

## The western Nile Delta as seen within a broader North African perspective

Recent work by Joanne Rowland (2013-19) has shown that the first farming village in North Africa at Merimde Beni Salama is much more extensive than previously realised. A combination of analysis in Egypt on new contexts and finds is being blended together with analysis on earlier finds from the missions of Josef Eiwanger (1970s-80s) and Hermann Junker (1930s) to bring a new perspective to the site, including that of the very earliest finds, which reach back to the Middle Palaeolithic. By bringing in a range of specialists in archaeobotany, worked and chipped stone tools, residue analyses and absolute dating, we start to appreciate Merimde in wider regional contexts, and at the same time, understand better the local environmental contexts. A major step forward has been possible through this Society for Libyan Studies grant.

Giulio Lucarini has been working for many years in Libya and in the Western Desert, particularly developing ways in which to look at use-wear and residues on worked stone objects, and has been able to apply this to the new finds from the main site and hinterland at Merimde. Working with the knowledge of plant remains from the site, which has been possible through the work of Mennat-Allah El Dorry, it was possible to see what was high or low in visibility from the macro remains at the site, and by making comparisons with published data on stone tools, and also pottery and human dental calculus. A variety of micro remains were found that consisted of starch granules and phytoliths, and suggest both a dietary and non-dietary use. From the foodstuffs, we found both wild and domesticated staples, but these also included the weeds that are frequent in macro-remains from the site too. The presence of wood tissue, however, suggests that the stones were either simultaneously or completely separately used for a range of activities, from tool-sharpening to softening of reeds.

