental, El Durazno and Cruz del Milagro were associated with the Las Minas flow complex. In turn, the brownish and grey obsidian from the south-east side of the caldera derives from the Ixatla and El Horcón flows. Thus using these visual distinctions, the eccentric’s distinctive green color allows us to eliminate the area of the south-east caldera and by extent the Ixatla and El Horcón flows. On the basis of chemistry and visual appearance we thus believe the artifact’s raw material to have derived from one of the sub-sources associated with the Las Minas flow complex in the Western area of the Pachuca source (i.e., either El Durazno, Cruz de Milagro, Oyamental or El Zembo).

Discussion

Based on control over production and usage, eccentrics were often used by elites as justifications and re-affirmations of both their divine status as rulers and in the Maya socio-political hierarchy (Iannone 1992: 253-254; Iannone and Conlon 1993: 82). They may have been involved in elaborate rituals whose main purpose was to recreate certain historical or mythical events that may have emphasized connections to the gods (see Meadows 2001). As noted by Hruby (2007: 72), “This process has the recursive effect of reaffirming social

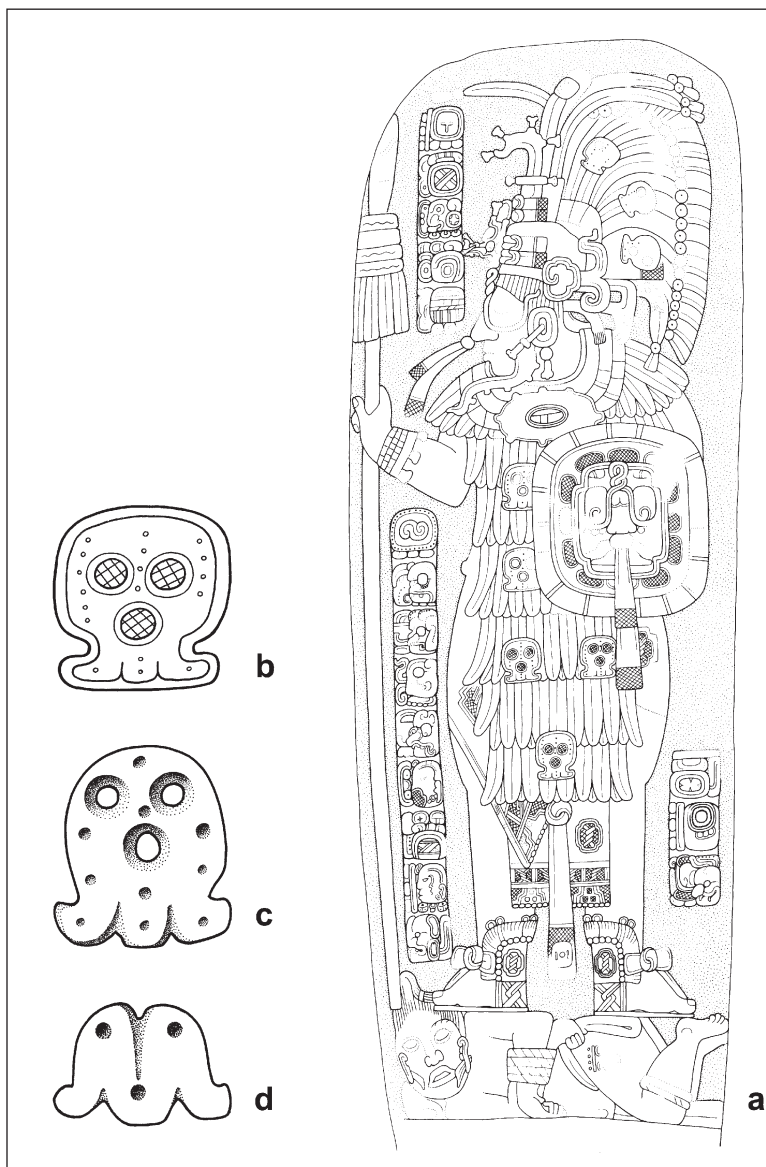


Figure 8. Shell *adornos* in Classic Maya imagery and associated artifactual examples. **a)** Stela 1 at Naranjo; **b)** item regalia of Stela 21, Naranjo; **c)** shell *adorno*, Uaxactun; **d)** shell *adorno*, Actun Uayazba Kab (a: drawing by Ian Graham; b-d: drawings by Christophe Helmke).

roles in the community and clarifying personhood and social identity” (see also Clark and Houston 1998; Joyce 2001). However, the eccentric from Actun Uayazba Kab seems to deviate from these explanations to some degree. For one, this eccentric does not appear to be a god effigy nor is it a zoomorphic or anthropomorphic object; instead, it may depict a glyphic form.

