

■ LESOTHO

Archaeological fieldwork in the Lesotho highlands, July and August 1998: the second season of excavation at the Likoaeeng open-air site

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Since 1992 archaeological fieldwork has been undertaken in the Sehonghong area of the Lesotho highlands with the objectives of refining understanding of this region's cultural-stratigraphic sequence, developing a framework of palaeoenvironmental observations for the late Quaternary and examining changing patterns of hunter-gatherer land-use on both a local and a regional scale (Mitchell 1993, 1994, 1996a). The fourth season of the current research program took place this year and again concentrated on the excavation of the Likoaeeng open-air site located on the banks of the Senqu (Orange) River (Figure 1). Work undertaken here in 1995 confirmed that Likoaeeng preserves a series of late Holocene hunter-gatherer occupations, at least some of which must have been buried rapidly with insignificant post-depositional disturbance thereafter. The possibility has therefore emerged (Mitchell and Charles 1996) of employing Likoaeeng to investigate how people structured their use of space at this open air location in, for example, making and using artifacts and processing, consuming and disposing of food. In addition, the marked emphasis on fish remains in the upper part of the Likoaeeng sequence suggests that the site provides further evidence for intensification of the use of freshwater resources during the late

Holocene (cf. Hall 1989). Finally, the overall quality of organic preservation and extensive buildup of deposits offer scope for examining palaeoenvironmental change during a period not represented in rock-shelter sequences elsewhere in the Lesotho highlands (Mitchell and Vogel 1994).

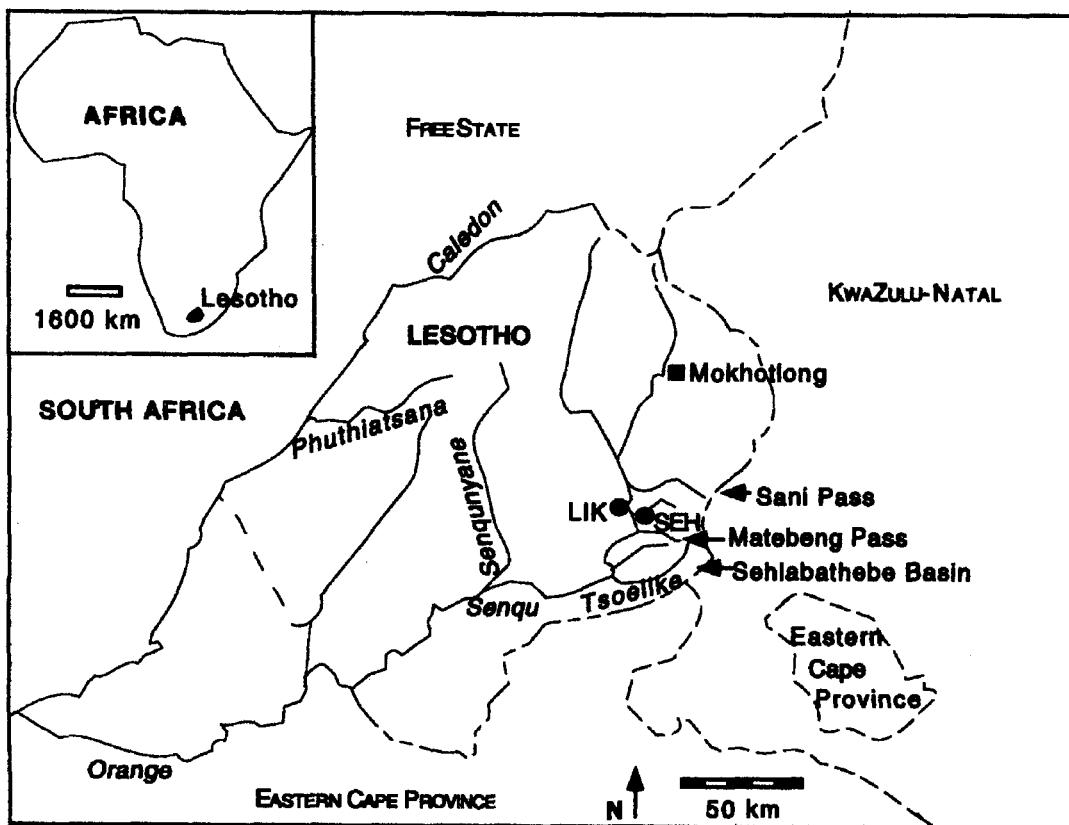
The second excavation season at Likoaeeng built on the results obtained in 1995 by extending the area exposed both laterally (to explore spatial patterning in the upper part of the site) and through exposure of a greater part of the underlying layers previously sampled only within a 1.5 m² test-pit (to increase the size and information value of associated artifact, faunal and palaeobotanical assemblages). Secondary objectives included the recording of rock paintings at the nearby site of 2928DA14, test excavation of selected small rock-shelters close to Likoaeeng, field-survey of previously unexamined tributaries of the Senqu River and collection of further off-site sediment samples for stable carbon isotope analysis.

