SUTTON HOO BURIALS: reconstructing the sequence of events

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Introduction (Figure 1)

In 1983, Dr. R. Bruce-Mitford published the third and last volume of the Sutton Hoo Ship Burial, bringing to a close the scholarly research on the excavation of the Mound 1 ship burial in the summer of 1939. 1983 was also the first year of a new research programme on the seventh century royal burial site and its environs, sponsored (then) by the Society of Antiquaries, the British Museum, the National Maritime Museum and the BBC. This became the basis of the newly-formed Sutton Hoo Research Trust whose aim was to examine the context (local, regional and international) for the discoveries made in 1939. Research designs were submitted in competition and that proposed by Martin Carver was accepted (later published as Bulletin of the Sutton Hoo Research Committee 4: Carver 1993). The main tenet of this new research design was that excavation should only take place on the results of an exhaustive evaluation campaign, using all possible methods of remote sensing then available (this was carried out between 1983 and 1986) and that the size of the excavation should be that of the minimum viable sample necessary to answer a set of specific research questions (summarised by Carver 1993). The resulting excavation campaign (1986-1992), a cruciform transect, over one hectare in area, on the northern part of the scheduled monument and its neighbouring eastern arable fields, uncovered a prehistoric, Anglo-Saxon, and later sequence. This represents approximately one quarter of the predicted extent of the early medieval cemetery, leaving the remainder unexcavated to allow future generations a chance to test the site. Such a policy was deemed necessary, not only because methods and techniques may evolve, but also, and perhaps more importantly, because fundamentally different hypotheses might be formulated and tested.

The results of the 1983-1993 campaigns are being prepared for publication at the University of York by a small team directed by Martin Carver and publication is anticipated in 1997/8. This particular paper represents an exposition of the practices devised for the recording of stratigraphic sequences at Sutton Hoo. It first discusses the excavation methods, using Mound 2 as a case study, then the techniques of exposing body silhouettes ('sand bodies' as the media likes to call them), illustrated by the sequence in Mound 17. We hope to show that past ritual behaviour can be reconstructed to a degree and that this behaviour can best be apprehended as a series of events, rather than as a single frozen frame, later modified by processes of decay.
Figure 1

General plan of Sutton Hoo, showing areas of the 1983-1993 campaign
Excavation

The cruciform transect which formed the excavation cut through the different terrains which make up the topography of Sutton Hoo. Thus the site presented a challenge to the excavator as it combined the characteristics of a `flat', eroded, ploughed rural site with those of a `deep' site where mounds have been piled up, thus protecting the underlying ancient buried soil.

For the Early Medieval period, apart from mound make-up sequences, little strata overlap was evident, and even the opportunities for observing `conventional' stratigraphic sequences (features cutting each other) were fairly infrequent, the site having been laid out with an element of planning. Nevertheless some relationships could occasionally be observed in the sequential intercutting of the quarry pits dug for the erection of adjacent mounds (Mound 5 precedes Mound 6, for example). Such observations apart, Sutton Hoo presents itself as a palimpsest of features cut into the sandy subsoil (including some 2000 prehistoric, or presumed prehistoric, features yielding some 100,000 finds), augmented in places by soil dumps - the mounds, eight of which were excavated between 1983 and 1992 (Mounds 2,5,6,7,13,14,17,18).

The feature and context population of the excavated sample at Sutton Hoo was recorded according to their appropriate recovery level. Each level represents a coherent set of digging and recording techniques which allow information recovery through a particular `mesh'. Level A is the coarsest (such as excavation by machine) through to level F which involves excavation in the laboratory (for further explanation see Carver 1990, 77-78 and fig.16). Most features were dug at level D, graves at level E.

In order to reveal the spatial patterning of strata dumped on top of each other or deposits filling cuts into the ground, a procedure for unpeeling the site was devised, after experimentation during the evaluation phase. This became known as horizon definition. This tries to accommodate the two imperatives of archaeological excavation, namely the wish to observe spatial relationships in plan and the need to record vertical stratigraphic relationships.

