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Driel Shelter: rescue at a Late Stone Age site on the Tugela River

by

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SYNOPSIS

Driel Shelter was excavated in 1974 prior to flooding. The rock art and excavated material is described. The deposits cover more than 2 000 years from a pure LSA hunter–gatherer stage to one in which Iron Age influence made itself felt. The stone and bone artefacts show little change through time. The faunal remains cover quite a broad spectrum of exploitation and reflect both the riverine and grassland habitats of the neighbourhood. Evidence of ceramics and of line fishing is of interest. Cultivated plants were available towards the end of the occupation.

INTRODUCTION

Since 1975 Driel Shelter has been flooded by Driel Barrage, the main station pumping water from the Tugela for transmission to the Vaal Basin in the TUVA scheme (Fig. 1). Being informed by D. E. van Dijk of the impending flooding of a rock-art site, the Archaeology Department of the Natal Museum visited Driel and decided not only that the rock-paintings should be recorded in detail but that the deposit within the shelter should be excavated. This was considered particularly important because of the rarity of shelters in the Bergville–Winterton plains area of the Tugela Basin. Indeed the only other known one on the Tugela itself had already been flooded by Spioenkop Dam before any archaeological work could be undertaken. The excavation and recording were carried out between 12 and 18 December 1974 by a team from the Natal Museum together with volunteers.

Driel is a medium-sized shelter some 20 m by 5 m overlooking a bend in the Tugela (Figs 1 & 2). Facing east it receives the morning sun and has a noticeably mild microclimate, well sheltered from winds. A small stream falls over the lip of the shelter and forms a pool just below (Fig. 3). The immediate environment, both above and in front, is bushy, containing quite a number of tree and shrub species, in an otherwise essentially grassland environment. This grassland is of the Moist Transitional *Themeda–Hyparrhenia* type (Edwards, 1967) being of mixed palatability to herbivores, but markedly better in winter than the higher altitude grassland type which reaches from the Drakensberg to within a few kilometres of the site. The Cave Sandstone (Clarens Formation) escarpment of the Little Berg, with its numerous rock shelters, is no more than 10 km away at its nearest point (Fig. 2), yet the environmental differences are very considerable. In fact much of the interest of Driel is due to its intermediate position between the Drakensberg and the lower parts of the Tugela Basin with their bushveld vegetation.

Although the floor area of the shelter (Fig. 4) is quite extensive, part of it has a fairly steep slope, while the northern end is damp from a seepage of water which trickles out at the mouth of the cave. Several large rocks occupy much of the central position, on one of which are two pecked hollows (Fig. 5) of unknown

Fig. 1. Air photograph showing the situation of Driel Shelter.

function, with a grinding surface in between. A few centimetres of loose deposit covers part of the floor in this area, but the only area containing any depth of deposit is towards the south end. With a single exception, all the paintings are adjacent to this area.

THE ROCK PAINTINGS

The possibility of moving the paintings before flooding was considered, but because of their poor condition we decided instead to carry out a thorough recording by tracing and photography. The art had suffered from exfoliation and fading. There must once have been further panels, for the surviving paintings give way to large areas of exfoliation with remnants of paint around their edges. Three panels remained, one of which was of very limited extent. Their contents and positions on the shelter wall are as follows:

