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CATALOGUE OF FOSSIL SITES AT THE BUXTON LIMEWORKS, TAUNG

by

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ABSTRACT

The Buxton Limeworks, in the Taung district at the southeastern margin of the Kalahari Desert, harbours fossil deposits in the calcareous tufas spanning a time period from the late Pliocene to the present. Many such fossil sites, including the type site of *Australopithecus africanus*, have been exposed by quarrying and noted by various researchers since 1919. As many of the site locations have been lost in the past due to inadequate records and continued quarrying, an effort was made to relocate previously known sites and to discover new sites. There are now 17 preserved and recognized fossil sites in the Buxton Limeworks, the location and nature of which are documented here for future researchers.

KEYWORDS: Taung, Buxton, *Australopithecus*, Pliocene, Pleistocene.

INTRODUCTION

The Taung site is best known for the 1924 discovery of a fossilized child's skull now known to represent an early hominid. Early in 1925, Raymond Dart described the skull as that of an upright, small brained primitive ape-man, and gave it the species name *Australopithecus africanus* (Dart 1925).

Although the scientific community was most enthralled with the early hominid, little scientific endeavour took place at the Buxton Limeworks where the skull had been found during quarry operations. Quarrying that had begun in 1916 started revealing fossil bones in 1919 (Wybergh 1920), but prior to 1925 no site was marked, no detailed records were kept. Clues to the past history of humankind, other animals, and their environment were being blasted away by the continuing quarry operations. The quarry closed in 1977, with most blasting in the Buxton Limeworks having ceased in the mid-1950's when the focus moved South to nearby Thoming. Quarrying had exposed numerous cave sites that can still be found, and undoubtedly destroyed numerous others.

Some historical records do exist from near the time of the first hominid discovery. The approximate position of the *Australopithecus africanus* type site can be reconstructed (McKee 1993a,b; McKee & Tobias 1994) from the few who did go to Taung shortly after the hominid discovery, i.e. Young (1925), Hrdlika (1925), Cipriani (1928), and Broom (1934). It was clear to each visitor that most, if not all, of the type site had been destroyed.

The University of California African Expedition of 1947-1948 (Camp 1948; Peabody 1954) initiated the first concerted effort at studying the palaeontological and geological context of the Taung hominid. A year of field work by Frank Peabody resulted in a reconstruction of the possible locality of the type site, as based on field observations interviews with quarry workers, and a monument stands in that position today. Peabody also discovered a number of other fossil sites in the Buxton Limeworks, some of which were published by Peabody (1954), but many of which remained only in his field notes, untold until Cooke (1990) published a diorama of the sites. Some of these were destroyed by subsequent quarrying or were otherwise not possible to relocate.

Intensive research and excavation at the Buxton Limeworks resumed in 1988 by a University of the Witwatersrand team under the direction of P.V. Tobias (McKee & Tobias 1990, 1994). By 1993, systematic surveys of the Buxton Limeworks involving repeated, close visual inspection of accessible quarry wall exposures revealed the presence of 17 remaining *in situ* fossil sites, including the Dart deposits which are probable remnants of the type site (McKee 1993a,b; McKee & Tobias 1994).

The purpose of this document is to record these sites for posterity so that they will not again be lost. To accompany the maps and descriptions here, photographs of each site are archived in both the Bernard Price Institute for Palaeontological Research and the Department of Anatomy and Human Biology, University of the Witwatersrand, Johannesburg.

FOSSIL SITES OF THE BUXTON LIMEWORKS

The Buxton Limeworks are located at 27° 37'S, 24° 37'E. All of the known fossil sites at the Buxton Limeworks are marked on the contour map in Figure 1. For convenience, descriptions of the sites are categorized by the four major tufa accretions in which they are found (Figure 2). From South to North these are the Thabaseek, Norlim, Oxland and Blue Pool tufas (Peabody 1954). The types of caves in which the

