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THE STRATIGRAPHY OF THE DEPOSITS IN PICKEN'S HOLE

by

A.M. ApSIMON and P.L. SMART

ABSTRACT

The nature and sequence of deposits encountered during the excavation of Picken's Hole are described based on field observations during excavation and available records. Six units are recognised from Unit 6 at the base to unit 1 at the top which includes the present-day soil. Unit 6 presents an irregular top surface and a range of deposits from clays and free sandy material to densely cemented limestone breccia sometimes with significant voids, but often transitional to *in situ* bedrock. Unit 5 is a relatively thin unit and becomes patchy or absent to the south. It comprises a variable assemblage of reddish clay loams in places with weathered limestone, and generally abundant heavily mineralised and very broken bone. Species present include brown bear, wolf, red fox, reindeer and a large bovid, but hare, gregarious vole, northern vole, bird and frog bones also occurred. Unit 4 comprises an angular limestone breccia with limited weathering, and a grey yellow to brown sandy matrix. Where it overlay Unit 5 the base contained blackish animal bones and teeth, including wolf, red and arctic fox and reindeer. Elsewhere, Unit 4 rested directly on Unit 6, from which it contained cemented clasts. Unit 3 is a maximum of 80 cm thick and comprises yellowish clay to sandy loams as matrix within highly weathered limestone breccias. There is evidence for local topographic control of some contexts, with dips towards the south, and infill of a depression formed against the cliff. Substantial amounts of fragmented yellowish and largely un-weathered animal bone and teeth were present, mainly in the lowest 50 cm of the unit. Finds were dominated by spotted hyaena, woolly rhinoceros and horse, but apparently included 2 human teeth. Unit 2 comprises a variable sequence of matrix rich breccias and more clast free reddish brown clay silts. The angular limestone clasts lie horizontally and are more weathered at the top of the unit. In square D the unit overlies a thin yellow silt over bedrock. Unit 1 includes the modern soil. Unit 1 lies unconformably over the eroded remains of Unit 2 and 3 to the west and north of the site, but appears to be conformable on Unit 2 in the south of square B. The soil comprises turf and topsoil above a somewhat bleached horizon, with a brown more clay rich unit including weathered limestone clasts at depth. The deposits have been affected by the burrowing activity of badgers, the distribution of which is described in an Appendix.

INTRODUCTION

The deposits on the site have been grouped into six sediment units numbered from the top down:

Unit 1	Soil and Superficial Layers
Unit 2	Clayey Breccia
Unit 3	Sandy Loam
Unit 4	Sandy Breccia
Unit 5	Reddish Brown Clay Loam
Unit 6	Limestone Breccia

Subdivisions within these units are where possible identified by context numbers given within each square as it proved impractical to carry uniform numbering of sub-divisions across the whole area excavated. This was partly because there was a great deal of lateral variation, but mainly because the key reference section on the west side of Square B was lost through the partial collapse, and subsequent removal of the B/E baulk in 1963.

A fence diagram was prepared to show the relationship between the stratification observed in the drawn sections available for the site. The diagram uses the local site grid and elevation in m AOD, with the main north-south sections across the page, and east-west sections drawn oblique to these to produce a 3D view. The spacing between the DEF and Partial north-south sections is correct, but the full F section is displaced to the north to avoid overprinting. Similarly the ABC section is displaced obliquely to the east so that it does not obscure the Partial section. The latter is along the boundary between squares ABC and DEF (actually it is displaced c 0.1 m into Square D, only following the boundary after 0.8 m towards Square C), whilst ABC is across the centre of squares ABC, the same position as used for the drawing in Tratman (1964), but extended southwards into square A. Section DEF is on the western boundary of these squares. The Partial section is based on a drawing by Apsimon in 1964 which maps extant deposits at the north and south ends of the section, but also includes in pencil details of the central deposits taken from previous drawings which are no longer extant. The boundaries between sediment bodies are marked as chained on this section. All are dashed in the original, but Units are labelled. Units are not marked on the southern deposits, rather contexts labelled in Roman numerals have been used. Unfortunately these are not allocated to specific Units, and the two cannot always be cross-correlated.

UNIT 6: LIMESTONE BRECCIA

This unit was the lowest exposed over most of the excavation. At the north side of square E and in squares C and F, it passed down into massive boulders or shattered rock, or overlay bed rock, but elsewhere it was not bottomed. Where first found in square B, it consisted of angular limestone clasts irregularly cemented with calcite and with considerable amounts of a dark brown mineral with radiate structure in the interstices. This was shown to be mainly limonite/goethite ($Fe_2O_3.3H_2O$), plus a little psilomelane ($MnO_2 .H_2O$). To the south, air-spaces between the clasts were common, and there was very little matrix. The irregularly cemented blocks were separated by deep vertical fissures filled with fine greyish sand with signs of iron and manganese oxide deposition at the top. The top of the Limestone Breccia rose steeply and irregularly southwards and westwards to reach a maximum height of 49.45 m in square E. Against the rock face in square D the Limestone Breccia dipped southward and showed areas without cementation, with a matrix of coarse brown sand, in places stone-free, or containing large angular limestone clasts. In the middle of Square E removal of the upper blocks of Limestone Breccia by blasting exposed voids and similar sands. The lowest point reached here was about 47.6 m. A cavity was also revealed descending a further 1.5 m to 46.4 m. The walls of this cavity were apparently composed of partly shattered limestone retaining its normal southerly dip, the floor apparently being undisturbed bedrock.