In actual terms, a horizon can be equated with a level of visibility, where no assumption of the contemporaneity of the uncovered surface is made: coherence is given by what has been taken off, not by what is showing. The number of horizons recorded depends on the coarseness of the unpeeling procedure. At Sutton Hoo, in the flat areas between mounds, two horizon definitions were selected, Horizon 1 being the surface left after the removal of the turf / topsoil and Horizon 2 that left after the removal of the ploughsoil (in this case to the subsoil). In contrast, in the areas of surviving burial mounds seven horizons were recorded: 1 and 2 as above; 3 after the removal of the outer mound make-up; 4 after the removal of the mound core; 5, 6 and 7 refer to the removal of three stages of buried soil onto the subsoil surface.

In order to achieve consistency, speed and clarity in the recording of each successive horizon, the whole surface to be excavated was divided into modules measuring 8m x 4m. The size of the modules was dictated by practical considerations such as speed of trowelling, control over humidity, clarity of definition on a single A4 photographic colour print, and the scale of the definition plans drawn at 1:10 on A1 sheets. After a coarse definition trowelling, followed by fine trowelling, every module was photographed
obliquely from a 5m tower and each of its components then identified by allocating feature and context numbers (on cards and in indexes: sketching their position and relationships in the site notebook; tagging them on the ground). The module was then surveyed and mapped in a single operation.

This straightforward procedure obviously works well on flat areas where the main object of the exercise is to document the density and population of visible strata and features, which can then be excavated in their entirety (Interventions 32, 39, 41 from 1984-1988) or selectively (Interventions 44, 48, 50, 55 from 1988-1992). However, the horizon definition proved itself a particularly useful tool when approaching large curved dumps of soil, the mounds, and their surrounding quarry pits and ditches.

In practical terms an excavator cannot recognise all the individual components (contexts) of a mound, being far too close to it while working on its definition and lacking the benefit of a permanently stationed highlift for viewing (not used because it was prohibitively expensive, although such equipment was brought in at specific times, in particular for photographic recording once a horizon was deemed ready). The concept of a horizon allows progress to be monitored effectively and meets easily the requirements for recording the stratigraphic order of deposits in vertical sections. The edges of modules form the quadrants used for dissecting a mound and the baulk between quadrants stays as a temporary vertical face between horizons. Once all quadrants have reached a given horizon, all vertical faces were drawn at 1:10 in colour (over 200m of sections from Mound 2 alone, produced by a single recorder, Catherine Royle). The baulks between quadrants were then removed to view the whole mound in plan, before reinstating the quadrant lines and repeating the whole process for the next horizon. Thus, the sections are added to periodically, resulting in the whole vertical order being recorded physically, though 'cumulatively' (ie. no section was ever seen as a single face, an exercise far too dangerous to undertake on over three metres of sandy soils, which would also limit the opportunities to observe the various stages of mound-building in plan).

Case Study: Mound 2 (Figure 2)

The staged dismantling procedure described above allows, after analysis, the reconstruction of mound-building sequences, where elements of the ritual that dictated the 'order of ceremony' can be glimpsed. Mound 2 provides a convenient example of the order of operations.
Figure 2

CHEMICAL MICROSURVEY IN MOUND 2 BURIAL CHAMBER

Mound 2: a) burial chamber, robber trench, 1938 excavation and plan of rivets
          b) chemical microsurvey in burial chamber
First, turf and topsoil were stripped off the area which the mound was to occupy, its extent marked out by four corner pits and the outline of the future quarry ditch delineated by a ring of turves. Other turf and soil was kept for later use. In the centre of the reserved space an east-west, rectangular hole, 6m x 4m, was dug to a depth of c. 2m from the contemporary ground surface into the subsoil, the spoil from this operation being heaped to the north. Next the timber chamber was built in this cut, with overlapping vertical planks along the long (northern and southern) walls and horizontal planks along the end walls. The body of the occupant was laid at its west end, perhaps in a flexed position, with its head to the west (no trace of this body survived, its presence being indicated only by trace chemical elements concentrated at the west end of the chamber floor amongst 490 spaced samples: Bethell and Carver, 1988. Thus the body may be termed a conceptual context rather than a physical context).