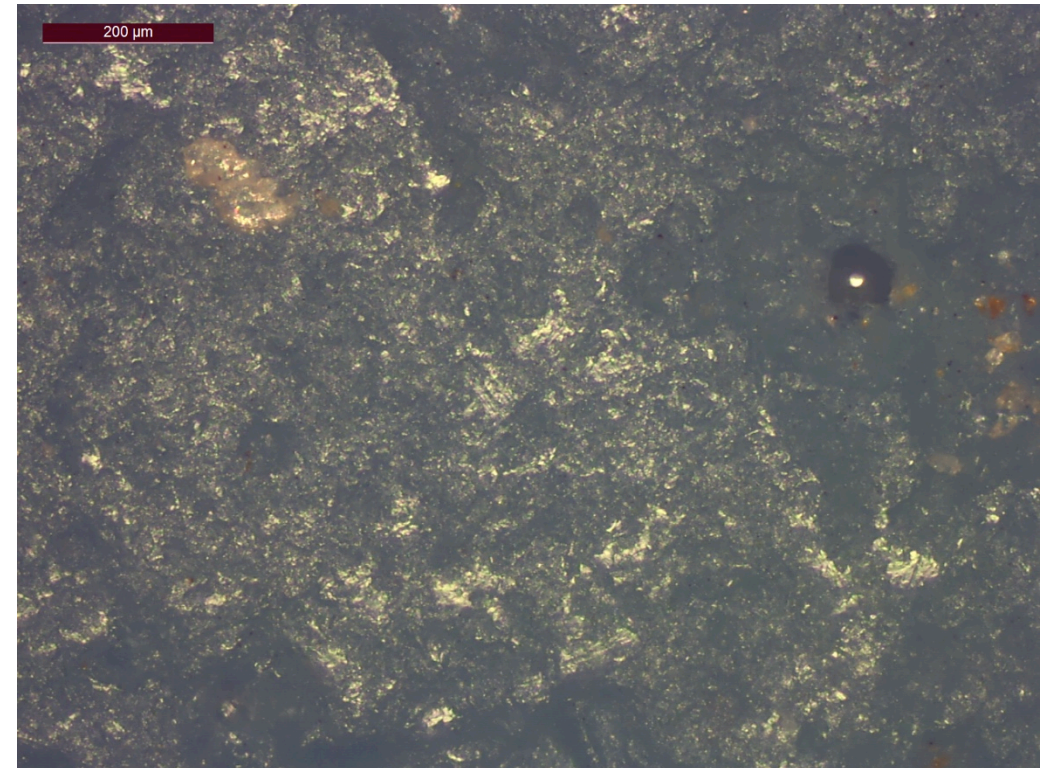
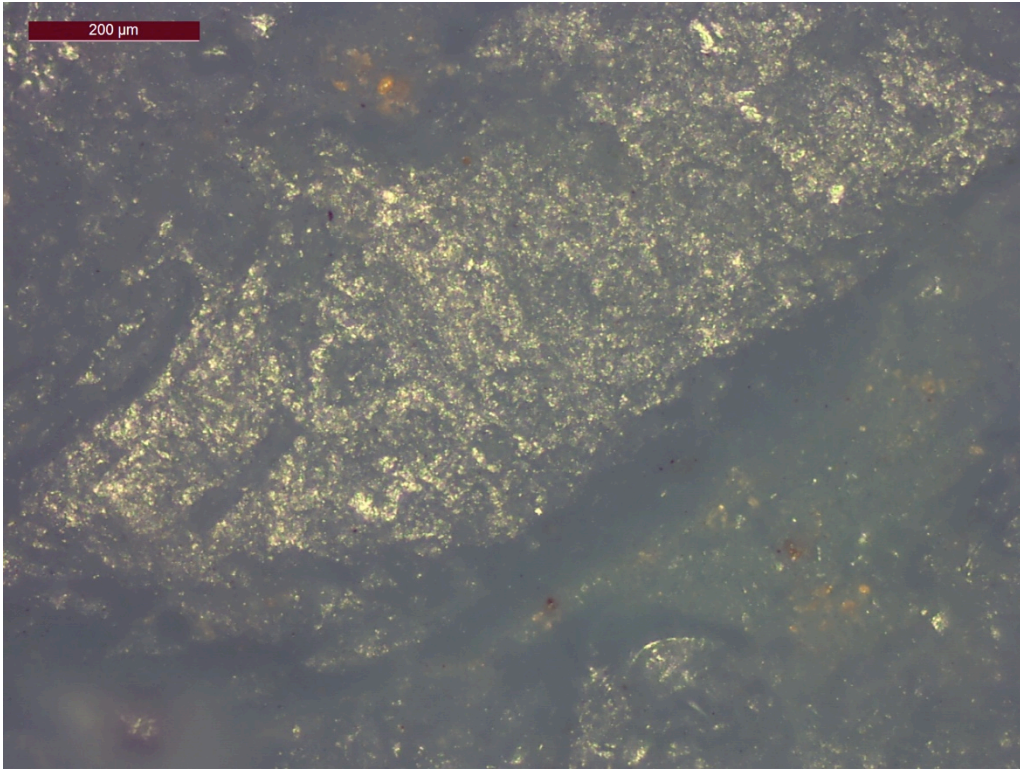
The plant remains have been focal to this project, and Alan Clapham's analysis of the wood charcoal resulted in the majority of cases in identification to genus. These included trees and shrubs not previously known at Merimde, and which give additional evidence as to the local environment, with most considered as desert species, although a couple indicate proximity to the river. The samples all came from the 1978 excavation season of the DAI. The results identified a limited number of taxa which suggests an environment where water was present for part of the year, although desert elements are present too. This suggests that at the time of occupation in the Neolithic, Merimde had a water supply but there were also indications that drier conditions were beginning to encroach. Several of these species of trees, indigenous to Egypt, were found to be suitable for submitting for AMS measurements, and these included species hitherto unknown at Merimde. Through direct dating of these species the encroachment of drier conditions can be pinned down *locally*. We know of increasing aridity that appears to have led groups closer to permanent water sources, including the Nile Valley, and research, including Giulio Lucarini's work at Farafra Oasis shows that the settlements are declining in extent and density around 300 years before Merimde is settled. Often we can site wider-scale, or global climatic changes and trends, but here through dating of types of trees and shrubs, we are starting to build upon a clearer picture of change – and/or stability – through different periods at the settlement. The new AMS measurements will be out in December. As we move forward with more work on the plant remains from the same excavation season in 1978, it is going to be interesting to see if this pattern is reflected in the seeds and other non-charcoal plant remains recovered from the site at the same time.