A cavity in square F was also excavated. This was floored by hard red-brown sand with streaks of calcium carbonate and fine gritty limestone fragments (F17), passing down into weathered limestone bed-rock. The basal deposit was a stiff brown clay up to 20 cm thick (F16) containing occasional small weathered limestone pieces, and material originally identified as "abundant frog bones", which post-excavation examination showed to be mineral, possibly iron/manganese concretions with a needle-like form. On this rested fine yellow-brown sand, about 7-10 cm thick (F15), with small weathered limestone clasts up to 1 cm, generally separated from the overlying breccia by clean yellow sand (F14). This sand was stone-free in places, in others it contained angular limestone fragments and blocks of cemented breccia. On

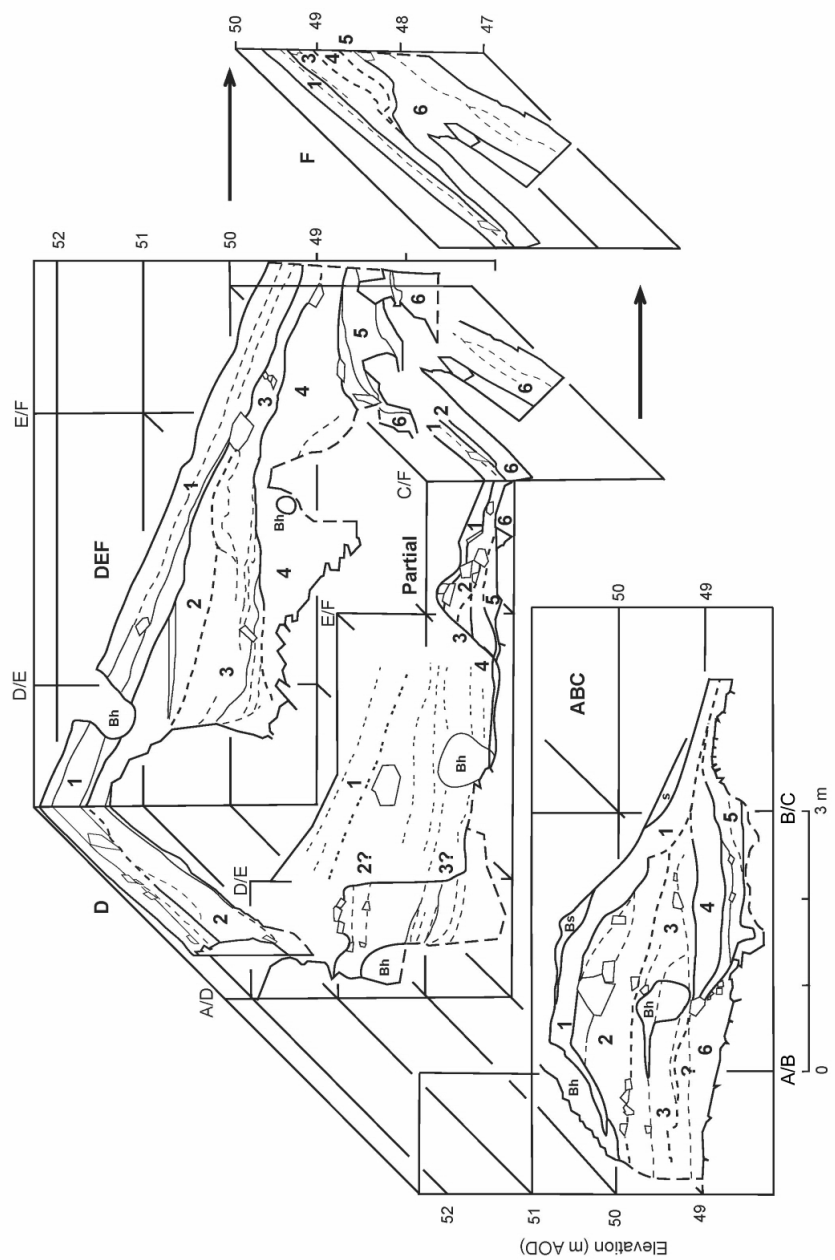


Figure 1. *Fence diagram (see text for explanation) showing the relationship of deposits marked on drawn sections (bold capitals). Unit numbers are in bold and are marked by bold lines (dashed when less clear), with additional bedding surfaces marked in feint (dashed when less clear), chained on the Partial section. Bh badger hole, Bs badger spoil, s slumped. Square boundaries are labelled D/E etc*

the north side it was overlain by breccia with yellow sandy matrix (F12); on the west it was penetrated by a pocket of coarse reddish clayey sand (F10); this contained some sub-angular limestone fragments, but was relatively stone-free towards the bottom. In this area the upper surface of the cemented breccia was variably covered by a thin skin of calcite. Elsewhere, limestone clasts on the upper surface of the Limestone Breccia were rounded and weathered, and the pockets and hollows in its upper surface were filled with reddish sandy loam and clay loam of Unit 5.

. No finds were made within Unit 6.

Figure 2. *Square B west face viewed from north east (local grid directions). In the background the turf is being cleared from squares E and F. In the immediate foreground (bottom left) and at extreme top left is the rock face which forms the eastern and southern walls of the original cave. The face is essentially that shown in the central section of section ABC. The badger spoil mantling the deposits can be see immediately above the ranging rod, with the burrow between the deposits and cliff in Square A evident at top left. The prominent rock embedded in Unit 2 is to the left of the top of the pole, whilst the badger hole immediately left of the black segment of the rod is in Unit 3, context B9 forming the recessive unit at it base. Unit 5 directly overlies the very irregular and variably cemented surface of Unit 6 exposed in the base of the trench, and is distinguished by its darker colour. Unit 4 forms a lensoid features thinning onto Unit 6 to the left of the badger hole, and the rising surface of Unit 5 where it passes into Square C bottom right. Here shattered bedrock is present which is often transitional to Unit 6 deposits. Note the contrast between essentially horizontal stratification in Unit 5 to 2, and the sharp erosional contact with Unit 1 (at the level of the dark to light band at the top of rod) which has predominantly downslope imbrication. Markings on the survey rod are in feet.*

In summary, the Limestone Breccia is clast supported and had a number of different facies, varying from angular limestone clasts with significant voids cemented by sparse calcite, through to more or less cemented breccia with a sand matrix. The upper surface on the Unit was irregular and of variable elevation but typically showed either calcite cementation, or clast rounding and infill with sediments from Unit 5. The base of the unit showed a gradational transition to *in situ* bedrock at varying depths.