The chamber was then furnished with grave goods including textiles, weapons (a sword, a spear, 5 knives with sheaths, a shield, a baldrick), vessels (a blue glass jar, bronze bowl(s), drinking horns), a silver-mounted box and a bucket. Most of these objects only survived as fragments which escaped the attentions of grave diggers in 1860 (see below) or, in the case of a cauldron, as a 'finds stance' denoted by a circular discoulouration of soil in the base of the chamber accompanied by a swirling soil colour pattern which may denote the presence of a chain. A beam was then placed transversely across the top of the chamber and a ship, 20m-30m long, was set the right-way-up over the chamber, held up by raking shores. The size and position of this ship, totally destroyed by excavators in 1860 and 1938, is given not only by observation of features and strata but also by the number, shape, size, and distribution pattern of 834 fragments of rivets recovered in the excavations of 1938 and the 1980s.

The building of Mound 2, a barrow approximately 20m in diameter and at least 3m high, then commenced by excavating the 7m wide, surrounding quarry ditches. The order of removal of soil from the ditches (turf, ancient soil, subsoil) correlates with the reverse sequence of deposition in the mound make-up, capped finally by the turves kept in reserve. This observation, which would imply gang labour working simultaneously in an organised fashion along the whole perimeter of the quarry ditches, was arrived at not only by the traditional method of ordering the mound make-up contexts in a stratigraphic diagram, but also by an additional analysis of the Munsell colour codes recorded for each context describing the silty sand components of the mound make-up. This stratigraphic diagram with soil colours - dubbed a 'tintogram' - has shown itself quite effective in grouping contexts into families of colour derived from their soil-parents, regardless of small variations between different recorders (some degree of consistency was achieved by requesting that all records be made when the soil is sprayed damp).

The continuing story of Mound 2 refers to its afterlife. Pressure of the mound make-up and weakening of the timbers caused the ship to collapse creating an ovoid central impression above the chamber. The quarry ditches eroded, after initial stone roll, and the primary fill grew a mantle of turf.

However, that was not the end of the Mound 2 story. The natural decay of its components was speeded up by later disturbances and intrusions by antiquarians and archaeologists, the first of which may be dated to 1860. Indeed, on 24th November 1860, the Ipswich Journal reported "Roman mounds or barrows [at Sutton Hoo]: ... One of these
mounds was recently opened when a considerable number (nearly two bushels) of iron screw bolts were found, all of which were sent to the blacksmith to be converted into horseshoes. It is hoped, when leave is granted to open the others, some more important antiquities may be discovered..." This entry seems to refer to Mound 2 and hints at an orchestrated campaign of excavations (rather than robbing) in 1860 or shortly afterwards. The evidence for such a campaign has been collected by Martin Carver (1992, 357-9 and fig.71), showing that at least eight mounds, but probably more, were trenched west to east. In Mound 2, an west-east trench, 3m x 20m, scattered the rivets of the rotten ship before descending into the burial chamber, steps were cut at its western end, the eastern end splayed out in a way compatible with its being a barrow run. Although no comment is made of the discovery of artefacts, or indeed of any subsequent barrow discoveries, it is likely that rich pickings were kept silent, given the fragmentary nature of artefacts recovered later.

This was still not the end for Mound 2. Having been left open long enough for rain-washed deposits to collect in the base of the chamber, the trench was backfilled and the whole mound ploughed, further levelling the quarry ditches with podsolised heathland sand sealing redeposited ship rivets in their new post-robbing position. When Basil Brown, the excavator of Sutton Hoo, arrived in 1938, Mound 2 was the first mound he tackled, opening yet another trench at a slight angle to the 1860 one. This slight change in alignment between the two trenches (the 1860 one being unknown to Basil Brown) led him to confuse some of the features left by the 'robbers' with original features. He also seems to have encountered the east end of the burial chamber, but, expecting a ship from the rivets he found, he mistook it for the transom of a dinghy. Basil Brown's excavation was backfilled before Mound 2 was used between 1939 and 1945 as a tank training area and was reopened for the third time by the current research programme.

This exposition of Mound 2's sequence shows that, behind the abstract ordering of strata into diagrams, lies a whole history of events referring not only to the construction and primary use of the structure, but also to its aftermath and finally to its unravelling and occasional distortion by more recent interventions.