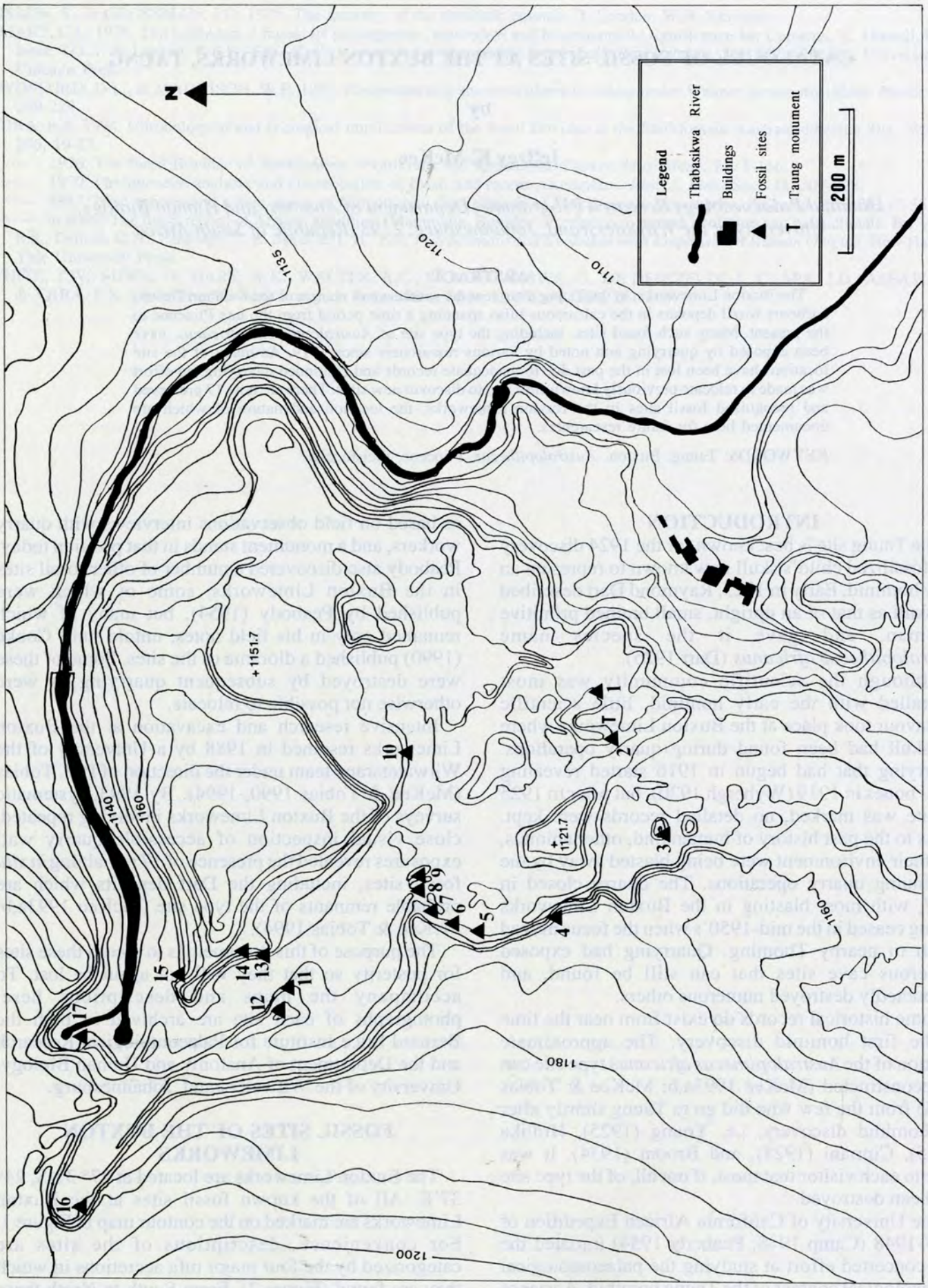


Figure 1. Recognized *in situ* fossil sites of the Buxton Limeworks, indicated by triangles. 1 – Hrdlička deposits; 2 – Dart deposits; 3 – Tobias Pinnacle deposit; 4 – Berger Cave complex; 5 – LSN Cave; 6 – Lucky Moon Cave; 7 – Innominate Cave; 8 – Quinney Cave; 9 – Cut-through Alley; 10 – Black Earth Cave; 11 – Peabody's Equus Site; 12 – Equus Cave; 13 – Blom Cave; 14 – Acacia Cave; 15 – Satan Cave; 16 – Oxland Large Mammal Site; 17 – Alcove Cave.