UNIT 5: REDDISH-BROWN CLAY-LOAM

This overlay Unit 6 and was covered by Unit 4. Where first exposed in the trial trench (Square B) it showed a lenticular north-south cross-section 20-25 cm thick in the middle, and thinning both north and south against the rising surface of Unit 6. It rested either on the top of the cemented Limestone Breccia and filled pockets in its surface, or rested with a sharp transition on the sandy facies (B17) which filled interstices in the Limestone Breccia.

In Square B four subdivisions of the unit were established. In descending stratigraphic order:

(B14) Dark reddish brown clay loam, the top locally a light red, very sticky clay loam, overlay (B15) and overlapped it southwards.

(B19) Intercalation of partially decalcified limestone fragments in grey sandy matrix, lying horizontally between (B14) and (B15).

(B15) Red loam, lighter than (B16), overlying it and overlapping it northwards and southwards.

(B16) Dark reddish clayey loam with very small weathered limestone fragments found locally at the north side of the square.
Both (B14) and (B15) contained very little limestone, all very much weathered.

All three subdivisions (B14-16), contained bones, teeth and antler, and the upper part of the unit in the northern part of square B was densely packed with bone. The bone fragments were heavily weathered and mineralised, stained black, crushed and warped. Apparently complete bones and antlers were comminuted. Bones were also found lying vertically in pockets in the surface of Unit 6.

Eastwards the unit thinned to a mere film as the edge of the excavation was approached; westwards it thinned as the surface of the Limestone Breccia rose, so that it was represented within square E only by pockets of red sandy loam filling hollows in the breccia. A single canine of bear was found at the south side of the square in a thin layer of red-brown clayey silt (context E20). A second exposure of this unit was found at the west side of square F, where it overlay the comparatively level surface of the Limestone Breccia. Only two subdivisions were recognised here:

(F8) Reddish brown clayey loam, practically stone-free, rested on:

(F9) Reddish-brown clayey loam, as (F8), but with weathered limestone clasts, rested on Limestone Breccia (F9).

Both subdivisions contained bones and teeth similar in character to those from square B (B14-16), and the small area of (F8) exposed was densely packed with bone.

A small patch of reddish clay loam with numerous weathered limestones (G4) and containing bone fragments, was found on the shattered surface of the limestone at 48.15 m OD in the south-west corner of cutting G-H. This may represent the northward downslope termination of Unit 5. Whilst to the south in the cave passage in Square A, Unit 5 was represented by a reddish sandy clay containing blackish bone fragments. At the mouth of the passage this filled pockets between partly cemented limestone blocks overlying angular limestone rubble with air spaces, further in it filled the interstices.

Among the animal remains from Unit 5, brown bear, wolf, red fox, reindeer and a large bovid were the most common, but hare, gregarious vole, northern vole, bird and frog bones also occurred. The vole and frog bones were noted as occurring in bird pellets. The scattered remains of at least two foxes were found in the top of layer (B14), immediately beneath the sandy breccia, Unit 4. Remains of fox, reindeer and bovid, but no bear, were found in the cave passage. No human bones, artifacts or other signs of man's presence were found anywhere in unit 5. For a full account of the fauna, see Scott, pp 267-313, this volume.

In summary, Unit 5 is a relatively thin unit (max 25 cm), and becomes patchy or absent in some parts of the site. It comprises a variable assemblage of reddish clay loams in places with weathered limestone, and generally abundant heavily mineralised and very broken bone.

UNIT 4: SANDY BRECCIA

This unit was an unconsolidated limestone breccia with a matrix of coarse sharp sand, greyish to pale reddish yellow when freshly exposed, oxidising to brown after exposure. The limestone clasts which constituted about 80% of the unit, were generally sharp, angular blocks of cemented Limestone Breccia, with limonite/goethite mineralization, resting on their edges or ends were noted towards the base, the interstices being filled with sand, but the majority of the smaller clasts lay roughly horizontally.

Where this unit rested on Unit 5, the transition in terms both of matrix and inclusions was sharp. In Square B, the basal 2-5 cm (B13) were dark reddish brown, apparently due to iron deposition, and contained bones and teeth. These were complete, relatively un-mineralized, and with a yellowish colour, contrasting with the blackish weathered bone from Unit 5. Above this the matrix of the lower half of the unit (B12) was pale greyish-yellow sand, that of the upper half (B11) was ochreous brown. The upper surface showed locally a zone up to 5 cm thick (B10) in which the limestone clasts were rounded and the matrix was a brown clayey silt corresponding to that of the base of Unit 3.

On the east side of the trial trench in Square B, the Sandy Breccia was missing, having apparently been dug away by the badgers, but it continued southward to the rock face by the mouth of the cave passage, where it was up to 30-45 cm thick. Northwards in square C it wedged out over a shattered boulder, westwards it was present in square E as up to 20-30 cm

of sharp angular limestone clasts and blocks of cemented Limestone Breccia in reddish brown sand (E16), with a superficial zone of less angular limestones in yellowish sand (E15). In squares B and E, the upper surface of the unit was roughly level from south to north, but showed a downward slope from west to east of about 4º.

In square F, in the north-west part of the site, where the surface of the cemented breccia fell away sharply, the sandy breccia was as much as 70 cm thick. Here two facies were observed overlapping northward (Figure 7). The lower (F6), was composed of angular limestones and blocks of cemented breccia, up to 20 cm long, with a sandy matrix. It contained animal bones and teeth, including some with a blackish colour suggesting derivation from Unit 5. It was found only in the northern 1.2 m of the section. The upper (F5), still with large limestone blocks, had a matrix of brown silty loam. In squares A and D on the south side, and E on the west side of the site, where Unit 5 was missing, Unit 4 rested on the surface of the Limestone Breccia filling deep fissures.

The fauna includes red fox and arctic fox, reindeer, wolf, voles and possibly bovid. The wolf bones are from the basal part only. No human bones or artefacts were found.

