4_8_1_Daub_coring_and_test_pits

The research aim of the establishment of a sound AMS-based internal chronology for the mega-site provoked questions of both methodology and sampling.

The basis of the methodology was the premise that the geophysical anomalies would provide an exact location of burnt and partially burnt houses - a premise successfully tested in the 2009 season (burnt daub in 15/15 cores).

The aim of the 2012 season's daub coring was to obtain organic material for AMS dating from a large sample of houses on the mega-site. In total, 130 cores were taken from 91 houses, 70 of which contained organic material in daub (ADS LINK TO 4_8_2_SPREADSHEET/4_8_3_1_daub_coring_log). Cores were obtained with an Atlas Copco Cobra TT petrol breaker with a 50 cm Eijkelkamp percussion drill bit. Using this equipment, a three-person team could rapidly retrieve samples of daub from houses identified by geophysical survey. These samples were then checked on site for organic material. One 50 cm borehole was generally sufficient to retrieve a sample of daub with organic material but, on some occasions, it was necessary to go to a depth of 100 cm, or to attempt a second core adjacent to the first. For some houses in the sample identified for coring, daub was not recovered at all - this was most often the case for houses that were less visible on the geophysical plot (i.e. suspected unburned houses). There was a limited amount of stratigraphic information available in the cores. Typically, there would be 30-60 cm of chernozem soil, followed by an indistinguishable layer of daub, followed by the uppermost loess layer. In a few cases, it was possible to distinguish collapsed wall daub from floor daub, and some cores suggested multiple phases (layers of daub separated by a significant amount of soil).

The first strategy of recovering cereal remains from daub failed because burning reaching such a high temperature as to burn out the cereal remains. The second strategy was the excavation of test-pits into house-sized anomalies to recover animal bones and/or carbonised plant remains. Since, under Ukrainian law, it was possible to excavate test-pits of up to $5m^2$, we decided on an initial test-pit size of 2m x 1m, with two 1m x1m extensions still possible if no datable remains were found in the initial test-pit. Two 1m x 1m test-pits had been excavated in 2009, with daub remains uncovered in both cases. Four more such test-pits were

excavated in 2012, with similar good results and, in two cases, animal bones associated with the burnt house (ADS LINK TO SECTION 5_3).