During the same excavations, substantial Middle Palaeolithic finds were made. The chipped stone assemblages have been confirmed to include all aspects of production, suggesting that which typologically displayed many similarities to finds made at and in the region of the Haua Fteah Cave. To ascertain the absolute date range, OSL samples have been taken and Tim Kinnaird (University of St Andrews) was able to sub-sample these for eventual dating, however in situ he could not conduct luminescence-depth profiles, which were revealing in themselves, as new test trenches were excavated in spring 2019, on the higher elevations so far of the Wadi el-Gamal. The results showed a palaeo-surface that represented a considerable period of time, which he was able to pick up in another trench close by, at a different depth, giving us details of the past surface profile. Beneath this an accumulation of sediments over a shorter chronological span is in evidence, and below this at the point of a darker sediment band, it is possible that we have the boundary between the Neolithic and Palaeolithic sediments. This provides the proof that our finds are in situ and not re-worked. Their fresh appearance already suggested this. Although Tim was not with us during the 2015-16 excavations, this new data is going to help as we re-examine our records of a site directly east of our new excavations this year, an area sadly now destroyed.

Figure 1: Metallographic image of a cast from one of the Merimde lower grinders.

Figure 2: One of the wood charcoal samples.

Figure 3: Dr Tim Kinnaird sampling on the Wadi el-Gamal, western Delta.



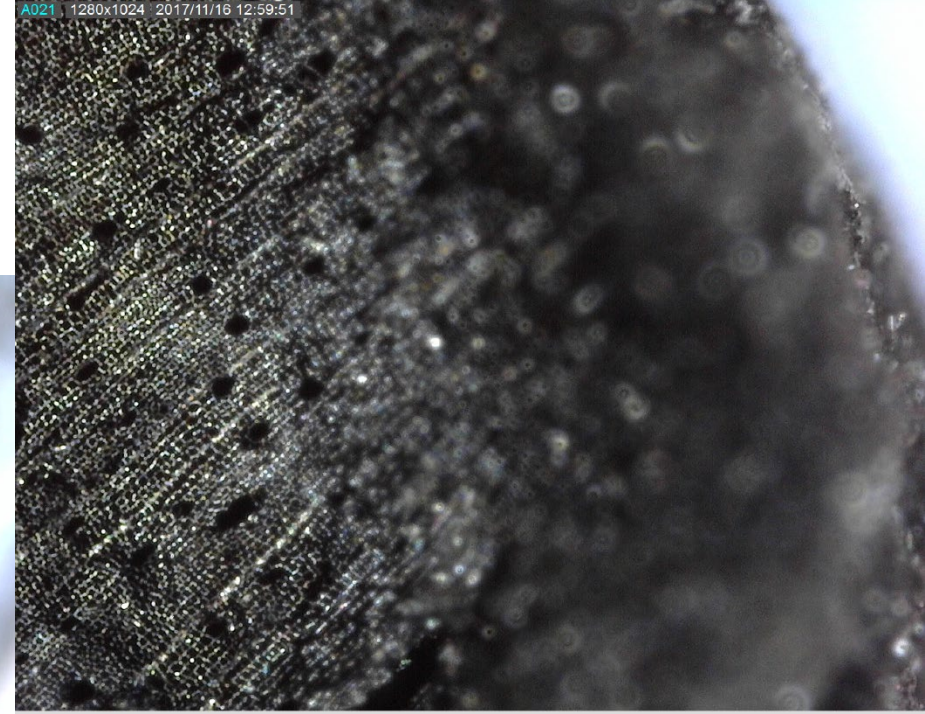
Analysis of the casts with a metallographic microscope

Analysis: G. Lucarini

Post-sampling for OSL profile. Analysis by Tim Kinnaird



# Identification of wood charcoal: *Ephedraceae* (conifer) From Merimde III, hearth



Analysis: A. Clapham

- Five species found naturally in Egypt
- All shrubs
- Probably *E. alata* (erect branching shrub – up to 1 m) or *E. aphylla* (erect or hanging shrub – up to 1.5 m); they prefer desert plains