"Sandmen"

What Mound 2, described above, and Mound 1 both lacked was the physical presence of bodies (although evidence for them can be shown in each case). Decayed human bodies were expected, following the British Museum's phosphate analysis of the Mound 1 objects (Bruce-Mitford 1975, 550-72) and the excavations of Longworth and Kinnes around Mound 5, which had encountered the remains of human silhouette burials (Longworth and Kinnes 1980, 23 and fig.14). Therefore, the discovery of further burials in the eastern peripheral cemetery (Group 1 comprising 23 flat graves in Intervention 32/52), around Mound 5 (Group 2 comprising 16 burials in Intervention 41/44/48/50) and of three furnished burials in Intervention 41/50, came as no surprise, although their location sometimes was.

These 'sand bodies' required a certain amount of care in the excavation and recording of ephemeral shapes in the sand, though in essence the procedures devised for recording surfaces and vertical deposition (horizons and cumulative sections), were adapted to suit the prerequisites of individual graves. Once a grave outline had been defined in plan, excavation proceeded with
the removal of each individual context in order but with the additional constraint of doing this in 5cm spits, adding to the section drawing along quadrant lines as excavation proceeded from stage to stage. Work continued until contact with the body remains, at which point the body’s shape in plan was revealed further in three dimensions by removing backfill adhering to its outlines.

The precision and trustworthiness of such sand shapes obviously depends on the observational and practical skills of the excavator, but, contrary to expectation, the task of dissociating body decay products from the surrounding matrix seemed, on the whole, not too difficult, the excavator being helped not only by colour but by the firmer and denser structure of the body. As for actual bone, preservation varied from grave to grave, from no bone whatsoever to fairly good preservation of the skull and long bones.

The records made for each individual grave were collated into a `feature pack’. For a typical grave this would consist of three categories: written records - feature and context cards and a diary kept by the excavator; drawn records - pre-extraction plans, stage plans and sections at 1:10 in naturalistic colour (Figure 3), interpretative plans of the body differentiating between body decay products and actual bone, a 3D hachure plan of the body, a plan of the location of finds numbers for each anatomical part prior to lifting, a plan of the emptied grave, and a location plan of the sampling array; and photographic records of each stage. In addition to this fairly demanding recording responsibility, excavators could spend a considerable amount of time protecting their burials and records from the elements, including building shelters, windbreaks and sunshades, making sandbag and plank runs to protect the edges of the features and sometimes even harnesses to prevent them from treading or kneeling on the feature.

Figure 3

An example of a plan and profile of a “sandbody” - burial 34

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Case Study: Mound 17

The expertise gained in dissecting mounds and in making 'soft landings' on delicate body shapes in the sand were put to the test in 1991 when the intact inhumation of a young man accompanied by his horse was encountered under the ploughed-out Mound 17, which had survived the excavation campaign of 1860 because it was almost invisible. It had been cut along its western side by a medieval ditch and bank and had been almost totally levelled by ploughing. Indeed, it was only spotted as a slight platform in the grass by Martin Carver, as he was practising his golf shots from the top of Mound 1 one evening at sunset!

Excavation commenced with the stripping of the turf by machine, the resulting surface being fieldwalked and metal-detected. After an initial cleaning by hand, the area of the mound could already be identified by a concentration of rabbit burrows (mounds were always a target for rabbits, which preferred burrowing sideways into a mound to digging deep into a flat surface). In the case of this mound the lack of quarry ditches, the presence of the medieval ditch and bank and the edges of the British Museum's 1960s excavations meant that it was not possible to define the mound by the shape of its platform of buried soil.

The whole mound area was trowelled down and planned in 5cm spits, plotting all finds 3-dimensionally, until three substantial features were defined - two large sub-rectangular cuts with an oval pit in the middle. At this stage section lines were set up to form quadrants, taking the central pit to be the centre of the mound. The buried soil was then trowelled away in spits, always keeping the feature fills one spit ahead to avoid contamination, and the sections drawn. It was decided not to excavate the features from the top of the buried soil because definition was difficult due to the fact that they cut the intersections of various prehistoric ditches and previous experience had suggested that the best definition was gained at the interface between the buried soil and the natural subsoil.