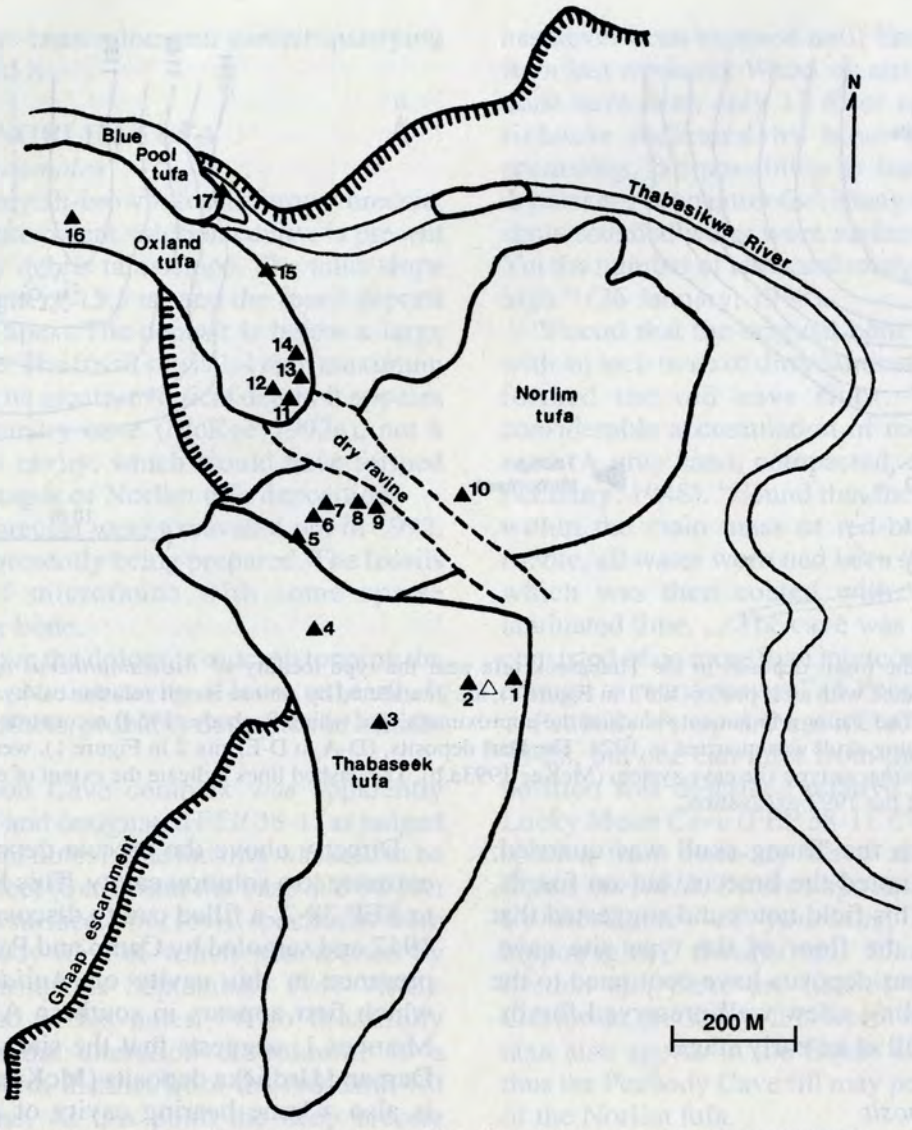


Figure 2. Principle tufa accretions of the Buxton Limeworks. The triangles represent the approximate locations of the 17 sites listed in Figure 1. The hollow triangle represents the position of the Taung Monument. (After Peabody 1954; Partridge 1985; McKee 1993a, b).

deposits accumulated are categorized according to McKee (1993a). Citations to relevant studies are given with each site, where applicable, so that unnecessary repetition of descriptions can be avoided. All of the fossiliferous localities mentioned in Frank Peabody's field notes of 1947-48 are designated by his system; the site numbers not listed here were either archaeological sites or geological sections without fossil material. Unless indicated otherwise, the remaining sites are recorded here for the first time, and were discovered and named between 1988 and 1993. Archaeological sites will be catalogued in a separate publication (Quinney & McKee, in prep.).

Thabaseek Tufa

Hrdlička deposits

Following the discovery of the Taung hominid, Aleš Hrdlička was the first anthropologist to visit the Buxton Limeworks. By the time he arrived in 1925, quarrying had proceeded past the type locality of *Australopithecus africanus* (Hrdlička 1925). He did, however, locate a nearby deposit rich in fossil cercopithecids. This cave system was relocated and named by Peabody (1954), and a portion was excavated. The University of the Witwatersrand excavations focused on the Hrdlička deposits from 1988-1991 (Partridge *et al.* 1991; McKee 1993a,b; Tobias *et al.* 1993). The cave system has at least 5 distinct breccia deposits as well as an intrusive solution cavity with Middle Stone Age (MSA) artefacts. The deposits are illustrated in Figure 3. The fossil fauna known from the deposits are recounted by Cooke (1990) and McKee (1993b).

