**Cultural use of molluscs at Haua Fteah (NE Libya) during the Last Interglacial, 135,000 to 115,000 years ago.**

Society of Libyan Studies, Small Grant Application

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In accordance with the proposal submitted to the Society of Libyan Studies, 10 days of research and analysis on the remaining shell material from the 2010, 2012, 2013 and 2015/15 field seasons of the TRANS-NAP Project’s new excavations at the Haua Fteah was carried out between the 8th December and the 18th December 2017. New material from these excavations, and remnant material from previous seasons was only transported back to the UK from Libya in Late 2016. This material has been stored at the McDonald Institute in Cambridge. On the outbound trip, all remaining 2010 and 2012 material that was previously analysed by Prof. Christopher Hunt and Dr. Evan Hill at Queens University Belfast was returned to the McDonald Institute in Cambridge to be stored with the TRANSNAP site archive and excavation notes.

The remaining unanalysed shell was all excavated from the Middle Trench and Trench D. This material comprised Contexts 1000 to 1011, 1043 to 1072, Contexts 8000-8010, and Contexts 809-832 (Sample Column Z) with a total of 161 bags of material. A further 81 bags of flotation residue containing significant quantities of shells, returned to Cambridge by Dr Jacob Morales, were also incorporated into this analysis.

A total of 20 Terrestrial and Freshwater, and 34 Marine species were identified. Almost all contexts contained *Helix melanostoma*, *Trochoidea cretica*, some *Patella* sp. and fragments of *Phorcas turbinatus*. These species are present in some capacity in every excavated context from top to bottom. The overall sequence of material analysed is represented stratigraphically by Sample Column Z (Figure 1). And has been phased in accordance to the system devised for the Haua Fteah Monograph. Sample Column Z covers 4 phases of the Deep Sounding, DS-4b, DS5, DS,6 and DS-7. Only Sample Column Z is a continuous and joined up series of assemblages. All other material analysed is either discontinuous, or originates from bulk contexts, many of which are still being stratigraphically resolved.

**Sample Column Z.**

Sample column Z was excavated in 2013 as part of further excavation to link up the various parts of the deep sounding excavation. It provides the only currently available continuous sequence (Figure 1). The species found within it represent the maximum species diversity present currently within the Haua Fteah sequence, and will be able to provide us with a high-resolution palaeoenvironmental record which can be linked to extant research from above (Middle Trench, Trench M, Upper Trench) and below (Trench S).

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Figure 1: Summary Tilia Diagram for Sample Column Z in the Haua Fteah Deep sounding.

The base of the sequence (DS-4b) is dominated by terrestrial assemblages that suggest a scrubland, vegetated environment. The top of the sequence (DS-7), in comparison, mostly contains marine species, with fewer indicators of scrubland and a few taxa typical of desert margin habitats. The occurrence of marine taxa here is anomalous, since the dating suggests that this was a time of sea-level fall. This issue is further commented upon, below.

**Contexts 8000-8010**

These contexts were excavated as part of the renewed Libyan excavation in the Deep sounding in 2015. Assemblages were dominated by *Helix melanostoma*. Preservation of material was good, with large numbers of intact *Helix melanostoma*, *Patella* sp. *Trochoidea cretica* and Clausiliidae present in most contexts. Flots for these contexts were largely empty of shell. These contexts relate to rich anthropogenic layers within the Deep Sounding, particularly 8006-8010, this is reflected in the significant quantities of burnt shell in some contexts belonging almost exclusively to subsistence species *H. melanostoma*, *Phorcas turbinatus* and *Patella* sp.

**Contexts 1000-1011**

These contexts originated from surplus material that was sorted and left in Libya in 2012. Majority of material analysed belonged to smaller fractions (sub 1cm) and flots. Assemblages were dominated by a variety of small and minute terrestrial shelter-demanding gastropods (e.g. *Granopupa* sp. *Lauria* sp. Pupillidae,) from well-vegetated environments. A significant amount of data crunching work remains to be done to join this material up with earlier material from the large sorted fraction and correctly link it into the overall sequence.

**Contexts 1043- 1072**

These assemblages were highly atypical and unlike most other analysed material, largely comprised of heavily weathered and beach rolled shell - they are typical rocky shore beach assemblages. They relate stratigraphically to the top half of Sample Column Z, in the top half of DS-7. The largest species present are fragments of weathered bivalves including *Cerastoderma* sp., Veneroidea, *Glycymeris* sp. and all appear heavily weathered and corroded. Smaller species such as various Rissoidae, Cerithridae, Nassaridae are all comparatively well preserved. What these assemblages represent within the wider picture of the Haua Fteah stratigraphy is still unclear small marine taxa at the top of the deep sounding could have blown out of the sea floor during sea level fall and landscape breakdown at the end of MIS5, whereas the larger material probably originates above the cave from known beach deposits up near the 100-110 m mark.

**Conclusions**

Shell from land and marine molluscs can throw important light on the technical capabilities, aesthetics and lifeways of early Humans. The longest and most complete record of human use of shell in North Africa comes from the Haua Fteah cave in Libya. This new data is integral to our understanding of the overall sequence. It demonstrates that people were eating molluscs, making shell beads and tools within the cave at various points between ~135 to 115 ka years ago, and doing so using methods and practices highly similar to those found much further up within the sequence. This work is therefore of global significance since there are very few sites with the type of long, well-dated record known from the Haua Fteah, which extends our knowledge of shell technology and ornament before other well-known sites such as Taforalt in Morocco. The detailed interpretation of the material is still ongoing and will be presented in detail in the Haua Fteah Monograph.