

1. Introduction

- 1.1 The purpose of this document is to assess the archaeological potential provided by the opening up of the shaft at Silbury Hill, to inform the decision making process and, if necessary, to provide a basis for the formulation of a project design for archaeological recording and investigation.
- 1.2 The information used in this assessment is drawn from Sacred Mound, Holy Rings (Whittle 1997).

2. Reasons for this assessment

- 2.1 On May 29th 2000 a squarish hole *c* 10.3m deep and *c* 2.25m wide appeared at the top of Silbury Hill.
- 2.2 This hole is the opening of a vertical shaft from the top to the base of the mound sunk in 1776-7 on behalf of the Duke of Northumberland and Colonel Drax. The aim of the work was to determine whether Silbury was a sepulchral monument.
- 2.3 This shaft was recorded at the time as being 2.44m (8 ft) square and was dug by miners from the Mendips.
- 2.4 The shaft was later encountered in a lateral tunnel dug at the base of the mound in 1849 for the Archaeological Institute under the archaeological supervision of John Merewether, Dean of Hereford. The 1776 shaft was recorded at that time as having been filled in, and up to now, it was thought that the whole of the shaft had been infilled either deliberately or through collapse.
- 2.5 This is obviously not the case and at least the top 10m of the 1776 shaft had been left open and capped. It is this capping that has collapsed and it is not possible at present to say to what depth the shaft was backfilled. The collapsed capping at 10m depth may lie above either backfill or a further void.
- 2.6 On July 12th 2000 a digital video camera was lowered into the shaft. The images obtained, although not a satisfactory record, certainly revealed two, and possibly up to four, lateral openings leading off from the central shaft and also showed that soil or clay layers/lenses were present within the chalk mound. Mineral encrustation was noted obscuring the surface of the upper mound layers.

3. Archaeological background

- 3.1 Silbury Hill (SM no 21707) is the largest prehistoric artificial mound in Western Europe. As seen now it is a flat-topped or truncated cone approximately 38m high, 28m wide at the top and 156m wide at the base, lying within the circuit of a broad ditch which has causeways on its south-east and south-west sides.
- 3.2 Apart from those noted above, antiquarian and archaeological investigations were also carried out in 1867, 1886, 1915 and 1922 and a resistivity survey of the mound was attempted in 1959.

- 3.3 The most extensive and most recent investigation was undertaken under the supervision of Professor Richard Atkinson in 1968-70. The results of this work are presented in Whittle 1997.
- 3.4 The major components of the 1968-70 programme were:
1. A tunnel at the base of the mound, largely following the line of the 1849 tunnel, driven through to the centre of the mound where two lateral tunnels were excavated.
 2. A core drilled from the top of the mound to 3m above the tunnel roof.
 3. Four areas opened up on the top and upper slopes of the mound.
 4. A section across the southern part of the ditch.
- 3.5 The principle results of this programme that are relevant to this assessment are related to the structure, chronology and environmental setting of Silbury.
- 3.6 Whittle has identified eleven structural events in the construction of the mound and these are subsumed here within three broad phases:
- I A circle of stakes (diameter *c* 20m) was cut through an old land surface. This area was then filled with a layer of gravel followed by a turf stack. Alternating layers of chalk and soil were added to create a primary mound with a diameter of *c* 35m and a height of *c* 5.5m.
 - II Chalk derived from a ditch or a series of quarry pits was used to augment the primary mound, increasing the diameter to *c* 73m and the height to *c* 21m.
 - III Chalk largely derived from the present encircling ditch was used to create the mound that can be seen today. The chalk for this mound infilled the earlier ditch or quarry pits.
- 3.7 The evidence from the tunnel excavation, the areas opened on the top of the mound, and the form of the mound itself, indicates that this final enhancement was constructed as a series of steps using both concentric and radial chalk walls to retain the chalk rubble.
- 3.8 The core through the mound is reported by Whittle as being composed of 'essentially continuous chalk material'. The core is held with the archive in the Alexander Keiller Museum, Avebury.
- 3.9 Evidence for the chronology of the monument is provided by radiocarbon dates obtained from twigs, vegetation and turves associated with the primary mound (Silbury I) and from antler picks found in the southern external ditch.

- 3.10 The radiocarbon date obtained from the twigs and vegetation is 2871-2486 cal BC (at 1σ confidence) whilst the radiocarbon dates from the turves range (at 1σ confidence) from 5197-2782 cal BC, although most of the six dates obtained fall within the range 3627-2782 cal BC. Two radiocarbon dates from the antler picks give a range (at 1σ confidence) of 2398-2042 cal BC.
- 3.11 In his report Whittle casts some doubt upon the reliability of the radiocarbon dates obtained from the primary mound and suggests that the dating for the construction of the whole monument might range between 2800-2000 BC.
- 3.12 Material to determine the environmental setting of the monument was recovered from a range of deposits in the tunnel; the areas opened up at the top of the mound; and the southern ditch. Analyses were carried out into soil micromorphology, pollen, macroscopic plant remains, insects, molluscs and faunal remains.
- 3.13 The general conclusion was that the immediate local environment when Silbury I was built was open grazed grassland, which may have had some disturbance, prior to, or as part of mound construction.
- 3.14 In summary there is no definitive evidence for the purpose of Silbury Hill. There is, however, reasonably good evidence for the environment at the time of its construction, good evidence (in the circumstances) for the nature of the primary mound and of successive enlargements, and an understanding of the overall timespan for construction.

