as Thanet Sand, in which case the sedimentary sequence extends to a greater height than previously recorded, as well as covering a greater area. This work shows that surprises remain, even in a well-researched and mapped locality such as Swancombe, and highlights the potential for further investigations of the newly discovered higher parts of the Boynt Hill/Ossett Heath formation.

References


Investigations of an Earlier Palaeolithic site at White’s Pit, Santon Downham, Suffolk 1994-5. (T. 841867)

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Introduction
This short note presents the results of recent investigations at the site of Santon Downham, Suffolk. The site is located in a small dissected gravel pit, incised into a poorly developed terrace of the Little Ouse River, some 25kms north-west of Santon Downham Parish Church. The ground surface lies at 15m OD., about 8m above the present level of the river which forms a loop some 500m to the north. The pit has been worked to a depth of 4-5m. The current phase of investigation was aimed specifically at establishing the geological sequence at the site and providing a context for the extant artefacts.

Geological and Historical Background
Despite published observations by both Flower (1868, 1869) and Evans (1868, 1897) remarkably little is known about the site or its geology. No formal excavations or detailed geological work has ever been undertaken and while Paterson (1942) did record a section from Santon Downham, this was located some 3.5km west of White’s Pit. The Geological Survey Memoir (Whitaker et al. 1891) simply cites Evans.

The local geology is Upper Chalk, with sporadic outcrops of boulder clay, principally on higher ground (Whitaker et al. 1891). The Little Ouse River has incised a course through the area, depositing a series of poorly-developed terraces above the Chalk bedrock. White’s Pit is situated on the highest of these terrace features, the precise age of which is unestablished. The extent of this terrace is also unclear, but remnants of sands and gravels survive in substantial quantities in solution hollows (Evans 1868).

Evans (1868) describes large cavities within the Little Ouse gravels, including one visited by a Mr. Petch in “the pit near Santon Downham”. This was large enough for Petch to stand up in, demonstrating that the gravel here was of considerable thickness. Although there are several relict pits in Santon Downham Parish only one - that under investigation - fits this description (Wynner 1985). Flower (1869) further notes that the pit near Santon Downham was close to a small farm - Little Lodge Farm lies only 400m to the north-west. We can be fairly certain, therefore, that the published descriptions refer to this pit. Henry Prigg (1869) notes that the pit was worked by one Mr. White - a name resurrected for the current investigations.

Artifacts were first collected from Santon Downham by Henry Prigg and John Evans in 1865 (Prigg 1869; Evans 1897), and the area soon became a focus for collectors, including Rev. W. Weller-Poley, J.W. Flower and H.R. Maynard (Franks 1868; Fox 1871; Wynner 1985). Most of the artifacts are recorded as coming from a thick gravel unit (Evans 1868, 1897; Flower 1868). Yet, as is often the case with older collections, although we have a stratigraphic context and a primary location, it does not automatically follow that all of the extant artifacts came from the same pit. Indeed, only a single biface, housed in the Ashmolean Museum, is directly attributed to White's.
Pit (Wymer 1985; Roe 1968b), but many others are marked as coming from the nearby Little Lodge Farm (Roe lists 57 artefacts). It seems a fair assumption that most finds marked thus came from White’s Pit. Many finds, however, are simply marked ‘Santon Downham’, and as gravel was extracted from several locations in this parish the provenance of these artefacts remains uncertain. Wymer (1985: 106–7), however, notes that all other reflect pits in the area are shallow and insignificant (many are at a lower level also), and tentatively concludes that White’s Pit must be the original source for most of the extant artefacts. This would certainly accord well with Evans’ statement that “this spot...produced, at a moderate estimate, several hundred specimens, some of them affording the finest instances of the skill of the Palaeolithic period which has been found in Britain or indeed elsewhere” (Evans 1897, 556).

