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Steatite beads from Tell Fadous-Kfarabida: A case study in early Bronze Age technology in Northern Coastal Lebanon

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ABSTRACT

Seven Early Bronze Age small stone beads have been recovered from Tell Fadous-Kfarabida in northern Lebanon, six of which have been identified as fired steatite (synthetic enstatite) via SEM/EDX and XRD analysis. As steatite is not a material available locally in Lebanon or the surrounding coastal Levant, these beads indicate long-distance material, and probably technological, exchange. This analysis is the first such study undertaken for Lebanese material, and therefore offers an important opportunity for discussion and comparison with other regional studies.

1. Introduction

This article presents the results of the analysis of seven small Early Bronze Age beads from Tell Fadous-Kfarabida in northern Lebanon. Although interest in the identification and analysis of proto-historic small and "micro"-beads has increased in recent years, they remain a poorly understood and under-examined category of material culture outside of the Indus Valley (Vidale, 1995; de Saizieu and Bouquillon, 1994; Miller, 2008a, Miller, 2008b). However, the studies that have emerged over the past decades demonstrate that stone beads have the potential to reveal important information about issues as diverse as early technology (Tite and Bimson, 1987; de Saizieu and Bouquillon, 1994, 2001; Pickard and Schoop, 2011), craft specialization and production (Vidale, 1989b; Miller, 2008b), trade and administration (Kenoyer, 1997; Bar-Yosef Mayer et al., 2004; Miller, 2008a; Bar-Yosef Mayer and Porat, 2010), and the social contexts of personal adornment (Kenoyer, 1991; Vidale, 1989a, 1995; Wright and Garrard, 2008). Although most case studies of steatite and synthetic enstatite come from fourth millennium contexts, earlier than the material presented here, the study of the beads from Tell Fadous-Kfarabida contributes to the same lines of inquiry and introduces them into later proto-historic studies as a viable area for further investigation.

1.1. The site

Tell Fadous-Kfarabida is the site of an Early Bronze Age small urban settlement located on the northern coast of Lebanon, approximately 2 km south of modern Batroun (Fig. 1). Rescue excavation of the site was initiated in 2004–2005 (Badreshany et al., 2005), and again undertaken between 2007 and 2011 by an American University of Beirut (AUB) team led by Dr. Hermann Genz (Genz and Sader, 2008; Genz et al., 2009, 2010; Genz, 2012a). Although the project was limited in scale, the evidence shows an urban site, settled from the early fourth to the late third millennia BCE – albeit with a few gaps in the sequence – which was part of the broader urban settlement system emerging contemporaneously across Lebanon (Saghieh, 1983; Doumet-Serhal, 2008; Thalmann, 2006, 2010; Genz, 2012b).

The absolute chronology of the Early Bronze Age in Lebanon is still being developed. Until recently, dates for chronological phases were still established primarily by archaeological correlation with Old Kingdom Egypt and the Egyptian historical chronology. Currently, only a couple of sites in Lebanon have produced reliable AMS sample sequences corresponding with systematic stratigraphic excavation through Early Bronze Age occupation phases. Tell Fadous-Kfarabida is one of the first sites to produce a complete AMS dating sequence for the third millennium BCE. Radiocarbon dating was conducted on short-lived samples (all charred grains or burnt olive pits), and archaeologically defined occupation phases were correlated with these dates and the material from the neighboring third millennium site of Tell

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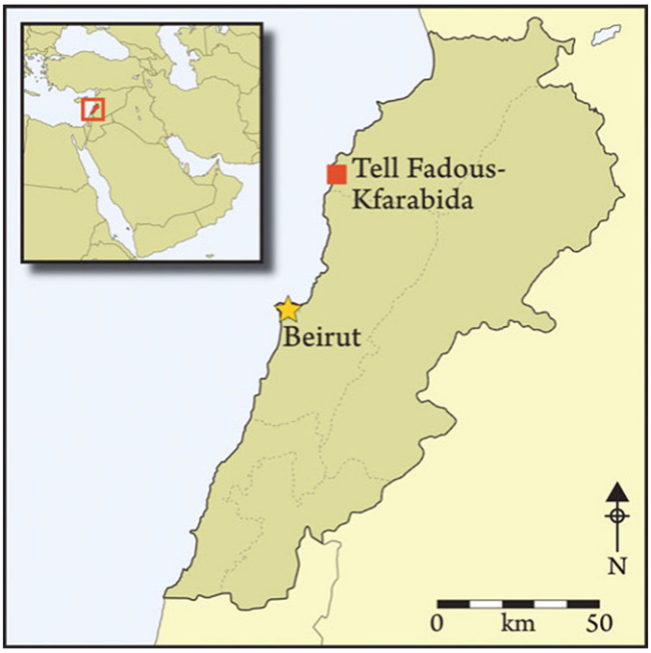

Fig. 1. Map of Tell Fadous-Kfarabida within Lebanon (modern political borders).