Dart deposits

In 1991 the University of the Witwatersrand excavation at the Buxton Limeworks uncovered a series of *in situ* fossil deposits in the quarry floor around the southern base of the Dart Pinnacle, a quarry remnant close to the original discovery site of the Taung skull (McKee & Tobias 1994). The nature and location of these deposits are most consistent with that of the historical record of the type site (McKee 1993a,b; McKee & Tobias, 1994), and thus they were dubbed the 'Dart deposits' (Figure 3). The cave system represented by these deposits may be part of the same

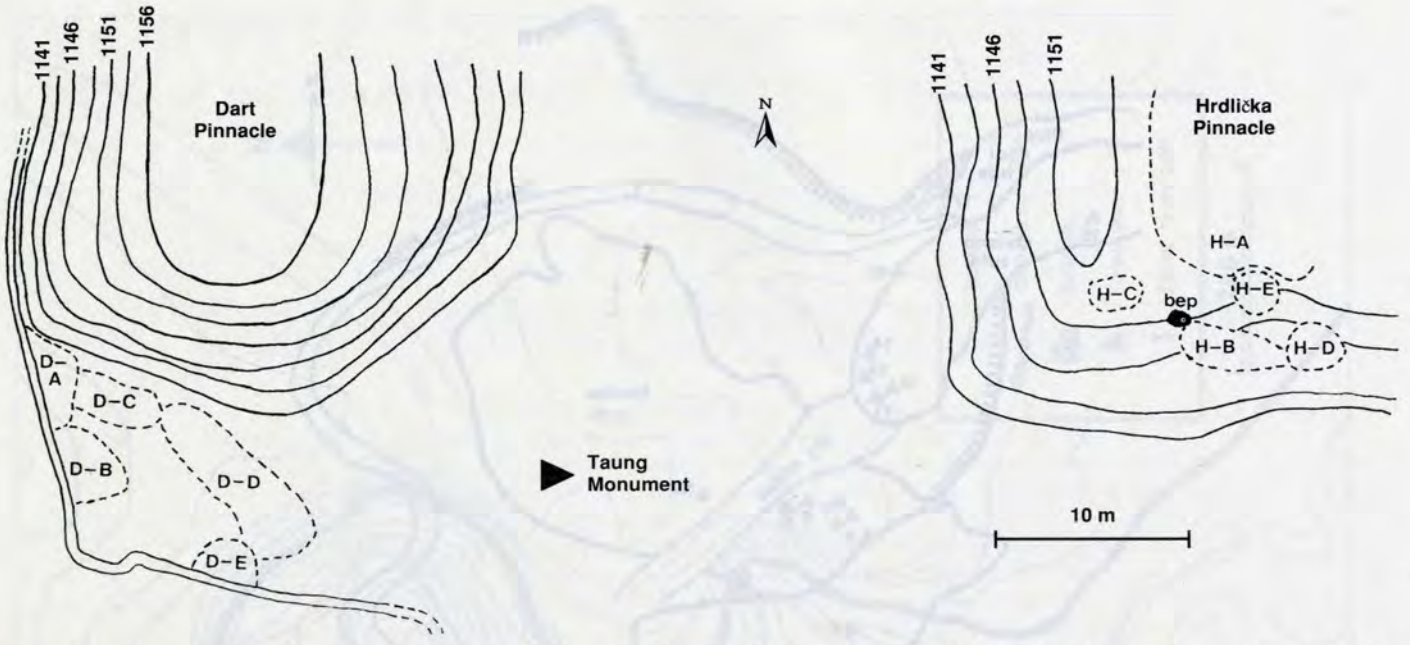


Figure 3. Diagram of the fossil deposits in the Thabaseek tufa near the type locality of *Australopithecus africanus*. The Hrdlička deposits, denoted with an H prefix (site 1 in Figure 1), are intersected by a more recent solution cavity called the "Black Earth Pipe" (bep). The Taung Monument stands at the approximate spot which Peabody (1954) reconstructed as the locality from which the Taung skull was quarried in 1924. The Dart deposits, (D-A to D-E, site 2 in Figure 1), were inferred to be part of the *Australopithecus* type site cave system (McKee 1993a,b). The dashed lines indicate the extent of each deposit as revealed by the end of the 1993 excavation.

labyrinth from which the Taung skull was quarried; Frank Peabody had noted the breccia, but no fossils, from this locality in his field notes and suggested that they may represent the floor of the type site cave. Excavation of the Dart deposits have continued to the present (1994), yielding a few well-preserved fossils, but the analysis is still at an early stage.

Tobias Pinnacle deposit

This is a small lens of brownish-grey breccia. Its current *in situ* exposure, measuring 1 m in horizontal length and 100-150 mm in thickness, is found approximately 7 m up from the level of the quarry floor on the steep southwestern slope of the pinnacle. On the quarry floor in the general vicinity of the pinnacle are *ex situ* blocks of breccia that appear, from breccia colour, texture and content, to be from part of the same deposit. The breccia is dense with microfauna and occasionally has macrofaunal remains, including a distal tibia of a small canid. None of the fauna has yet been identified to species level.