Most of the surviving artefacts, a total of about 150 pieces (Roe 1968b), are bifaces: a situation which is clearly the product of Victorian collection biases. The condition of the extant collection is varied: Wymer (1985: 389) indicates that some 65% can be considered to be slightly rolled to sharp, whereas 35% are rolled and very rolled. In his typological analysis, Roe (1968a) ascribed Santon Downham to his intermediate group (displaying no shape preference), a conclusion which seems to be supported by Wymer’s typological classification (Wymer 1985, 389). Roe (1981) further notes the presence of a Bout Coupe form, while Wymer (1985: 108) illustrates a possible Levallois flake from the site. The above factors might suggest that the collection represents more than one assemblage: either a mixed assemblage from the same gravel, or, indeed, an amalgam of artefacts from different locations.

During the 1920s the land was planted with conifers and has since come under the auspices of the Forestry Commission. Until the summer of 1994 the site was inaccessible due to tree cover, but the Forestry Commission has since cleared the surrounding area and for the first time in 70 years the site is available for investigation.

Two sections were excavated, one on the north and one on the south of the pit. In neither section was it possible to excavate to the bedrock. The area is mapped by the BGS as Upper Chalk, but auguring attempts were halted when water was reached at approximately 4m below the bottom of the pit (at the level of the river). Chalk with flint nodules was, however, seen to outcrop on the south bank of the modern river.

The base of the sections reveal a sequence of coarse/medium cross-bedded chalky sands with occasional silt laminations (stratum 1). These are at least 3.2m in thickness - the base of the deposits was not exposed or reached by hand-augering - and severely deformed by numerous small-scale normal faults. Above the sands is a 2-2.5m thick series of laminated silts and clays. These are olive coloured at the base (stratum 2), but the upper part is decalcified and brown in colour (stratum 3). The upper surface of the silts and clays is undulating and slopes into the centre of the pit.
A sequence of gravels and cross-bedded sands (strata 4-6), some 0.8-1m in total thickness, overlies the silts and clays. The gravels (stratum 4) contain occasional flat nodules up to 25cm maximum dimensions. The lithological composition of two bulk samples from stratum 4 is predominantly of flint, quartz and quartzite (31-13%) and chert, including Rhaetian chert (1-4%), making up the remainder of the samples (Simon Lewis pers. comm). The capping sediments (stratum 7) consist of fine coversands and top soil, both containing a number of later prehistoric flint artefacts.

The basal sands are probably of low energy fluvial origin. The evidence for faulting within these sediments suggests post-depositional collapse into hollows in the underlying Chalk bedrock. The overlying laminated silts and clays indicate lacustrine conditions, possibly representing a pro-glacial lake environment, or merely localised ponding, perhaps associated with solution of the underlying Chalk bedrock. The overlying gravels suggest fluvial deposition by the Little Ouse River, the clast lithology being typical of other river terrace deposits in the area (Simon Lewis pers. comm). The gravels appear to thin out towards the south west (away from the river) and it is probable that the site is at the back edge of the poorly-developed terrace feature.

In both sections the gravel and overlying sand units (5 and 6) dip and increase in thickness towards the centre of the pit. This suggests that these sediments were either: 1) originally deposited in a deep solution hollow, or 2) subject to localised solution and collapse subaerial to deposition. The fact that the underlying clays also dip towards the centre of the pit, and that the entire basal sequence shows severe faulting, confirms that solution has deformed the sediments, but this does not resolve the problems surrounding the timing of the solution in relation to the fluvial sequence.

Evidence for faulting in the fluvial sequence, combined with the presence of flume-structures associated with deflation and collapse in the north section, demonstrates that at least some solution occurred post-depositionally. This would also account for the cavity that Evans noted within the gravel. However, it is very difficult to reconcile the depth of gravel encountered in either section with the quantities described by Evans. It also seems unlikely that a 5m deep pit would have been dug to extract such a small volume of gravel. This might suggest that much deeper accumulations existed in the centre of the pit, possibly resulting from solution prior to the final fluvial aggradation at this height allowing larger volumes of gravel to amass in a hollow. No definite conclusions can be made, but it seems feasible that solution continued for a considerable time both during and following the aggradation of the fluvial sequence.