Excavation procedures

Excavation took place at Likoaeeng between July 13th and August 11th, 1998. An area of 12 m² was opened up immediately south of the 1995 trench to provide expanded spatial coverage of the site's uppermost four occupations (Figure 2). Based on the presence in the topmost horizon of a decorated Early Iron Age sherd and on radiocarbon dates from the remaining three (Table 1), these layers range in date from c. 1200 B.P. to 2060 ± 45 B.P. (Pta-7098). Although time constraints limited excavation of this last horizon, it seems probable that the two seasons have between them now sampled 10 - 20 % of the surviving portion of the site over this time-range.

Removal of the backfill from the 1995 excavation area permitted access to the lower part of the Likoaeeng sequence. Leaving a baulk along the eastern edge of the site as a witness section and retaining wall, the test-pit excavated in 1995 was expanded from 1.5 m² to 6 m² to the base of Layer XI, which dates to 2390 ± 60 B.P. (Pta-7101). Below this excavation had to be limited for reasons of safety, but it was still possible to sample Layer XVII, at the base of the 1995 test-pit and some 3.6 m below the modern surface, over a further 2 m². In addition, the underlying stratigraphy was explored

Figure 1. Lesotho showing the location of Likoaeeng



to a depth of a further metre within a single metre square (05), while another test-trench was excavated above this and into the rockface which is exposed at the western edge of our trench.

As in 1995, excavation was carried out following the site's natural stratigraphy and within a quarter-metre grid. All formal stone artifacts, cores, grindstones, potsherds, worked bone and diagnostic mammalian fauna observed during excavation were three-dimensionally recorded in situ and all deposit (except demonstrably culturally sterile horizons) was sieved through a 2 mm mesh. In addition, sediment samples were taken from features and selected areas of the uppermost occupations, rich in faunal remains, were excavated by décapage. All finds were pre-sorted on site and are now under detailed study in the United Kingdom. As in 1995, the site was backfilled with earth at the close of the season, the unexcavated deposits and sections having been covered with plastic sheeting.