Berger Cave complex

A complex of apparent solution cavities with brownish earth can be found near the top of the eastern face of the quarry wall. At the point marked as site 4 on Figure 1, is a pocket of calcified brown matrix containing fossils that are eroding out (during heavy rains a small waterfall cascades over these deposits). The breccia deposit is approximately 5.5 m down from surface level (6.3 m along the diagonal slope). It is exposed on a horizontal surface jutting out from the quarry wall, covering an area of about 1.1 m. in diameter and reaching to a maximum vertical depth of 0.4 m. A carnivore sacrum has been excavated from this pocket.

Directly above the breccia deposit, up 4 m., is the entrance to a solution cavity. This locality corresponds to FEP 38-2, a filled cavity discovered by Peabody in 1947 and sampled by Camp and Peabody in 1948. The presence in this cavity of *Antidorcas marsupialis*, which first appears in southern Africa at Swartkrans Member 1, suggests that the site would post-date the Dart and Hrdlička deposits (McKee *et al.*, 1994). There is also a bone bearing cavity of uncalcified reddish earth 3.5 m. north and 1 m. above the breccia deposit. It is thus likely that these pockets were all part of one solution cavity system that post-dated the formation of the Thabaseek tufa.

Unnamed Solution Cavities (FEP 38-15, 38-16, 38-25)

These three localities were mentioned in Frank Peabody's field notes and located on the diorama published by Cooke (1990). On the basis of these records it is clear that all were found near the top of the western wall of the quarry; none have produced identified fauna and, despite extensive searching, none have been specifically relocated by our team. The most southern of these solution cavities (38-25) is in an area that our own surveys have found to be void of fossils (no fossils are found south of the Tobias Pinnacle Deposit); Peabody made no notes on this locality other than its position. Peabody notes FEP 38-16 as a red-earth fill carrying many coarsely made artefacts, "25 feet" (7.6 m) down from the top of the quarry. It is recorded to have been just south of the Berger Cave complex, at the apex of where the quarry wall juts out toward the East. Further to the North is FEP 38-15, almost directly above FEP 38-1 (see Norlim section), where Charles Camp located a cemented fill with bone near the top surface. It appears from Peabody's original diorama to be in the Thabaseek

tufa, but has not yet been relocated; further quarrying may have destroyed it.

NORLIM TUFA

Lucky Moon Cave complex

A pocket of greyish-brown fossiliferous breccia, intersected by a more recent solution cavity, is present just above a quarry debris talus slope. The talus slope has an oblique height of 15.5 m, and the fossil deposit is 1.5 m above its apex. The deposit is below a large outcrop of dolomite. The fossil site is 1.4 m in maximum width, and 0.8 m at its greatest vertical depth. It appears to have been a primary cave (McKee 1993a), not a secondary solution cavity, which would have formed during the initial stages of Norlim tufa deposition.

Portions of the breccia were excavated out in 1992, and the fossils are presently being prepared. The fossils consist mostly of microfauna with some sparse fragments of larger bone.

Immediately above the dolomite outcrop topping the breccia deposit is a solution cavity of loose red earth. It contains sparse artefacts, probably dating to the Middle Stone Age.

The Lucky Moon Cave complex was apparently discovered in 1947 and designated FEP 38-1 (as judged from Peabody's field notes). The locality was said to be approximately 10 feet (3 m) from the base and 90 feet (27 m) from the top surface. Four fossil specimens were collected by Peabody (one of which was spotted by Raymond Dart during his September, 1947 visit!). Peabody's recorded in his notes: "Also beautifully demonstrated was the alteration of dolomite to a chocolate brown earth distinct from the red earth fill containing the bone. At this point the deep breccia appears to have been a cave fill resting partly on a floor consisting of dolomite boulder agglomerate." Thus the fossils appear to have come from the upper cave where our team found the stone artefacts in 1992, and the deep breccia may be the brown breccia we called Lucky Moon Cave. This is consistent with Peabody's later note that the deep breccia, "just below and to the right of the pipe", contained bone chips including a vertebra and one rodent incisor. Peabody's sketch of the cave complex does not match the current exposure in detail, but it is apparent that quarrying was still going on in this area and that the quarry wall was blasted back from its 1947 position for a short distance.

The fossils found in the upper cave have been identified in the University of California, Berkeley collection as cf. *Connochaetes* sp., *Gazella* sp., and *Tragelaphus angasi*.