Both the larger pits at this stage were thought to be attempts at robbing as the fills appeared to be very mixed. Hence excavation began at our recovery level D (see above), taking down spits of 10cm, plotting all finds in 3D, sieving all spoil and keeping a running section. However, after the removal of the latest mixed silty contexts, excavation of the sandy backfill of the larger of the two cuts, F318, started to reveal several stains which appeared to retain a shape. Also its preliminary interpretation as a robber trench gradually seemed less likely as there was no damage to the vertical sides, which it was already necessary to protect with planks and sand bags, whereas the robber trenches in other mounds usually had steps or a ramp cut for access.

When a large rectangular area of brown swirls in the sand and in one corner a brown stain forming a perfect circle became visible within the feature, we dared to believe that we had an intact burial, and so we changed our recovery level to level E, which meant excavating in smaller spits (no more than 5cm), making a detailed coloured plan of every spit or stage, and keeping a detailed diary of any thoughts, interpretations, weather conditions and mishaps. It was important to record every slight colour change in order not to miss any organic finds or features and to take a generous array of soil samples from each stage and from each suspected feature. As the feature was so large, c.3.5m x 1.6m, it was impossible to dig it from the surface and to prevent the weight and movement of the excavator or her
bucket from damaging any potentially fragile finds or deposits, a cradle of scaffolding poles was devised, which could be removed for photography, and from which all excavation and recording could be carried out without standing on the fill. The excavation continued through eleven stages: the second better defined the shape of the coffin; the third brought to light four iron coffin cleats which had already given readings on the metal detector which was employed at every stage; and the fourth, illustrated in (Figure 4), showed the coffin at its widest stage, the four cleats, the circular wooden tub first seen at stage 1, the rim of a bronze bowl surrounded by stains which persisted all the way down, and swirling patterns in the sand, which later proved to be the result of the grave backfill collapsing into vessels along the northern edge and into the coffin when its lid gave way.

Figure 4

F318: stage 4 plan translated into black and white from the original coloured field drawing

Stage 6 revealed an iron-clad wooden bucket to the north of the coffin, several ribs of lamb underneath the bronze bowl, a knife in its sheath inside the coffin against its southern wall, and the rivet of a bone comb which later proved to be leaning almost vertically against the outside of the northern coffin wall. Stage 7 showed the remains of the collapsed lid of the coffin, in part still retaining the structure of the timber, a bronze cauldron containing a small ceramic pot stood next to the iron-clad bucket, and beneath the circular wooden tub, now no longer visible, a heap of iron objects and silver and gilt bronze fittings interlaced with organic stains.

At stage 8, an angled, square post socket was seen at the centre of the western edge of the grave cut, and the coffin had a strong enough consistency to excavate the fill from against it. It contained the body of a young male, with much of the skeleton preserved as well as some body decay products, his sword in its scabbard and the remains of a purse containing loose fragments of garnet and millefiori at his right side. The body had slipped or rolled slightly to its right hiding its buckle beneath the sword. Outside the coffin were the bucket, the cauldron and ceramic
pot, a 'rack of lamb' still surrounded by a stain which at this stage was interpreted as a bag of organic material containing both the meat and the bronze bowl, the complex of silver and gilt bronze fittings (constituting the bridle belonging to the horse in the adjacent grave) and, beneath this and running underneath the coffin, a pair of spears, which were then better defined at stage 9.

At stage 10 the coffin was sectioned in order to see the shape of its base and, in addition to the spears, it became clear that there was also a shield on the grave floor beneath the coffin. Since many of the finds were in poor condition, members of the British Museum's conservation department came out to lift them in blocks, which, of course, caused a great deal of damage to the bottom of the grave although it was still possible to record a layer of trample and also the varying nature of the natural subsoil (stage 11). In the adjacent grave cut was found the well-preserved skeleton and body stain of a small robust male horse. Figure 5 shows the complete assemblage, as seen before the blocks were excavated in the British Museum.