Archaeology
All archaeological finds were recovered from near the base of the dark-brown medium gravels (4). This corresponds well with the various descriptions of the original works. The present collection comprises a total of 28 pieces, including 2 cores showing the use of alternate flaking (sensu Ashton 1992), 23 flakes, 2 biface thinning flakes and 1 flaked flake (Ashton et al. 1991). No bifaces were found, although the presence of biface thinning flakes confirms an Achellean element to the assemblage. The amount of material recovered is modest, but as only a small quantity of gravel was excavated this is not considered to contravene Evans’ estimate of the pit’s original artefact yield. The majority of the recovered artefacts are in rolled or slightly rolled condition, and while some might be classed as sharp, none are mint. This corresponds fairly well with the material currently housed in museum collections.

The condition of the artefacts shows that most were subject to fluvial transport and/or erosion prior to burial. The heterogeneity in the condition of artefacts from the same gravel unit indicates that a variety of depositional histories are represented, the fresher pieces possibly coming from close to the site, the more rolled specimens from much further afield. If solution did occur prior to or during the deposition of the implementiferous gravel, then the large quantities of artefacts may represent diverse river-borne material that became trapped in the resulting hollow.

Final Remarks
Although only a small collection was recovered, and the interpretation of the geology and site formation processes is tentative, it appears that the site of Santon Downham represents a natural hydraulic catchment area for lithic artefacts, some perhaps manufactured nearby, others transported by the river over some distance. With such site formation processes, the existing collections must be considered of low integrity, and the entire site is of doubtful value in either morphological analyses (eg. Roe 1968a) or behavioural interpretations. This would certainly make some sense of Roe’s assignation to an intermediate group, although the conclusion must now be that a mixture of elements from several original assemblages were present in his sample.

It is unlikely that the site will repay extensive excavation. Samples from White’s Pit are currently being investigated for faunal remains by Daniell Schreve of Durham University, although preliminary results suggest that little, if any, are present (D. Schreve pers. comm).

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An artist at work

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In November 1972 the official newsletter of the Archaeological Society of Victoria, *The Artifact*, published a paper I wrote about a seminar I engaged in with a member of the (Njuringa) people of north-west Australia - that is to say Aborigines - called Bob Wahoo, in which he demonstrated to me and taught me a method of making a bifacial stone tool he had learnt from his father and grandfather, who were considered the best craftsmen in this field among his people (Rainey 1973). The biface he produced is shown in Figure 1.

The event took place on a cattle station about a hundred miles east of Kununurra, Western Australia, in 1970. The station owners were friends of mine. I was an arts graduate from Trinity College, Dublin, but I had worked on it as a stockman (cowboy) for several years. This was my profession, archaeology was my hobby.

Having collected some percussion tools - three pebbles, a small one, a medium-sized one and a bigger one - and some flat pebbles or slabs of rock 15-20cms long as cores (made of harder rock than the pebbles, though not of particularly good quality) in the neighbourhood, he selected a suitable place to work, sat down legs crossed 'Indian'-fashion, and set to work making the biface. We sat opposite each other. He held the pebble hammer lightly in his right hand and the flat core as lightly in his left and struck pebble against rock, first with large, long strokes, to achieve the general shape and size, and then little by little, as the tool took shape and the work became more detailed, with shorter strokes. He began with the large pebble and ended with the small one, which was about hen's egg-sized. On the whole he worked systematically from one end of an edge to the other, then rotated the core and carried on similarly down the other edge.

At the beginning he made a point of explaining that it was essential to sit properly in a well balanced position to do the job. This was also, he said, the best position to keep your legs safe from flying debris. When he started working he fell into a state of intense concentration. He seemed to block out the entire external world from his mind, apart from the materials in his hands, and his hands themselves developed a kind of fine tuning, or a sensitivity of extraordinary delicacy. All the time he seemed to be attempting to allow the stones almost to float freely in his hands as if the stones were burning hot. He kept repositioning the finger pads of his left hand so that they were exactly beneath the point of impact of his hammer. Afterwards he explained to me in his elementary English how this reduced the chances of the rock’s fissuring or breaking.