Peabody Cave

Peabody Cave (Cooke 1990) has not been relocated, so it is worth quoting Peabody's field notes in detail concerning this locality, FEP 38-28: "It is a very rich semi-consolidated and semi-cemented, black and red cave deposit outcropping in the very floor of the quarry. It is about 25 ft. from the present face about 30 ft. to the right of the right hand large lower cave and apparently has never been exposed until Erasmus levelled up the floor last weekend. When we arrived last year this spot must have been only 12 ft. or so from the face. The richness indicated by bone lying all around is promising; the possibility is that a fairly large cave deposit has been unroofed. Many of the bone fragments show rounded water worn surfaces and a black polish. Yet the number of teeth and recognizable joint facets is high." (26 January, 1948).

"Found that the original bone deposit was covered with an inch or so of dirty lamination which for a while formed the old cave floor. Then followed the considerable accumulation of red and black clay and sand. A grey sand, compacted, also occurs here." (5 February, 1948). "Found that the main bone level was within the main mass of red-black earth. Bone and rubble, all water worn had been lying free on a surface which was then coated with 1 1/2 inch of dirty laminated lime. ... The cave was not large; it probably consisted of no more than interconnected cells not large enough to rate as caves." (6 February, 1948).

Peabody's map did not include the locality of FEP 38-28, but one can infer from the above notes that its position was described relative to what we now call Lucky Moon Cave (FEP 38-1). Cooke (1990) listed the species from Peabody Cave as *Megalotragus* sp., *Equus burchelli*, *Diceros* sp., *Antidorcas marsupialis*, *Connochaetes* cf. *taurinus*, *Damaliscus* sp., a hippotragine, *Giraffa* sp., *Phacochoerus* sp., and *Lycaon* sp.; these are housed at the University of California, Berkeley. It is worth noting that all of these taxa also appear in the Equus Cave assemblage, and thus the Peabody Cave fill may post-date the formation of the Norlim tufa.

LSN Cave

LSN Cave is a small lens of grey breccia containing a small amount of fossil microfauna. It outcrops on the quarry wall to the south of Lucky Moon Cave, 1.5 m up the wall from the top of a small talus slope of rubble. The deposit measures a maximum of 700 mm horizontally and 200 mm vertically, and is enclosed on the top and bottom by laminated tufa. No fossils have been recovered.

Innominate Cave

This is a small outcrop of greyish-brown breccia with limited microfauna and pebbles, found on the quarry wall at the apex of another talus slope north of Lucky Moon Cave. The pocket extends 1.2 m horizontally and 0.5 m vertically. It has an ill-defined shape with an apparent filled solution cavity coming down into it from the left. No excavation has been attempted.

Cut-through Alley

Cut-through Alley contains a series of fossiliferous, sediment-filled solution cavities. Although this particular exposure had not been cut before Peabody completed his study, Figure 6 in his publication

(Peabody 1954), taken from an adjacent section (FEP 38-11) accurately depicts the nature of this geological section. On the west wall of the alley, 12 m from the south edge and 43 m from the north edge, is a solution cavity with bone-bearing breccia. From the level of the quarry floor it slopes up to the north for a few metres. On the east wall, about 2 m to the north, is a similar solution cavity; it may be part of the same cavity or at least the same system dissected by the limeworker's access drive. At the top of the east wall, above the solution cavity, one can find loose red breccia with many small bone flakes. *Ex situ* brown breccia with large mammal bones can also be found on this top terrace. There are further small pockets of bone concentrations within the breccias of the east wall. It is likely that this system was deposited during the formation of the Oxland tufa, when the natural ravine (Figure 2) was cut through the Norlim tufa.

Quinney Cave

There are two fossiliferous deposits in Quinney Cave, a loose soil fill rich in microfauna, bovid bone and coprolites, and an underlying solid brown breccia with microfauna. This large cave extends for a maximum of 12.5 m horizontally at its base, and has a maximum height of approximately 3.9 m. The north edge of the deposit shows that the loose dirt fill came in as a solution cavity fill, as the bedding planes of the tufa are clearly intersected. The solid brown breccia may be older or just a calcified part of the same cave infill, but little can be said about it until it is adequately sampled. An excavation of the earth fill began in 1992, and an analysis is presently under way.

Black Earth Cave

Peabody and Camp conducted extensive excavations in Black Earth Cave, a system comprising three galleries (FEP 38-14, FEP38-18A, and FEP 38-18B). These are dealt with extensively by Peabody (1954), and reviewed by Humphreys (1978). The uncon–solidated earthen deposits contain stone artefacts (mostly MSA) as well as a wealth of fossil fauna. The faunal list of species identified in the University of California Berkeley collection can be found in Table 1. Peabody (1954 p686) mentioned the inclusion of "two types of *Homo*", but this author found the two teeth to be indistinguishable in size and morphology from modern *Homo sapiens*.