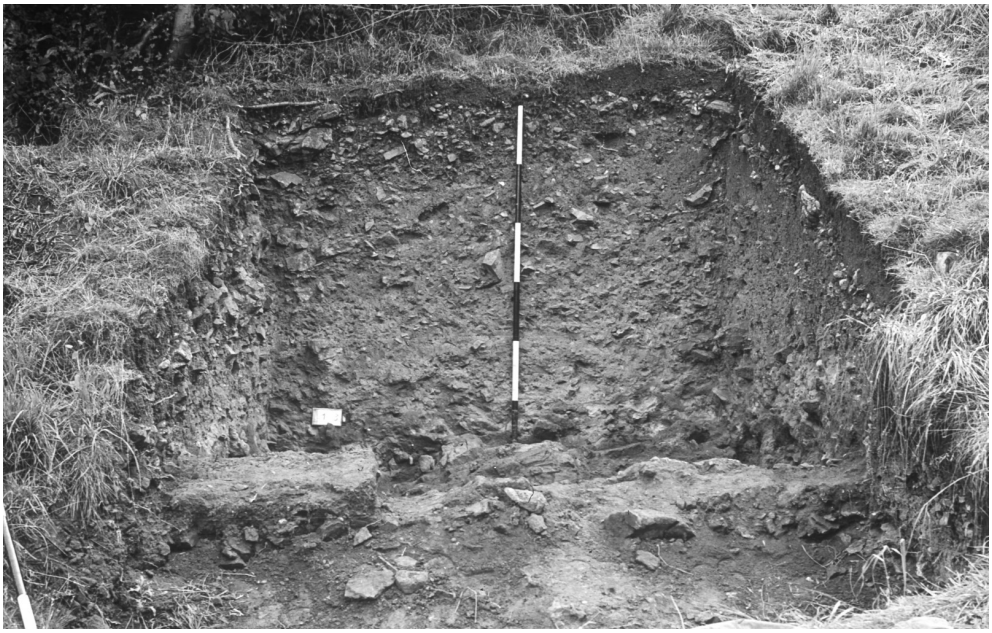


Figure 3. *South face of Square E, with west and east faces seen to right and left respectively. The face has not yet been cut back to the rock face in Square D and to the left is a temporary baulk into Square B. The irregular surface of the cemented breccia of Unit 6 seen is in the foreground at the base of the excavation. Note the thickening of the stony member of Unit 1 (context E2) seen in the south face, which contrasts with its linear downslope orientation seen in the west face. The continuity of sedimentation between Units 2 and 3 is clear, with Unit 2 being more clast rich. Unit 4 is the clast rich sediment in the lowest black segment of the ranging rod. Markings on survey rod are in feet.*

In summary, Unit 4 reaches a maximum of 70 cm thick, and comprises an angular limestone breccia with limited weathering, and a grey yellow to brown sandy matrix. The basal unit where it overlay Unit 5 contained blackish animals bones and teeth, including wolf, red and arctic fox and reindeer. Elsewhere, Unit 4 rested directly on Unit 6, the Limestone Breccia, from which it contained cemented clasts

UNIT 3: SANDY LOAM

This varied in thickness from 80 cm on the east to about 50-60 cm on the west side of the excavations, being thickest where its base rested in hollows in the upper surface of the Sandy Breccia (Unit 4). The upper surface of the unit slopes very gently to the south in squares D and E, but to the south in squares A and B the boundaries between Units 2, 3, 4 and 5 are less clear because of the high clast density. In all sections, Unit 3 is truncated to the north by erosion. In section ABC (and DEF) this truncation clearly postdates deposition of the overlying Unit 2, with a marked 'cliff' cutting both units just south of the BC boundary. The matrix of the unit varied from clay loam through silty loam to fine sandy loam. Away from the cliff the lower part of the unit was locally almost stone-free, but closer to it the stratification was complicated by increasing amounts of limestone clasts. The majority of these lay roughly horizontal, but occasional fragments were on end. The clasts were generally up to 20 cm in length, but the majority had suffered decalcification *in situ*, the results ranging from rounding of angles and a powdery surface texture, to reduction to a 'sugary' coarsely granular texture easily cut through with a trowel.

In Square B, the base of the unit was formed by a generally stone-free brown clay-loam 5-15/20 cm thick (B9). Southwards against the cliff this passed laterally to a brown sand with decalcified limestones resting directly on the unconsolidated Sandy Breccia of Unit 4 (A6?). On the south side of the site this basal member was covered by a consistent layer of strongly decalcified limestones in a blotchy grey-brown matrix, consisting largely of coarse sand derived from disintegrated limestones (B8). In places this layer was cemented due to re-deposition of calcium carbonate. B7 above also comprised decalcified limestones, but the matrix was reddish brown. Above, Unit 3 terminated in a stoneless silty pale brown units with a surface slope to the north (B6).

To the west, section DEF shows contexts E7-E14 are ascribed to Unit 3 but there is no clear unit affirmation for contexts in Square D. The drawn stratigraphy here is complex. Contexts E11-E14 are shown as progressively infilling to the north a depression formed between the cliff to the south and a high point in Unit 6 to the north. The basal context, a brown silt clay may correspond to B9 to the east. All the contexts include decalcified limestone, and are recognised by differences in colour and texture. This pattern of sedimentation appears to change with E10, which comprises banded pale yellow stoneless sediments forming a mound just south of the EF square boundary, thinning to the south, and infilling a depression in surface of Unit 4 (context F4, truncated by later erosion), This pattern is drawn as continuing with contexts E8 and E9 both of which include weathered limestone clasts and pass laterally to the south into context E7 in which the limestone are drawn as more angular, and the matrix is a reddish brown fine sandy loam. Context E7 infills the depression, and the surface slope of Unit 3 is to the north towards the mound.