4. Potential for archaeological recording and investigation

- 4.1 This section sets out the benefits to be gained from carrying out a programme of archaeological recording and investigation and indicates the nature of the recording work that may be required.
- 4.2 Archaeological work would take place with three principal goals in mind:
1. To advance understanding of all aspects of Silbury Hill
 2. To develop technique and methodology
 3. To disseminate the knowledge gained from the above to the professional, academic and broader audience
- 4.3 Within this framework the potential for archaeological work can be assessed against the following discrete aims:
- Aim 1: To advance our knowledge and understanding of extent and nature of antiquarian investigations at Silbury Hill.
- Aim 2: To advance our knowledge and understanding of the construction and use of Silbury Hill.

4.4 With regard to aim 1, the questions that recording and investigative work would seek to address are:

- 1.1 What techniques were used in the sinking of the 1776 shaft?
- 1.2 How many lateral openings are there and where are they located?
- 1.3 How far do the openings extend and are they associated with some of the terraces on the sides of the mound?
- 1.4 What was the function of the lateral openings?
- 1.5 Were the openings contemporary with the central shaft?

4.5 There is good potential to answer these questions through a programme of three-dimensional mapping and profiling of the openings, providing that suitable techniques could be identified and deployed. There would also need to be detailed topographic modelling of the mound surface.

4.6 There is moderate to slight potential to answer these questions through the collection of equipment that may have been discarded, and slight potential through the recording of marks of tools or equipment that may be present on exposed surfaces within the shaft and openings.

4.7 There is also some potential if suitable samples from timbers eg from shoring can be recovered for dating through dendrochronology.

4.8 As a first step the central shaft should be probed, through and beneath the collapsed capping, to determine the extent of its infilling.

4.9 With regard to aim 2, the questions that recording and investigative work would seek to address are:

- 2.1 What is the slope of stratigraphic deposits? Are layers generally flat or angled?
- 2.2 Can discrete stages of construction be identified?
- 2.3 Is there evidence for intervals of time or for activities within or between stages of construction?
- 2.4 Is our understanding of the disposition of the chalk walling correct?
- 2.5 Is there material that will advance our understanding of the chronology of the Silbury Hill?
- 2.6 Is there material that will advance our understanding of activities at Silbury Hill?

- 4.10 The central shaft and the lateral galleries have differing potential to address these questions. The questions themselves only apply to Silbury III, as the shaft is not presently deep enough to expose levels associated with Silbury I and II.
- 4.11 The central shaft is a vertical section through the centre of the mound and has good potential to address questions 2.1, 2.2, and 2.3 and some potential to address questions 2.5 and 2.6.
- 4.12 The lateral openings could provide horizontal sections through parts of the mound and these would have good to moderate potential to address question 2.4, depending upon their extent and accessibility. The disposition of any chalk walling identified in the lateral openings could be compared with the location of walls recorded at the top of the mound.
- 4.13 Questions 2.1-2.4 can be addressed through the cleaning and recording of the exposed surfaces in the central shaft and the lateral openings.
- 4.14 This detailed recording work would need to be spatially referenced through the mapping and profiling programme proposed to address questions relating to aim 1.
- 4.15 Question 2.5 can be addressed through the retrieval of material for radiocarbon dating derived from contemporary artefacts (eg antler picks) or suitable material found within the mound. There is some potential for the recovery of such material.
- 4.16 Question 2.6 can be addressed through the targeted sampling of suitable deposits eg from soil stabilisation layers between construction stages or layers derived from *in situ* activities within the mound. The potential for such deposits varies from slight (based upon the reported description of the 1968 core) to moderate (based upon the video images of the exposed surfaces in the shaft).

5. Conclusions

- 5.1 The assessment has demonstrated that there are potential benefits to be gained by archaeological recording and investigation.
- 5.2 These benefits, and the advances in our understanding that they represent, will have to be weighed against the likely success of the techniques and methodologies that may be deployed, the practicality and costs of the work, and overridingly, the risks with regard to Health and Safety.
- 5.3 Further assessment of the shaft and openings is proposed for August 9th 2000. This will consist of an initial Health and Safety assessment followed by a visual inspection and archaeological appraisal of the exposed surfaces. This will be carried out either remotely or at first hand, depending upon the Health and Safety requirement.

- 5.4 The results of the Health and Safety assessment and the archaeological appraisal, together with this assessment, will if required provide the basis for the formulation of a project design for further archaeological work.

Bibliography

Whittle, A, 1997 *Sacred Mound Holy Rings, Silbury Hill and the West Kennet palisade enclosures: a Later Neolithic complex in north Wiltshire*, Oxbow Monograph **74**