OXLAND TUFA

Equus Cave

Equus Cave was named by C.K. Brain and K. Butzer on the basis of its presumed association with Peabody's locality FEP 38-7, where he found an equid tooth. However, as described below, this locality is different from that found by Peabody. Equus Cave has been the subject of extensive excavations by P.B. Beaumont, and the details have been reported by Grine & Klein (1985), Klein *et al.* (1991), Scott (1987), and Lee-Thorp & Beaumont (1990). The faunal list for the site can be found in Table 1.

Peabody's Equus Site

The position where the *Equus* tooth was found by Peabody (1954 p689, Figure 7) is approximately 20 m to the south-east of the *Equus* Cave excavation. There one can find semi-consolidated reddish brown earth with chert artifacts and bone and tooth fragments. These are in an ill-defined deposit overlain by cemented cobbles, as shown in Peabody's diagram, extending to a height of 6.6 m. From there the section continues to an access road cutting, along which another section is exposed at a perpendicular toward the south-west for 20 m. Here the deposit thins out from 4.9 m at the corner to 1.5 m where it ends abruptly at its south-westerly extent. At the base of this section is up to 1 m of brown breccia containing bone fragments which is overlain by cobbles. These deposits do not appear to be cave deposits, but extensive, horizontally-bedded waterlain deposits leading toward the channel alluvium; indeed there are bones and artefacts in the channel alluvium as well.

Blom Cave

To the west of Equus Cave (across the current road), near the terminal edge of the Oxland tufa, is a site of a similar nature known as Blom Cave. The fossiliferous deposit is 2.3 m above ground level, has a maximum height of 1.1 m and maximum north-south extent of 2.3 m. The fossiliferous component is found in a semi-consolidated reddish-brown breccia which is overlain immediately by a horizon of fragmented rocks, upon which consolidated sterile breccia is exposed up to the quarried top surface. The southern end of the deposit shows some intersection of the tufa bedding planes by the deposit, suggesting that it may have been a solution cavity. Alternatively, it may be part of the Equus Cave system with the interconnecting portions having been quarried away. The deposit has not been excavated for fossils.

Acacia Cave

This is a small outcrop of reddish breccia containing only small bone fragments. It is found at the top of the northeastern quarry wall, reaching to a maximum depth of 2.5 m and extending 7 m laterally. It appears to have been a solution cavity as the breccia fill cuts across the bedding planes of the tufa.

Satan Cave

Satan Cave is immediately to the east of a quarrier's tunnel, and comprises large bones, stone artefacts, and ostrich egg shells in a semi-consolidated red breccia. It extends for 6.9 m along an oblique slope, with a maximum width of 3.7 m. The breccia overlies shales that would have served as the cave floor. The eastern and northern portions of the cave have been quarried away, making interpretation of its formation difficult. It is possible that this site is Peabody's locality FEP 38-29, but not enough details are given in his notes. No scientific excavations of the site have been conducted.

Table 1. Identified mammalian fauna from the excavated late Pleistocene sites of Equus Cave (EC), Black Earth Cave (BEC), and Tobias Cave (TC). (Known fauna from other sites are listed in the text or in cited references).

	EC	BEC	TC
Bovidae			
Aepycerus melampus		*	
Alcelaphus buselaphus	*		*
Antidorcas bondi	*	*	
Antidorcas marsupialis	*	*	*
Connochaetes gnou	*	*	*
Connochaetes taurinus	*		
Damaliscus dorcas	*	*	*
Kobus leche	*	*	
Megalotragus priscus	*		
Oreotragus oreotragus			*
Pelea capreolus	*		*
Raphicerus campestris	*		*
Raphicerus capra		*	
Redunca arundinum		*	
Redunca fulvorufula	*	*	*
Sylvicapra grimmia	*		*
Syncerus caffer	*	*	*
Taurotragus oryx	*		*
Tragelaphus strepsiceros	*		*
Canidae			
Canis adjustus		*	
Canis *mesomelas*	*	*	*
Lycaon sp.		*	
Lycaon pictus	*		
Otocyon megalotis	*		*
Vulpes sp.		*	
Vulpes chama	*		*
Cercopithecidae			
Papio cynocephalus	*		*
Equidae			
Equus burchelli	*	*	*
Equus capensis	*	*	*
Felidae			
Acinonyx jubatus	*		
Felis caracal	*		*
Felis libyca	*		
Felis nigripes	*		
Panthera leo	*	cf	*
Panthera pardus	*		*
Giraffidae			
Giraffa camelopardalis	*		
Hippopotamidae			
Hippopotamus amphibius	*		
Hominidae			
Homo sapiens	*	*	*
Hyaenidae			
Crocuta crocuta	*		*
Hyaena brunnea	*	*	*
Mustelidae			
Aonyx capensis	*		
Mellivora capensis	*		
Orycteropodidae			
Orycteropus afer	*		
Procaviidae			
Procavia capensis	*	*	*
Rhinocerotidae			
Diceros bicornis	*		*
Suidae			
Phacochoerus aethiopicus	*	*	*
Viverridae			
Atilax paludinosus	*		
Cynictis penicillata	*		
Herpestes ichneumon	*		
Suricata suricatta	*		
Soricidae			
Crocidura sp.		*	
Bathyergidae			
Cryptomys sp.		*	
Erinaceidae			
Erinaceus frontalis	*		
Hystricidae			
Hystrix sp.		*	
Histrix africaeaustralis	*		*
Pedetidae			
Pedetes capensis	*		