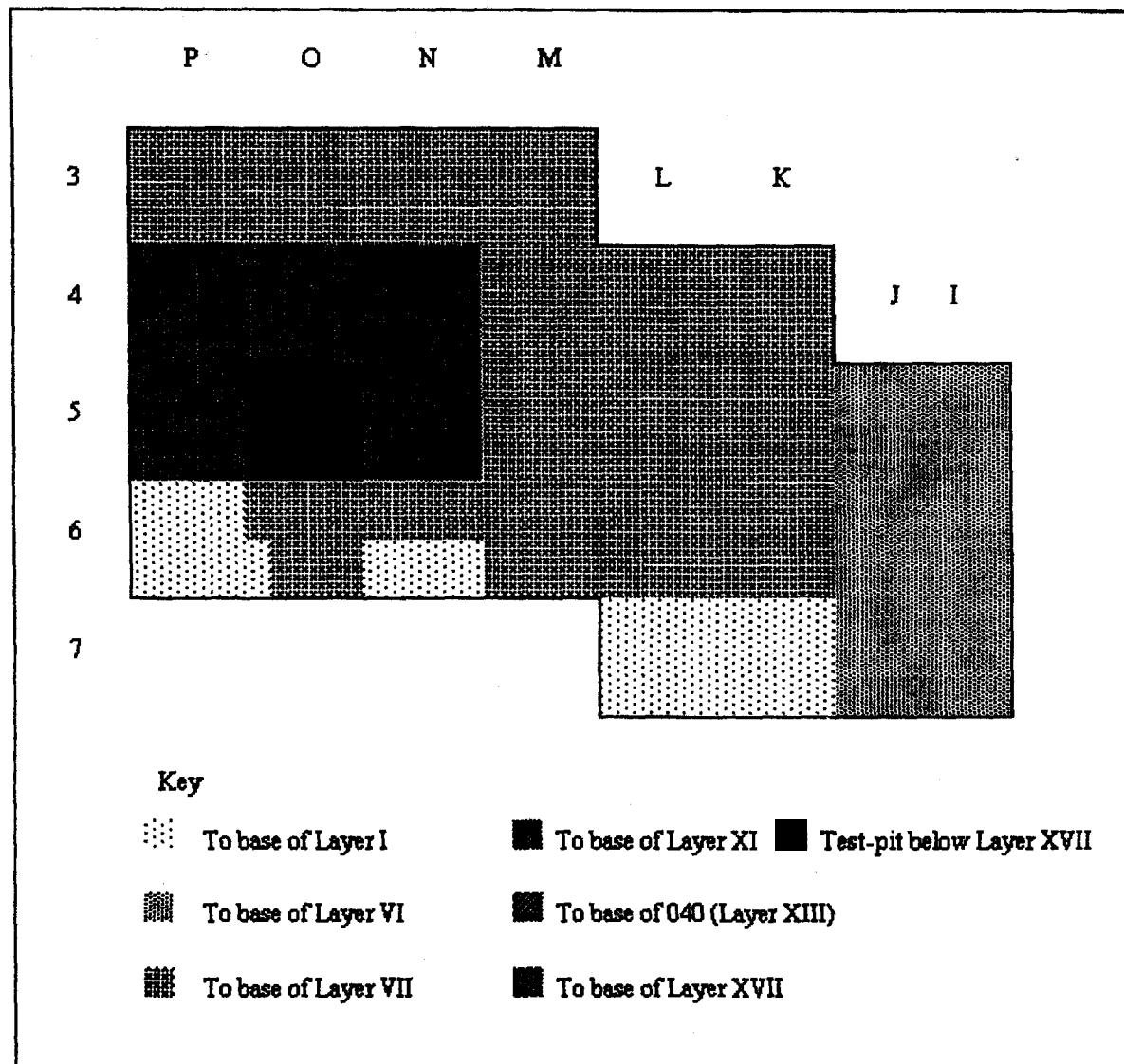
Preliminary results of the 1998 season at Likoaeeng

Although analysis of finds has yet to commence, it is clear that the 1998 excavations at Likoaeeng have done more than provide increased material with which to explore changes through time in how people used the site and the palaeoenvironmental context within which this use took place. In particular, they have helped clarify its stratigraphy and have shown that the excavated sequence captures the transformation of Likoaeeng from a rock-shelter to a completely open-air living site. We discuss the preliminary results of this year's excavation under the following headings:

Stratigraphy

While generally confirming the stratigraphic sequence recorded in 1995 (Mitchell and Charles 1996: Figure 3), it was possible this year to distinguish several stratigraphic units within the previ-

Figure 2. Likoeeng: plan of the 1995 and 1998 excavations.



ously undifferentiated Layer VI; to confirm a general tendency in the four uppermost occupation horizons and the intervening sterile layers for sediments to be sandier toward the eastern edge of the excavation and much darker and siller toward the rock face that is partly exposed along its western edge; and to show that Layer VIII is a sterile sand intrusive in the north-eastern part of the trench into a horizon formed by Layers VII and X. Excavation of a 1 m² area at the base of the test-pit brought the total depth of the excavation to some 4.6 m below the modern surface and showed that Layer XVII, at the base of which excavation ceased in 1995,

appears to represent the first significant human use of the site. Below this a 1 m thickness of sterile coarse sand contained, halfway down, a very thin, slightly firmer sandy stratum with very rare stone flakes and poorly preserved bone fragments.

Chronology

Thus far five radiocarbon dates have been obtained for Likoeeng from Dr J. Vogel (Quaternary Dating Unit, Pretoria). They are listed in Table 1. The uppermost occupation (Layer I) and the two lowest (Layers XV and XVII) could not be

Table 1. Radiocarbon determinations obtained for the 1995 excavation at Likoaeeng (J. Vogel, pers. comm.)