Arqa, which also has produced a complete third millennium AMS sequence (Thalmann, 2006; Höflmayer et al., 2014).

Based on the above, occupation at Tell Fadous-Kfarabida is currently divided into six phases (Table 1). The earliest phase of occupation, ascribed to the Chalcolithic/EBI, is evidenced only by two jar burials and sparse ceramic finds. Evidence for extensive building on the site dates to three succeeding phases across the EBII–III (c. 3000–2550 BCE, see Höflmayer et al., 2014); one bead presented here comes from the latest of these three phases, Phase III (Bead 1; Table 2). These phases are more generally represented by regularly aligned, rectilinear structures divided by straight, narrow streets on a roughly northeast–southwest orientation. The buildings themselves are multi-roomed, with wall heights preserved up to 3.5 meters and successive floor levels featuring a diverse assemblage of commonplace and more extraordinary material remains. Commonplace artifacts include ceramic collections typical of the third millennium coastal Levant, and archaeobotanical and faunal assemblages that reflect a specialized subsistence economy focused on well-known Levantine staple crops (wheat and olive) and the husbandry of domestic sheep, goats, cattle, and exploitation of local marine resources. More extraordinary finds include what is currently the earliest known scale balance beam in the region (Genz, 2011), eight cylinder seals (Genz, 2011; Genz and Damick, forthcoming), and a number of fineware vessels. The presence of column bases inside the rooms and the absence of doors in all but one room from this period suggest that the structures were multi-storied, most likely with the lower levels used for storage purposes while most primary daily activities would have taken place on the upper floor (this is consistent with the results from third millennium levels at Tell Arqa, as well; Thalmann, 2006). All evidence indicates that during this period, the site became a dense urban community and that the area excavated represents a combination of residential and shared, or "public," spaces (Genz, 2012a).

The majority of the beads in this study (Beads 2–6; Table 2) originate from the fourth occupation phase attested on site, from the late EBIII, maintains the urban fabric of the previous phases, including architectural techniques and style, but in the area excavated introduces a distinct change in site layout and orientation. At the beginning of this phase, a group of much larger buildings were constructed over the previous structures along a Northeast–Southwest orientation (Fig. 2). These changes are notable as well for the increased dimensions of both walls and interiors of the buildings, including one large rectilinear building with three interior rows of massive column bases. Finds from this phase include eight cylinder seals, one of which is unfinished and therefore suggests local production, and a number of cylinder seal impressions on ceramic vessel fragments, including one that can be directly linked via an imperfection in its pattern to a cylinder seal also appearing on a vessel at Byblos (Genz et al., 2011). These factors combine to suggest that at least during this later EBIII occupation phase, this area of the site functioned in an administrative capacity. After this, there appears to have been a decline in occupation density at the site in its fifth phase. Although no free-standing architecture was found from Phase V (EBIV, c. 2500–2200 BCE), there is some evidence of the reuse of earlier structures, as well as a significant number of pits containing fineware and tableware, and it is in one of these pits that the last bead of this study was found (Table 1; Genz et al., 2010, 6). The only remaining evidence for use of the site after this in antiquity are several burials and pit constructions dating to the Middle Bronze Age. Modern site modifications include the remains of tank entrenchments from the Lebanese Civil War and embankments from the Hijaz railway line, which ran directly through the east side of the tell.

1.2. Geology and geomorphology

The coastal plain of Lebanon occupies a discontinuous, narrow strip of flat, arable land between the coastline and the sharp rise of the Mount Lebanon range (Fig. 3). The area between Byblos and Batroun, on which the site is situated, is characterized by calcareous and alkaline, non-saline Quaternary soil deposits containing primarily limestones, chalk and chert. Basalt is present in small amounts due to transportation of alluvial sediments along the numerous wadi systems that travel down from the mountains, the slopes of which begin between 250 meters to 2 km inland. Below these soil deposits are the Sannine Formation limestone beds that make up the greater part of the entire Lebanese coastal geology. Roughly 600 m thick, they contain dolomite, limestones, chalks and marls, with micritic limestone and chert dominating the upper strata (Badreshany and Genz, 2009; Haidar pers. comm.). For the interests of this case in particular, it is of note that Lebanon has no significant

Table 1
Occupation Phases at Tell Fadous-Kfarabida.
Courtesy H. Genz.

Phase	Archaeological period	Type of occupation	Approximate dates (BCE)
Phase VI	Middle Bronze Age	Pits, burials	2200–1700
Phase V	Early Bronze Age IV	Pits	2500–2200
Hiatus	Early Bronze Age IV	–	2550–2500
Phase IV	Early Bronze Age III	Public buildings, fortification	[2750–2600]–2550
Phase III	Early Bronze Age III	Domestic dwellings, fortification	[2850–2650]–[2750–2600]
Phase II	Early Bronze Age II	Domestic dwellings	3000–[2850–2650]
Hiatus	Early Bronze Age I	–	?–3000
Phase I	Early Bronze Age I/Chalcolithic	Child burials and stray finds	3200–?