Unit 3 yielded a substantial quantity of fragmentary animal bone and teeth. In the parts of squares A, B, D, E and G, in which the unit appeared to be *in-situ*, a total of 500 finds was three-dimensionally recorded (excluding the trial trench, B, where this was not done). The

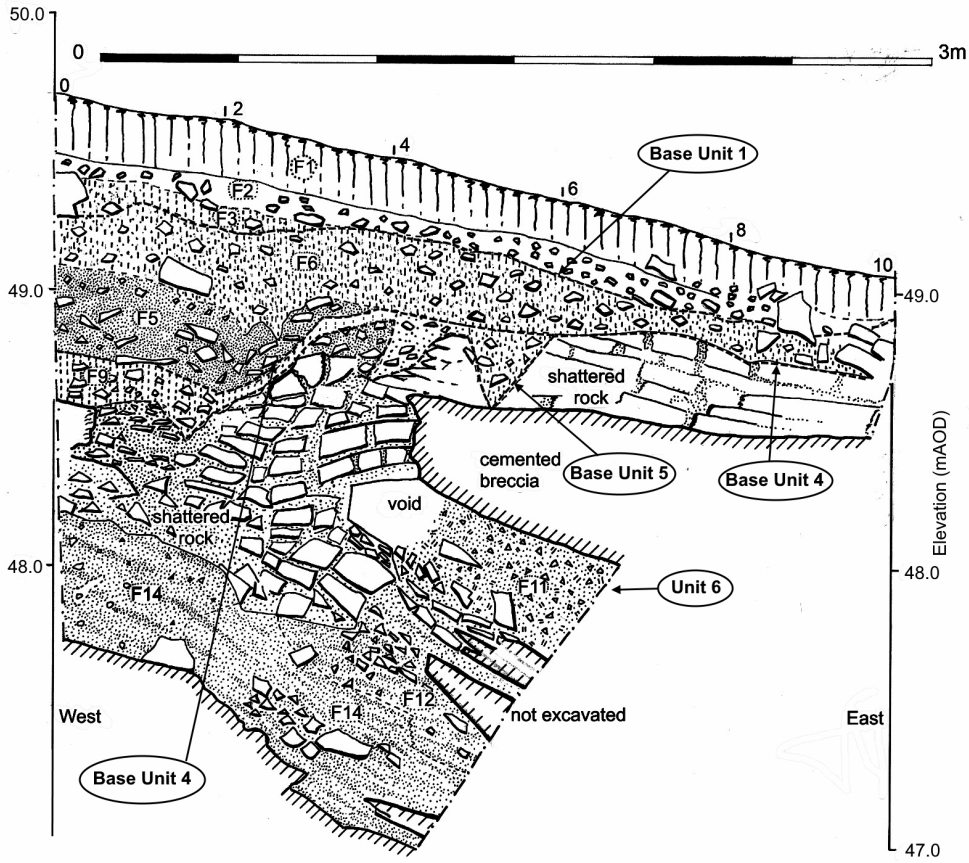


Figure 4. *Section showing the north face of Square F.*

density of finds was greatest in a strip extending northwards from the mouth of the cave, reaching a maximum of 118 per m^2 in quads [B04]-[B06], on the western edge of square B. Westwards, that is into square E, the density fell off to less than a third. Finds occurred in the basal clay-loam (B9), but were most frequent in a zone from 15-20 to 45-50 cm above the base, corresponding mainly to the layer of very decalcified limestones (B8) and to the banded loams of contexts A6 and E10. Few finds occurred in the upper 15-20 cm of fine sandy loam (B6). The zone containing bones and teeth continued for about 3 m into the cave passage, thinning from about 20 to only 9 cm thick. The stones lying free on the floor here were polished as though by the feet of the hyaenas using the passage. The bone fragments were distinguished from those from Unit 5 by their yellowish colour and unweathered appearance, and from those in Unit 4, by their much greater degree of reduction by gnawing.

Figure 5. *East face of Square E with cemented breccia of Unit 6 at base. This is the south to central part of square E as shown on section DEF (D has not yet been excavated). Note the sharp contact between Unit 1 and the underlying deposits at top white to black marking top of ranging rod. The underlying sediments in Unit 2 have horizontal stratification to the left (south) whilst they are dipping downslope to the right (north). Unit 2 is darker than the underlying Unit 3 (essentially equivalent to the second white unit down from the top of the rod), whilst Unit 4 has a much higher clast density and horizontal stratification (second black section of rod). The markings on the rod are at foot intervals.*

The most frequently occurring remains identified were spotted hyaena (181 specimens) woolly rhinoceros (101), and horse (100). Red deer, reindeer, [giant deer,] mammoth, a large bovid, Arctic fox, suslik, lion, voles, birds and frogs also occurred, as well as some human teeth (but see ApSimon and Mullan pp 339-341, this volume).

Unit 3 yielded 48 pieces of stone likely to have been brought to the site by Man, principally Carboniferous chert, with smaller quantities of Cretaceous flint and quartzite pebbles. Most of these were artefacts but there were also some shatter fragments and thermally fractured pieces. The distribution of these finds shows a concentration extending from the middle of square E [E44] to the baulk on the west side of the trial trench [B04] (see Wragg Sykes pp 315-338, this volume).

Some of the finds came from the basal clay loam (B9), but most occurred in the silty loam between 49.5 and 49.8 m AOD. In several cases finds occurred at the same level in close proximity, although in no case could finds be related to a distinct surface within the deposit. There were no finds from the cave passage which was too small for human occupation. No evidence of structures or of other human activity was found.

In summary, Unit 3 is a maximum of 80 cm thick and comprises yellowish clay to sandy loams as matrix within highly weathered limestone breccias, or clast free towards the base. There is evidence for local topographic control of some contexts, with dips towards the south, and infill of a depression formed against the cliff. Substantial amounts of fragmented yellowish and largely unweathered animal bone and teeth were present, mainly in the lowest 50 cm of the unit, and were dominated by spotted hyaena, woolly rhinoceros and horse

UNIT 2: CLAYEY BRECCIA

This was only present at the south side of the site in squares A-B and D-E, where it overlay Unit 3. It consisted of a matrix of indurated, brown to reddish brown clayey silt, with varying quantities of angular limestone clasts, generally less than 20 cm in size. The matrix showed a sharp contrast of colour (more brown than yellow) and a distinctly more clayey texture than that of Unit 3. The maximum thickness of the unit was about 45-60 cm, southward where it butted against the cliff face, northwards it has been truncated by erosion. No artefacts or faunal remains were found in this unit.