Laboratory number	Age B.P.	Calibrated date	Layer	Unit
Pta-7097	1850 ± 15	A.D. 221 (233) 238	III	007
Pta-7092	1850 ± 40	A.D. 159 (233) 252	V	025
Pta-7098	2060 ± 45	52 B.C. (6 B.C.) A.D.43	VII	031
Pta-7101	2390 ± 60	413 (396) 379 B.C.	XI	039
Pta-7093	2650 ± 60	816 (799) 781 B.C.	XIII	049

All determinations were run on charcoal, pretreated with acid and alkali. Determinations are expressed using the Libby half-life, corrected for isotopic fractionation. Calibrated ages are given using the Pretoria program for the southern hemisphere (Talma and Vogel 1993), showing the 1 sigma range, with the most probable date in brackets.

dated in 1995 for lack of sufficient charcoal, although a probable Ndondonwane phase Early Iron Age sherd suggests that the former dates to c. 1200 B.P. (T. Maggs, pers. comm.). Charcoal samples large enough for conventional dating were recovered this year from all-three of these layers, as Farrell as throughout the remainder of the sequence, allowing a much better chronological framework to be developed for Likoaeeng. Excavation of a bone fish hook from Layer XV suggests, by analogy with other Later Stone Age (LSA) sites (Mazel 1989), that occupation of Likoaeeng was initiated ≥ 4500 B.P. If so, then it offers one of the most highly resolved cultural records for the late Holocene LSA anywhere in southern Africa, with eight stratigraphically completely distinct layers spanning the period 1200–4500 B.P.

Likoaeeng as a buried rock-shelter

Changes in the dip of the stratigraphic horizons occurring in the lower half of the test pit excavated in 1995 and increasing quantities of sandstone debris raised the possibility that Likoaeeng might have started out as a rock-shelter which was gradually filled in, converting the site to a purely open-air location in front of a largely buried rock face. This possibility is now greatly enhanced as a result of the excavation of a small baulk left in 06 front of this rock face in 1995. This revealed the presence of an overhang that slopes back gently at an angle of about 30° for at least 1.1 m without showing any sign of coming to an end. The deposit underneath is virtually sterile, loose and unconsoli-

dated. Given the gentle slope of the roof in the excavated area and the absence of any bedrock in 05 even at a depth of 4.5 m below the modern surface, it seems highly likely that this overhang is of some depth. If so, then the archaeological record from Likoaeeng should register the reactions of LSA people to the changing opportunities that this 'place' (*sensu* Parkington 1980) offered them as it went from a rock-shelter (perhaps with platform outside) to a completely open air location.

Spatial patterning at Likoaeeng

Layers III, V and VII must all have been covered very rapidly and only minimally disturbed thereafter; otherwise, the high preservation quality of the associated fauna, which includes several partly articulated fish skeletons, is difficult, if not impossible, to understand. The clarity of the features present in these layers and the presence of several conjoinable knapping clusters reinforce this conclusion. We thus suggested that these layers may represent one-off occupation events of no more than a few weeks' or months' duration, rather than the palimpsest deposits typical of rockshelter excavations (Mitchell and Charles 1996). The closest analogies in southern Africa lie with Dunefield Midden for the Later Stone Age (Parkington et al. 1992) and Florisbad for the Middle Stone Age (Brink 1987; Henderson 1996). This season's excavations have increased the area available for spatial patterning studies in Layers III and V from 14 m² to 25.2 m² (an increase of 80 %) and in Layer VII from 14 m² to 21.25 m² (an increase of 52 %). Patterning

in the distribution of both finds and features in those parts of Layers III and V excavated this season also supports the conclusion reached from analysis of the spatial distribution of stone artifacts and features found in 1995 that human activities during these two occupations were organised on the same alignment vis-à-vis the rockface, an alignment different from that used during the pulse of occupation represented in Layer VII. Together with the overlap in the dates for Layer III (1850 ± 15 B.P.; Pta-7097) and Layer V (1850 ± 40 B.P.; Pta-7092), this raises the possibility that the latter two occupations did, indeed, take place very close in time, perhaps even involving some of the same individuals.

Previously opportunities for exploring spatial patterning in activity organisation at Likoaeeng have emphasised only the uppermost part of the sequence. Excavations this year suggest that similar potential may also exist at earlier times in the site's history. As one indicator of this a comparable quality of faunal preservation, including partly articulated fish remains, appears to be present in Layer XI (dating to 2390 ± 60 B.P.; Pta-7101). From the base of the deposit Layer XVII also produced faunal remains in a surprisingly well preserved state. Most belong to the forequarters of a large-medium bovid, are intact and, in some cases (the atlas and axis; one set of carpals), still in anatomical articulation. Interpretation is limited by the small size of the excavation at this point (3.5 m^2), but these finds both confirm the exceptional quality of the faunal preservation at Likoaeeng, while also strengthening the case for the site registering a shift from a more broadly based meat procurement system, including hunting of large game, to the intensive fishing activity seen in Layers III-VII.