In fact, like the shell *adornos* to which the eccentric has been compared, a similar *adorno* is featured as a regalia item of Stela 21 at Naranjo (Graham and Von Euw 1975: 53) (Figure 8a-b; see also Figure 5e). The particular *adorno* featured on Stela 21 also shares the same form as the Day Sign cartouches (Figure 5a), as well as the glyphs designated as T543 and T628 (Figure 5d-f) (Thompson 1962: 155, 452). In addition to the depiction at Naranjo, artifactual examples of precisely the same type of shell *adorno* have also been found at Uaxactun (Kidder 1947: Fig. 53d1; Weiss-Krejci, personal communication, 2011) and at Actun Uayazba Kab itself (Figure 8c-d). Considering the contexts in which glyphs T543 and T628 occur in Maya writing, it is clear that these should be segregated and treated as separate signs, with T628 serving as the logogram **K’IK’** ‘blood’ (Figure 5d) (Stuart 2002). Recently, Ukrainian epigrapher Yuri Polyukhovich (personal communication, 2011) has suggested that the T543 glyph represented in these *adornos* may represent a stylized beehive, read *ch’ab* ‘wax, hive’. Part of the evidence rests on the spelling of the name of a mythical or quasi-supernatural entity cited in the texts of Palenque, which takes as its initial phonetic complement the syllabogram **ch’a** (Figure 5f). Intriguingly, the name of this figure alternates between a geometric form employing the T543 glyph, and a head variant form depicting an entity with elongated lips (Figure 5g). According to Polyukhovich, this figure may depict a bee, hence the cone-shaped and elongated lips, or aptly enough, proboscis. But unlike Polyukhovich, we see the geometric form of T543 as a *pars pro toto* element representing the diagnostic buccal element of this mythic entity from Palenque, rather than a beehive per se. Whereas both the *ch’ab* (T543) and *k’ik’* (T628) readings each have their own merit, it remains unclear which of these glyphs more likely corresponds to the form of the eccentric. For our purposes here, it suffices to remark that the eccentric conveyed in its very form a glyph, which to the initiated reader conveyed a message that was intrinsic to its use and likely reinforced connotations that were intimately tied to its original owner.

Clearly, the material from which this eccentric was made is also significant. Not only is it a long distance material from Central Mexico, but it is an important color for the Maya. The color of green obsidian likely held important sociopolitical and ceremonial meaning to the Maya, perhaps due to its connection to Teotihuacan and other symbols of its power, such as Teotihuacan-style ceramic vessels (see Sharer 1983: 255). Green is also associated with the center of the world in the codices of the Yukatek Maya (Miller and Taube 1993: 65) and, in the case of jade objects, has symbolic connections to fertility, agriculture and maize, as

well as the world tree which connects the three levels of the Maya universe (Taube 2005: 25).

Conclusion

How the green peralkaline eccentric made its way into Actun Uayazba Kab and what its specific function may have been are difficult to reconstruct with absolute certainty. However, our multi-method approach to analyzing this single important artifact has provided a substantial number of clues that render suppositions about its use by the ancient Maya more than wild speculation. If we consider its context of recovery, the technology of its manufacture, damage to its surface, its symbolic and ideological meaning, and the material from which it was made there is much that we do know about this object. Caves were places of extreme importance to the Maya, symbolizing both life and death, as well as being intimately connected with fertility, agriculture, and the emergence of maize. They were entrances to the underworld and places of creation, and where ritual practitioners and other religious specialists went to commune with ancestors and the supernatural realm (Bassie-Sweet 1991:79; Brady and Prufer 2005; MacLeod and Puleston 1978: 73; Moyes 2007; Moyes et al. 2009; Prufer and Brady 2005; Prufer and Kindon 2005: 26-28; Tedlock 1996; Thompson 1970:268; Vogt 1969: 387). Artifacts recovered from caves are typically seen as ritually significant forms of material culture that were viewed and used in ways that were somehow different from similar objects found at surface sites.

Eccentrics are prestige goods typically associated with royal or elite use and are almost always found in cache deposits or other ceremonially meaningful locations/contexts for the veneration of ancestors (Helmke 1996; Hruby 2007: 68; Iannone 1992; Iannone and Colon 1993; Meadows 2001; see Hodder 1982). The connection between status and elite utilization of the cave is reinforced by the glyphic form of the eccentric in question, regardless of its specific reading. However, the reading of the glyph provides yet another level of interpretation, particularly one that reinforces the ritual nature of its function. If, in fact, it is meant to be a representation of the glyph for blood (**K’IK’**), this would fit well with reconstructions of symbolic value. The ancient Maya used lancets made from obsidian to pierce various body parts in acts of auto-sacrifice to provide blood to the gods. This was undertaken during religious rituals, often in caves, as attested to by multiple sources of evidence (Aoyama 2001b; Awe et al. 2005; Colas et al. 2000; Pendergast 1974; Stemp and Awe n.d.).

Traces of use-wear on the artifact offer the possibility that it may have been carried in a pouch or tied to a leather thong possibly as an ornament worn by a shaman or other religious practitioner during rituals. Whether this may have been for display or other symbolic or supernatural reasons cannot be known for sure.

That the eccentric is made from green obsidian may also suggest that status differentiations were involved in the cave rituals ultimately resulting in the inhumation of the woman in Burial 98-2. The acquisition of green obsidian, as a long

distance trade good from Central Mexico, was undoubtedly more difficult than the gray and black obsidians of the Guatemalan highlands (Spence 1996), providing both economic and social value. Based on ethnographic evidence both political status and ritual/religious status may be connected through strict hierarchical ordering and ascribed status (Villa Rojas 1985: 420-421). As such, for very important rituals, involving requests of rain from the gods or ancestors, high status men seem likely candidates as religious practitioners of sacrificial rituals in caves (see also Bartolomé 1978: 78). Moreover the color of the eccentric likely connects it to ideas about fertility, water, maize, and life as elements in an intricate web of ideological and symbolic meaning. When considering all the information generated through multi-method analysis of this artifact, it is clear that the green obsidian eccentric from Actun Uayazba Kab was a powerfully charged object in the lives of the ancient Maya.

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