In Square E, context E6, the clasts lay horizontally and the horizontal disposition of the sediments is confirmed by the transition to the overlying context E5. This is a brown largely clast free clayey earth, thinning to the south, and passing up into E4 which is again clast rich, but has a similar matrix. The clasts in the upper part of this context showed signs of weathering. This context lies horizontally above E5 to the north, but to the south (D4) it overlies a convex sloping bedrock surface with a thin yellow silty basal layer (no context given). To the north context C6 is drawn as abutting and then in the upper part overstepping the mound of Unit 3, extending to the north over it to terminate at a large block. This distal part of the deposit is drawn as significantly more stony.

In square B, Unit 2 is much more stony and contained boulders up to 50 cm, which had clearly fallen from the cliff face immediately above. In square A, Unit 2 has been largely removed in the badger burrow. As for section DEF, to the south the base of Unit 2 appears to be horizontal, but to the north dips downslope, where it is truncated in an erosive cliff feature. There is some uncertainty over allocation of contexts to units in Square B. Previously B5 was assigned to Unit 3 (3A of Tratman, 1964), and given the degree of weathering described for the context this seems more correct than subsequent allocation to Unit 2, which has predominantly

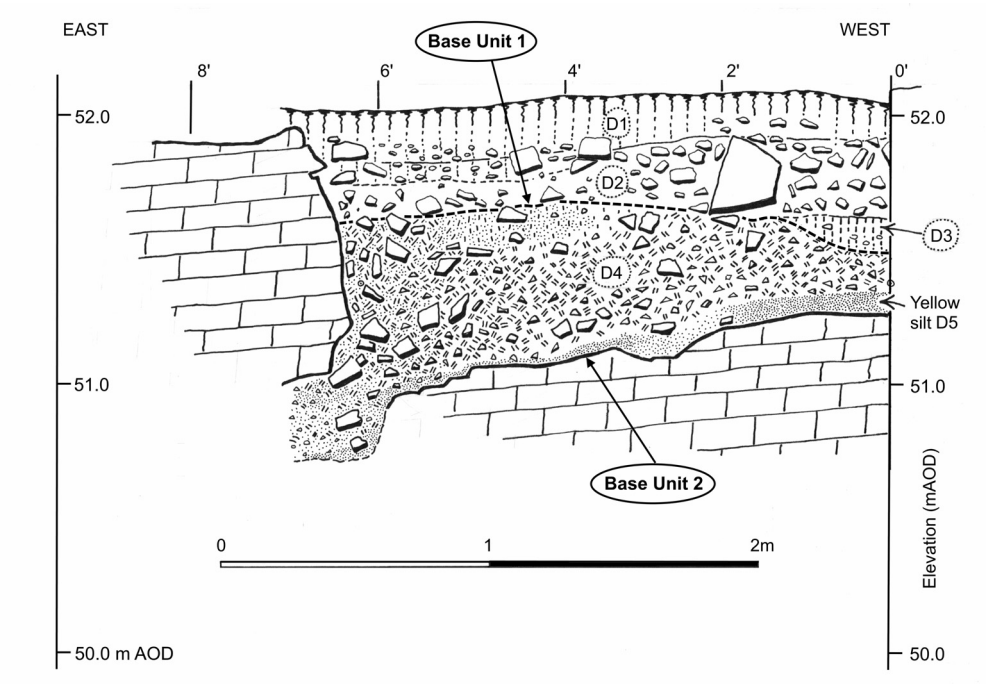


Figure 6. *Section showing the south face of square D.*

un-weathered clasts in the basal part. There are also issues at the top of the unit, context B3 (brown earth and weathered limestone) almost certainly is the basal context of Unit 1, although this does not conform with the boundary originally defined in Tratman (1964) nor to some more recent interpretations.

In summary, Unit 2 comprises a variable sequence of matrix rich breccias and more clast free reddish brown clay silts up to 60 cm thick. The angular limestone clasts lie horizontally and are more weathered at the top of the unit. In square D, the unit overlies a thin yellow silt over bedrock.

UNIT 1: SOIL AND SUPERFICIAL LAYERS

Three divisions of this unit were recognised. The lowest, present only on the west side of the site, was a brown clay with a blocky structure, up to 20 cm, thick, containing only scattered weathered limestones (contexts D3, E3 and possibly F3). This was the lowest layer to conform to the present slope, resting successively on the eroded surfaces of Units 2 and 3, and wedging out downslope. This may accord with context B3, although the latter contains more weathered limestone than sediments in the DEF section. Again there is some uncertainty about allocation of contexts to units at the base of Unit 1. Above this was a layer of greyish brown earth with weathered limestones (contexts B2, E2 and F2), varying from 30 cm thick at the southern side of the site, where it contained boulders up to 45 cm, to about 10 cm thick to the

north. Above lies the topsoil and humus and turf comprising the present A horizon of the surficial soil (contexts 1). Finds from the base of this layer included fragments of blue roofing slate probably derived from the ruined building at the foot of the site and minute sherds of pottery.[1] These were discarded.

The configuration of Unit 1 on section ABC is significantly affected due to both the badger burrow void and, translocation of material which forms a distinct mound over the main soil B1. Unlike the DEF section to the north, the base of the Unit 1 is horizontal to the south of square B suggesting that accommodation space beneath the cliff here had not been filled and that there was concordance between deposition of Unit 2 and Unit 1. Downslope to the north, the erosional nature of this contact is developed with truncation of Units 2, 3, 4 and 5 into contexts C2-3. Note also that part of B1/C1 was not logged due to failure of the section face.