Projectile points

Analysis of the artifacts found in 1995 has confirmed the presence of pressure-flaked backed bladelets in layers dating 1850-2060 B.P. Highly distinctive and very finely worked, these artifacts are, as we remarked in our earlier report (Mitchell and Charles 1996) known from other sites in the Lesotho highlands and adjacent parts of South Africa, but their function remains unknown. One possibility is that they may have served (like their better known bifacial arrowhead successors ? as

stylistic markers of a prehistoric social group or exchange network (Humphreys 1984). The older part of the Likoaeeng sequence now seems to feature backed bladelets that are not bifacially pressure-flaked, raising the additional question of why the latter were apparently replaced. In addition, this season's excavation has also identified in Layer III (1850 ± 15 B.P.; Pta-7097) tanged points resembling those known from late Holocene contexts at Driel in KwaZulu-Natal (Maggs and Ward 1980) and Nelson Bay Cave on the southern Cape coast (Inskeep 1987). Interestingly, these points were not found in 1995, which suggests some degree of spatial patterning in their distribution at Likoaeeng.

Paleoenvironmental analyses

Analysis of the charcoals recovered in 1995 showed that most belong to species of *Rhus* and *Buddleia*, both of which occur at the site today (A. Esterhuysen, pers. comm.). All charcoals found in this season's work will again be identified and it is hoped that their number will now be sufficient to permit meaningful changes to be observed through the Likoaeeng sequence. The use of charcoals to reconstruct palaeoenvironmental conditions in the Likoaeeng area will be complemented by the analysis of the site's faunal remains, by stable carbon isotope analysis of ungulate teeth and sediment samples from the site (see below), by grain size analysis of sediment samples and by pollen analysis of further sediment samples. Arrangements are in hand for these studies to be undertaken in the United Kingdom and South Africa.

Fieldwork away from Likoaeeng

Although fieldwork concentrated on the excavation of Likoaeeng itself, all four of the season's secondary objectives were also met:

(1) Despite extensive surveys of the Lesotho highlands' rock art (Smits 1973; Vinnicombe 1976), site 2928DA14, on the cliff forming the south bank of the Likoaeeng stream as it enters the Senqu valley, went unnoticed until 1995. The surviving paintings here are few, but relatively well preserved, at least in part because of their location several metres above ground level and out of reach on a sheer rock face. Though this made tracing impossible, a detailed photographic and written

record was made. In addition to two poorly preserved large bovids (eland ?), three other sets of images are present. One shows several human figures, including two in white bearing shields of characteristically Sotho type; these paintings at least are thus likely to be no more than a couple of centuries old. The other scenes have clear shamanistic connotations and relate to themes well developed in southern San rock art: an upside-down (= dead) eland (Lewis-Williams 1981a) linked by a dark red line (Lewis-Williams 1981b) to a human figure bent forward at the waist with one arm back, the other raised to the face or nose (Lewis-Williams and Dowson 1989); and another eland linked by a red-and-white line through an unexfoliated patch of rock to a human figure standing with crossed lower legs (cf. Lewis-Williams and Dowson 1990).

(2) Three rock-shelters lying between Likoaeeng and Sehonghong were test-excavated as field survey in 1995 had shown all three to have LSA artifact scatters on the surface and suggested the presence of excavatable deposit beneath:

2928DB28 (Ha Lepeli; 29°44'08"S, 28°45'19"E) is a medium-sized, damp rock-shelter lacking any evidence of rock paintings. Cultural material was concentrated in the upper 20 cm of a 1 m² test-pit, above a partly brecciated layer, but bedrock was not reached before excavation ceased. Stone artifacts are attributable to the post-classic phase of the Wilton Industry, but some (all ?) of the associated pottery is Sotho in origin, suggesting a mixed deposit and/or a probably nineteenth century date. Faunal remains were present, as well as two ostrich eggshell beads;

2928DB33 (29°44'57"S, 28°45'19"E) is a small, painted overhang on the west bank of the Senqu River at which two pressure-flaked arrowheads were found in 1995. A 1 m² test-pit was excavated on the talus slope 9 m in front of the dripline. Finds, attributable to the post-classic phase of the Wilton Industry, were overwhelmingly concentrated in the upper part of the excavation, which ceased some 60 cm below the modern surface. Bone was comparatively rare, pottery almost absent and beads completely lacking;