Oxland Large Mammal Site

This is a substantial deposit of red and reddish-brown breccia containing fossil bones of large mammals. It is approximately 50 m east of the terminal end of the upper portion of the quarry along the south quarry wall. The full extent of the cave is not yet known, as most of the material is *ex situ* along a large talus slope left by quarry activities. Some fossil bone remains *in situ*, approximately 4 m below the top surface of the tufa.

The Oxland Large Mammal Site may have been a large cave with two deposits or two closely associated caves. Most of the Middle Stone Age artefacts found in the breccia are found in blocks with fragmented bone, whereas the blocks rich in large white bone have few or no artefacts. No scientific excavations of the material have been conducted.

Tobias Cave

In 1952 a salvage excavation operation ahead of quarry activities in the Oxland Tufa was conducted by P.V. Tobias, J.W. Kitching, and A.R. Hughes. Although the exact location of the site is not known due to the continued quarrying, an approximate location near the Oxland Large Mammal Site can be reconstructed on the basis of Tobias's initial report, quoted by Humphreys (1978), and a visit to the site with P.V. Tobias in 1991. [Note: Tobias's field notes state that the deposit corresponds in position to that of Black Earth Cave, but such a placement is incompatible with the recollections of Tobias and Kitching as well as with the location gleaned from Peabody (1954).] The site has been called 'Tobias Cave' by Humphreys (1978) and Morris (1990).

The 1952 excavation of Tobias Cave in the Oxland tufa yielded an array of faunal material (Table 1), including cranial material of *Homo sapiens sapiens* (Quinney & McKee 1992). The upper level of the cave contained LSA artefacts, whereas artefacts of the lower levels consisted solely of MSA lithics. The fossils and artefacts are held at the University of the Witwatersrand.

Blue Pool Cave

On the north face of the Oxland Tufa, overlooking Blue Pool, was a cave shelter (FEP 38-12) described by Peabody (1954) which has since been destroyed by quarrying. If Satan Cave is Peabody's locality FEP 38-29, then Blue Pool Cave site would have been approximately 8 metres upstream and 15 m higher than Satan Cave. Along with LSA artefacts and ungulate long bones was a superficial layer of owl pellets that was accumulating during the time of Peabody's work at the site (October 1947). Peabody identified the contents of the pellets in his field notes as weaver birds, swifts, bats, shrews and rodents.

Spiers' Cave

Broom (1946) noted a cave in the Buxton Limeworks which he called "Spiers' Cave", and associated the cave and its contents, including the type specimen of *Mylomygale spiersi*, with the *Australopithecus* cave. He also noted that the deposit was about a half-mile north of the *Australopithecus* site, which would most probably mean that it was in the Oxland tufa, or perhaps the Blue Pool tufa. The University of California expedition attempted to relocate the site with no success (Peabody 1954).

BLUE POOL TUFA

Alcove Cave

On the north side of the Blue Pool tufa, where an intermittent waterfall has been dissecting the tufa, there is an exposure of breccia in an alcove. Much of the cave deposit has fallen away from the wall in large boulders containing bone fragments. The remaining *in situ* exposure of the cave infill extends approximately 2 m horizontally and 1.1 m vertically. The cream-coloured breccia abuts a concavity in the Schmidtsdrif shales to the East, with tufa overlying both, so it was probably deposited at an early stage of Blue Pool tufa formation.

CONCLUSION

Although much of the Buxton Limeworks has been destroyed, the quarry remnants hold a vast store of fossil deposits representing the Pliocene and Pleistocene. At least 17 sites remain, and more may exist unexposed within the depths of the tufa. The Buxton fossils and their context may provide a unique opportunity to investigate continuous environmental and evolutionary changes at a single location. It is hoped that future scholars will continue to investigate the clues to the evolution of man and other animals that are revealed in the fossil richness of the Taung area.

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