In summary, Unit 1 comprises the modern soil which lies unconformably over the eroded remains of Unit 2 and 3 to the west and north of the site, but appears to be conformable on Unit 2 in the south of square B. The soil comprises turf and topsoil above a somewhat bleached horizon, with a brown more clay rich unit including weathered limestone clasts at depth.

APPENDIX 1: THE BADGER HOLES

These consisted of two series:

1) A lower hole dug through Unit 4 running southwards at the east side of square B and turning east to a large chamber going down under the rock face;

2) An upper complex of tunnels beginning in square B at the south-west end of the trial trench, and comprising:

   a) A descending passage going west-north-west across squares B and E, dug through Units 3 and 4;

   b) An ascending passage at a higher level, following the cliff west along the south side of squares D and E, dug through Unit 2;

   c) An open passage following the cliff to the mouth of the cave, where it divided, one passage going steeply down eastwards, the other following the cave passage, in which it had been dug into Unit 3.

The floors of these passages contained material fallen from roof and walls, mixed with bedding material, but this was easily distinguishable from the *in-situ* deposits; the only exception was in the trial trench at the north side of square B at the beginning of the excavation, before the stratigraphy was well established. No sign was seen of older badger holes.

[1] The ruined building is explicitly mentioned by the excavators, but no such ruin is now visible. However, the OS 25" map from 1886 shows a small building at the foot of the hill to the north of the cave. It appears to have been ruined by the 1903 edition and is not shown on the 1930 edition. It may be that some trace was still visible in the 1960s.

APPENDIX 2: *CAVEAT EMPTOR*

There are four sets of problems associated with the reported stratigraphy of Pickens Hole: 1) The site has been disturbed by badgers creating gaps in the sequence, potentially changing sediment texture and colour and allowing mobilisation of faunal and other material. 2) There is a high density of limestone clasts which makes the characterising of units from the limited matrix sometimes difficult. 3) The excavation and recording have been made using several different systems and unit designations, over an extended period and by different personnel. The square system used also caused problems in clarifying lateral continuity. 4) The designation of the unit names Sandy Breccia (Unit 4) and Cemented and Sandy Breccia (Unit 6) may cause confusion unless the titles are very carefully, fully and consistently applied. Whilst I am sure the distinction was clear to those working on the site, the inevitable shortening that occurs in text may cause problems. In the current text the term Limestone Breccia is used for Unit 6, the term originally applied by Tratman (1964). One final problem is that many of the original site drawings were lost when not returned by a postgraduate student at Bristol University, a crass and unthinking act.

There appear to be a number of significant re-assignations of particular sediment bodies in terms of units from site excavation diaries, to drawings to contexts lists held within the UBSS archive (square stratigraphy files). The initial Units shown in Tratman (1964) and drawn by Apsimon in April 1962 are for a grid-north south transect through the centre of parts of squares B and C. The Units are very briefly described and numbered 1-6, with 5 sub-units designated in Unit 3 (3A-3E). It appears that in subsequent excavations there was continued use of this full scheme by at least some workers (as documented in the field diaries), but later drawings did not retain the Unit 3 sub-units. The lateral continuity of these sub-units cannot be confirmed from the initial section to an intermediate north south section on the east boundary to squares E and F, and to the final site drawing on the west boundary of these squares. The squares B and C east boundary section is incomplete and has a number of different designations (1-5, a-i, with some also marked 3A-3D, and II–VIII, and some with no layer designation). A revised drawing of the original Tratman 1964 section was made by Apsimon showing the results of continued excavation into square A (Figure 8). This diagram uses context numbers designated for each square, and these are briefly described in the square stratification files in the archive. But there is no file or explanation of the contexts in square C (marked contexts C2-C8, C1 possibly being missing due to failure of the face.), and although there is a list for Square A, these contexts are not designated on the section.

To confuse matters further, context B3 spans 2 clearly separate sediment bodies with a defined interface on the extended squares ABC drawing (Figure 8), whilst the previous boundary between unit 2 and 3 is now set at the base of context B5, which previously had been Unit 3A. When traced laterally to square A, contexts B4 and B5 merge, and form a single unit marked by rounded clasts and a much less dense stipple, possibly indicating a change in character. This apparent change in sediment is not described elsewhere, and there is a possibility it is a cartographic artefact. The uncertainty in the stratigraphy of the squares A-B transition continues lower in the sequence. Context A6 is listed as laterally equivalent to B9 (previously Unit 3E) and to wedge out just into square A. Unit 4 conveniently terminates before square A at a boulder, as does Unit 5 (contexts B14 and B15). There is then a body of sediment at least 1 m thick, within which is an essentially horizontal boundary (rather atypical for the site), and which has no Unit designation or contexts on the drawn section. The basal context in square A is A8 which from the description is most probably Unit 6 (not specified and no elevation range). The overlying context A7 is referred to Unit 4 in the stratigraphy file, and cross

referenced to context D8a, which is described as forming the base of Unit 3 in square E. Somewhat confusing.

Unfortunately the problems of context to Unit assignation are also present in the most recent face drawing (west face DEF reproduced here as Figure 7). Contexts are marked in square E, and equivalents to E1-E3 (contexts D1-D3) are marked in square D. There is a file list of square D contexts, but there are no Unit designations or lateral context correlations below D3. Again there are cartographic differences in the lateral pattern of units, with stipples in D suggesting a north dipping structure which is absent in E. What is the lateral equivalent of contexts E13 and E14 (Figure 7)? Do they really terminate at the boundary between the squares? Context E6 is firmly assigned to Unit 2, but is drawn as wedging out at the E/F boundary, as is overlying context E3 from Unit 1. Context F3 is drawn as part of Unit 1 with a different stipple to E3, but the description of the 2 contexts is very similar, and they are most probably the same sediment body. This may of course be a simple cartographic error, but its quite confusing unless the archive files are consulted. Bizarrely, context numbers were not assigned to at least one distinctive square D context recorded in the field, specifically the basal yellow silt.