2928DB34 (29°44'59"S, 28°45'22"E) is a small, painted overhang less than 100 m south of 2928DB33. A 1 m² test-pit was excavated within the dripline. Stone artifacts are attributable to the post-

classic Wilton Industry, and include a large number of unworked quartz and calcite crystals. In addition to both glass and ostrich eggshell beads, unworked fragments of ostrich eggshell, two bone points and a relatively large quantity of bone (fish, as well as mammal) were found. Potsherds, largely or wholly of Sotho origin, were found only in the uppermost 15 cm of the deposit and excavation ceased on reaching bedrock. A similar range of finds came from a further 1 m² testpit excavated on the talus slope immediately in front of the shelter.

Though limited in scope, these excavations demonstrate the presence of stratified culture-bearing deposits at all three sites associated with identifiable faunal and charcoal assemblages. The hints they provide of inter-site variability in both the quantity and range of finds suggest that they (and perhaps other sites like them) may have considerable potential for deepening our understanding of local land-use patterns within the immediate Sehonghong area. The unworked ostrich eggshell at 2982DB34 is of particular interest as this has also been found at several other recent Holocene LSA sites in the Lesotho highlands. Along with other data, such as a marked increase in ostrich eggshell bead densities in post-1700 B.P. levels at Sehonghong (Mitchell 1996b), this has been interpreted as evidence for a strengthening of social ties between the Lesotho highlands and areas to the west during the last 2000 years (Mitchell 1996c).

(3) Adding to the more than 100 archaeological sites now known within a two hour walk of Sehonghong Shelter (Mitchell 1996d), further field survey was carried out this year in areas to the north and south of Likoaeeng. To the north this confirmed the reality of the absence of sites along several tributaries of the Senqu, due in part, it seems, to the lack of suitable overhangs. To the south, however, not only were several painted shelters previously recorded by Carter (1978) relocated, but additional sites, some with stone artifact scatters and one with potential deposit, were also located.

(4) Vogel (1983) has shown that stable carbon isotope analysis of ungulate teeth can act as a proxy measure for palaeograssland composition and thus for palaeotemperature in the Lesotho highlands. Complementing a projected study of bovids and equids from Sehonghong and Likoaeeng, soil samples from the Sehonghong area have already

been analysed by Dr J. Lee Thorp (Dept of Archaeology, University of Cape Town) and give off-(archaeological) site evidence for shifts in temperature during the late Holocene. Further samples were taken this year from Likoaeng itself (where radiocarbon dates will provide tight chronological control), from a non-archaeological context on the northern side of the Likoaeng stream and from the upper part of a deep *donga* (erosion gully) 2 km to the north.

Conclusions

Likoaeng is a site that has already far exceeded the expectations raised on its discovery in 1992 (Mitchell 1994). Far from having only five occupation horizons with artifacts, fauna and charcoals, Likoaeng has provided evidence of eight distinct occupation pulses spanning a period that ended c. 1200 B.P. and began sometime between 3000 and 4500 B.P. This makes it one of the most highly resolved LSA sites of its age anywhere in southern Africa, and an important source of both cultural and palaeoenvironmental data over a timespan for much of which no other occupied site is known in the Lesotho highlands (Mitchell and Vogel 1994). The quality of its faunal preservation is difficult to parallel elsewhere in the sub-continent and the evidence of largescale fishing makes the site highly relevant to discussion of riverine intensification in the late Holocene (Mazel 1989; Hall 1990; Mitchell 1997). As archaeological attention shifts increasingly to exploration of a variety of 'social' issues, sites that offer a more highly resolved view of human activities become increasingly important. Yet shortlived occupations unblurred by later uses of the same site seem likely to be very difficult to detect in rockshelter situations (Parkington 1992). Likoaeng, a potential inland analogue for Dunefield Midden on South Africa's west coast (Parkington et al. 1992), is thus far unique in southern Africa's interior in providing an opportunity for hunter-gatherer use of space to be examined at an open-air location not only in terms of patterns of artifact manufacture, discard and use, but also through the preparation, consumption and disposal of food. Furthermore, Likoaeng allows such patterning to be compared across several successive occupations at the same physical location, while also permitting us to examine how human use of this location changed over

time from rockshelter to open-air site. As the additional fieldwork undertaken this season and in previous years shows, however, we have done no more than scratch the surface of archaeological potential of this region of southern Africa.

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