Figure 5

The Mound 17 assemblage
The copious records made during the excavation of Mound 17 in September and October 1991 allow its story to be told (summarised in the stratification diagram, Figure 6, showing the order of deposition). First the grave, F318, was cut into the buried soil and a post, F357, was inserted into the base of the western edge, probably leaning against the top of the grave on the eastern side (this may have facilitated the positioning of the grave goods). Next a layer of trample, 1588, formed in the bottom of the grave during construction and furnishing and two spears were then placed near its northern edge, with a shield on top of them (there were traces of wood from the shield board preserved on the spears). It is possible that the harness was also laid in the north west corner of the cut at this stage and the iron-clad bucket was placed next to, and slightly overlapping, the shield.

**Figure 6**

![Stratification Diagram](image)

**Mound 17: stratification diagram**

It was only at this point that the coffin was lowered into the grave. To the north of the coffin, next to the bucket, was placed a bronze cauldron, probably filled with some organic produce, with a small ceramic pot on top (the pot was found inside the cauldron but it seems unlikely that this was its original position). Next to these was the rack of lamb with the bronze bowl on top of it and, since both items were consistently recorded within a stain of varying dimensions, it is suggested that they were contained in a bag,
perhaps of cloth or leather. On top of the harness was a possible wooden saddle and a wooden tub. Lastly, a decorated bone comb was placed on top of the coffin (found sticking vertically into the soft sand, it is likely that it slid off the coffin during backfilling). The post, F357, seems to have been extracted before or shortly after the start of the backfilling as no trace of it was seen at higher levels. Backfilling started from a spoil heap of fairly clean, redeposited subsoil on the southern side and continued with more mixed material from the north. Above this, the mound was probably constructed from heaped-up turf, since no quarry pits were found.

Finally, the decay trajectory can be read in the section reproduced here (Figure 7). It appears that the first thing to give way was the lid of the coffin, a plank of the same dimensions as the base, which came away from the iron clamps and fell directly onto the body crushing the uppermost part of the skull. In the meantime the organic fill of the cauldron decomposed allowing the ceramic pot to sink down into it, and the wooden bucket rotted to leave its iron hoops slumped on top of each other. The space left by the collapse of the coffin lid was immediately filled by the sandy grave backfill which shows as a series of dished deposits in the section, and as the swirling brown patterns which were seen in plan throughout stages 1-7. To a lesser extent these patterns were also seen above the grave goods along the northern edge of the grave.

Figure 7

F318: black and white "translation" of the original coloured field drawing
Conclusion

It is not the intention of this paper to publish the findings from the Sutton Hoo Research Project but rather, with the permission of the project's director, Martin Carver, to use the information and experience gained there to show how burials can be recorded and studied in such a way as to infer a sequence of events, rather than a static tableau.

This sequence of events can shed light not only on the ritual enacted at the time of burial (translated into a series of individual actions spread, sometimes, over a considerable period of time) but also on the post-depositional fate of the burials. The latter includes natural decay and collapse, as well as later intentional and unintentional interventions, such as rabbit burrowing, ploughing, antiquarian investigations and recent, or not-so-recent, deliberate excavation: in short the whole story which a burial can tell, not just that chapter confined to describing the original event.

The methods employed were developed specifically for Sutton Hoo but are still being successfully employed on similar sandy sites. Since Sutton Hoo was a research project, a certain amount of control could be exercised over the time and expenditure given to individual burials, perhaps more so than in the "rescue" situation. Nevertheless, there were constraints on time. It should be noted that the excavation of the Mound 17 burial from stage 1 (i.e. not including the definition of the mound and the removal of the first part of the fill) took about 53 days, often with two people to speed up the recording process when under pressure to finish before the wintry weather set in, threatening to damage both burial and finds. Much of the information gained, particularly for the organic finds, was due to digging in spits and recording in colour. The section, presented here is a composite: the top part was drawn cumulatively, the middle reconstructed from the stage plans, thus lacking the soil patterns of the backfill, and the bottom part again drawn from a standing section. Had the excavator attempted to maintain a cumulative section throughout, at least another week would have been added to the time.

Nonetheless, we hope to have shown that the effort expended has added considerably to the "dry bones" of a burial. The stories which burials provide are worth telling: this particular story ends with our own dissection of the Sutton Hoo mounds, leading us from the process of intervention in the filed into the realms of historiography, methodology and interpretation.

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