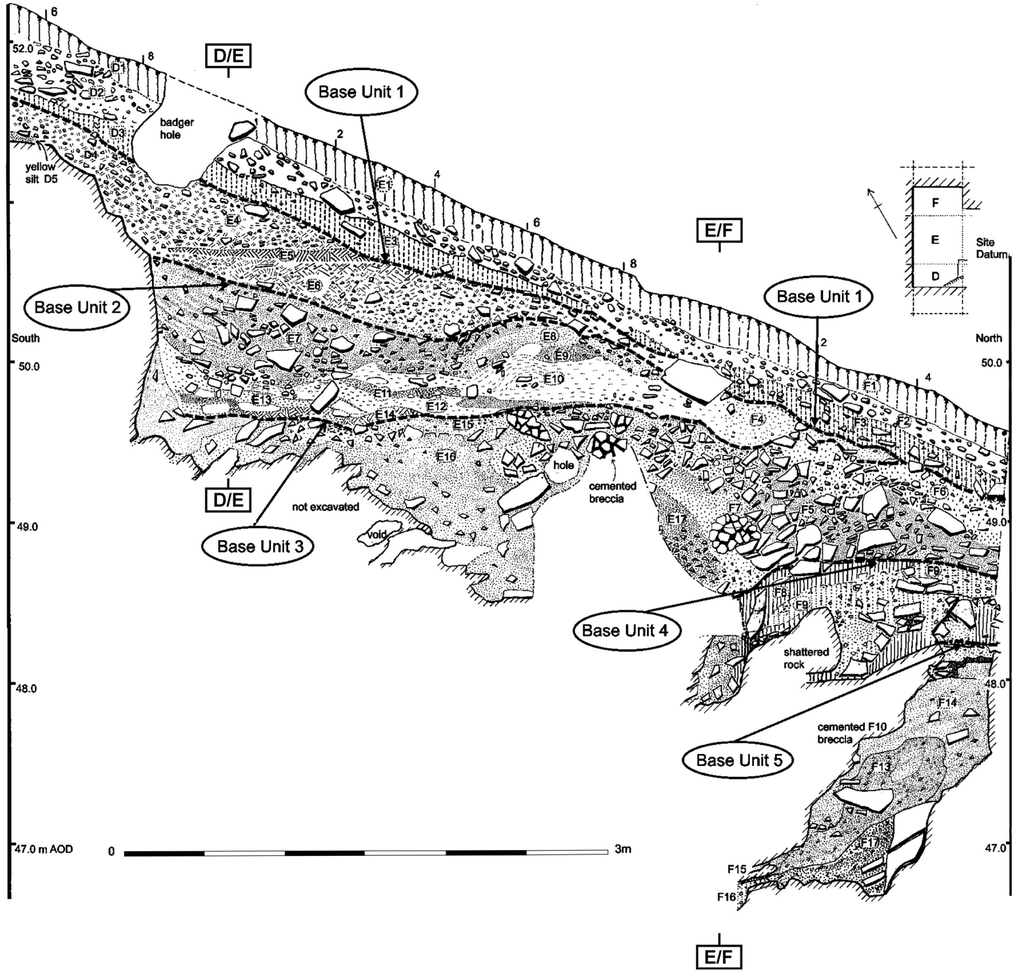
All of the issues highlighted above have a significant effect on interpretation. But more generally there are issues with the completeness and comparability of the brief sediment descriptions for each context with regard to clast density, angularity, nature of support, matrix colour, texture etc, and to lateral equivalence and elevation range. These limit the utility of the square specific context descriptions for both correlation and interpretation, especially given the lack of cartographic continuity on section drawings. It may be possible to work with the excavation diaries to address some of these problems. This will however be a major task and has not been attempted here.

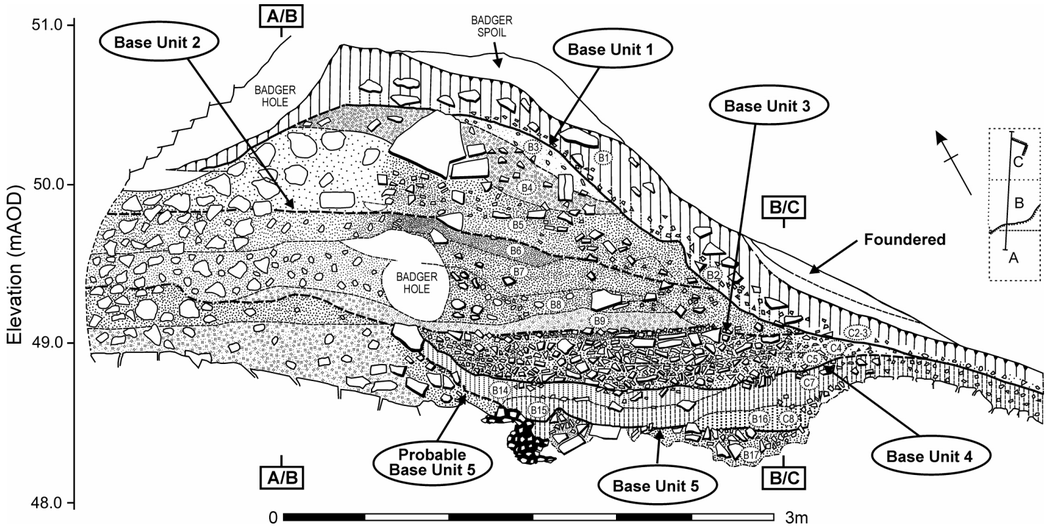
REFERENCE

TRATMAN, E.K. 1964. Picken's Hole, Crook Peak, Somerset. A Pleistocene site. Preliminary note. *Proceedings of the University of Bristol Spelaeological Society* **10.** 2. 112-115.

A.M. ApSimon
University of Southampton

P.L. Smart
University of Bristol
nzoia1@aol.com





Left: **Figure 7.** *Section through the west face of squares D-E-F.*

Above: **Figure 8.** *Section through the 'Trial Trench' in squares A-B-C, west face. The areas on the right, more darkly stippled, were drawn* in situ. *The more lightly stippled areas on the left were extrapolated from measurements made on site.*