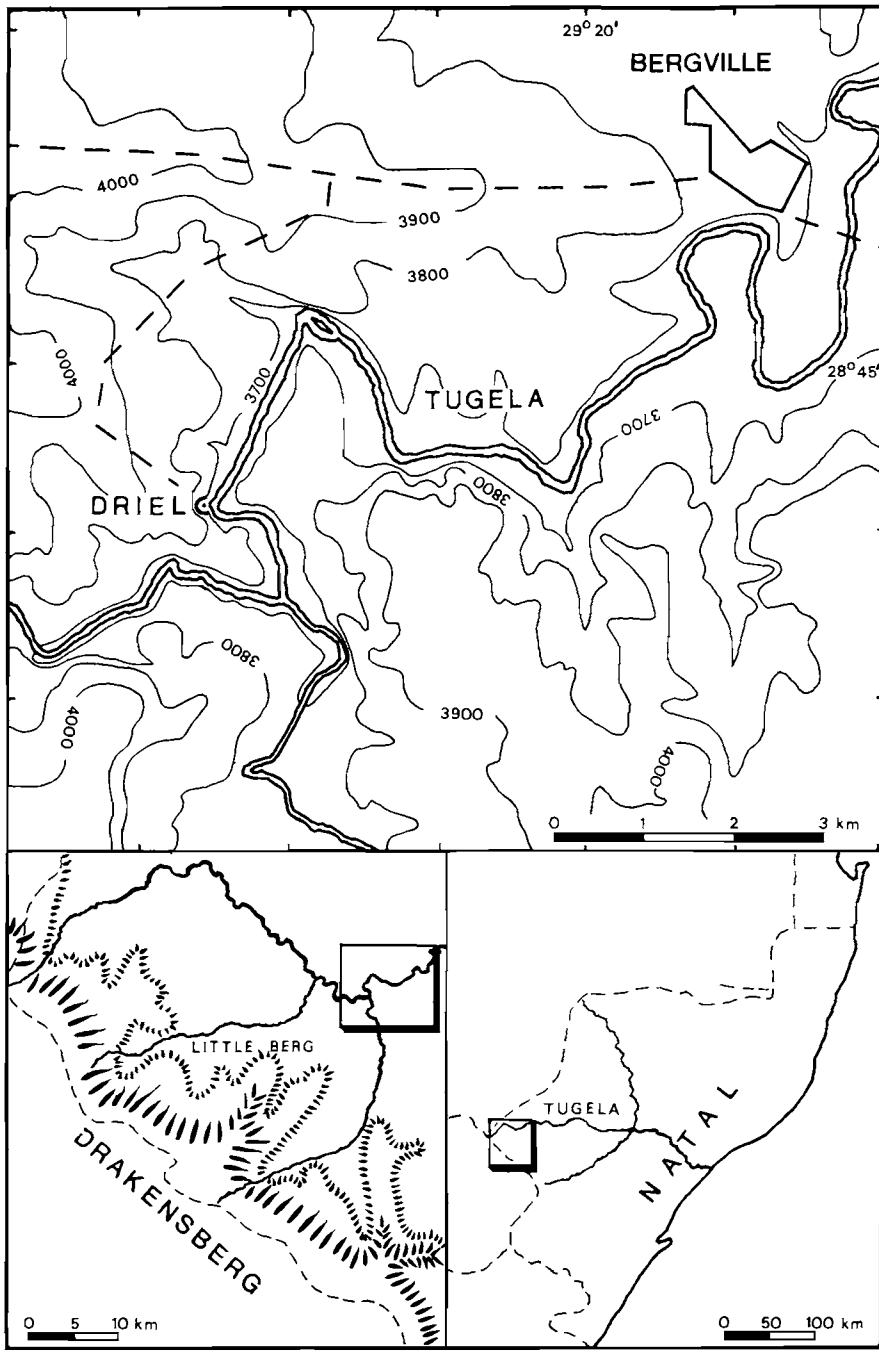

Fig. 2. Location of Driel Shelter.

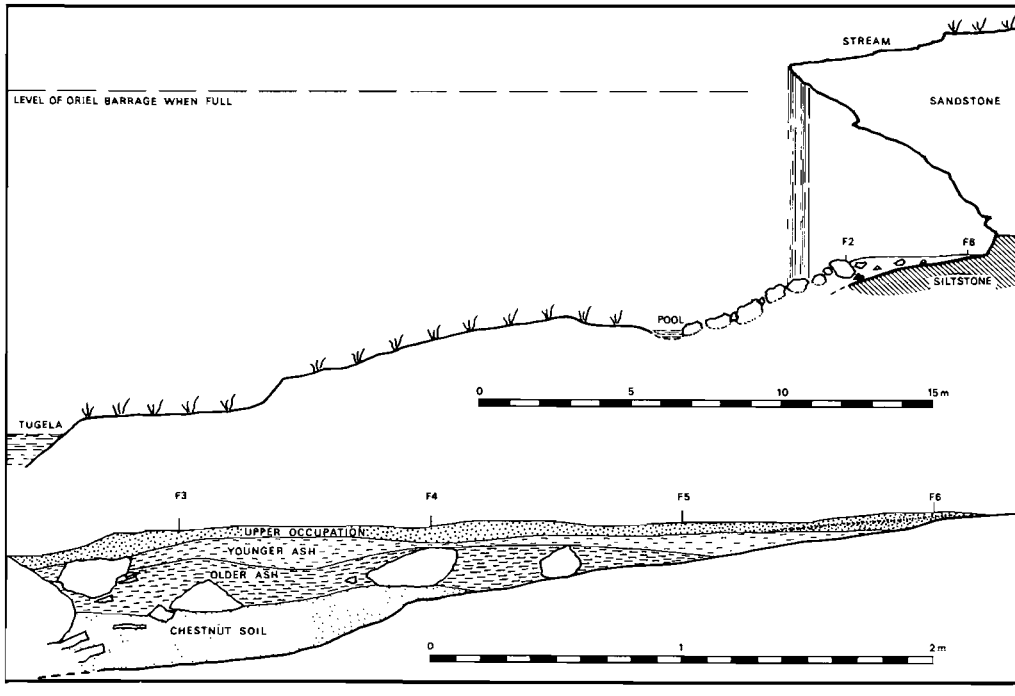

Fig. 3. Profile through the site and excavated section.

1. Grid lines B and C; the elephant hunt panel (Fig. 6).

An elephant (21 cm long) is surrounded by seven or more humans, with a further eight spread out to the right (only 5 shown in Fig. 6). All are in a faded maroon and rather sketchy in quality. Differences in scale and perhaps style among the humans makes it uncertain whether all the figures are contemporary. Several humans carry stick-like objects, sometimes one in each hand, but none can be identified definitely as a particular type of weapon. The man standing just in front of the elephant has a 'stick' which becomes broader towards the end, perhaps a specialised artefact. The rear hind leg is lost in a patch of exfoliation, so its position is uncertain, but the group of humans around the hindquarters may have depicted an attempt to hamstring the animal as has been suggested for a number of other elephant hunts (Woodhouse, 1976). The group in front of the elephant, including the vigorous running figure, may be trying to divert its attention.

Further to the right (outside Fig. 6) are six or more very faded and partly exfoliated animal torsos, probably eland. Most are in mustard or brown, one with a white stripe on its belly. One, which is definitely an eland, has a white neck and dewlap outlined in red, including the dewlap tassel, and a red body.

2. Grid line D, Lion panel (Fig. 7)

A large feline, presumably a lion, in mustard with white inside the left rear leg, is running with its tail outstretched and tip curved upwards. Three definite and three probable, but badly weathered, human figures in maroon run towards it. One foot

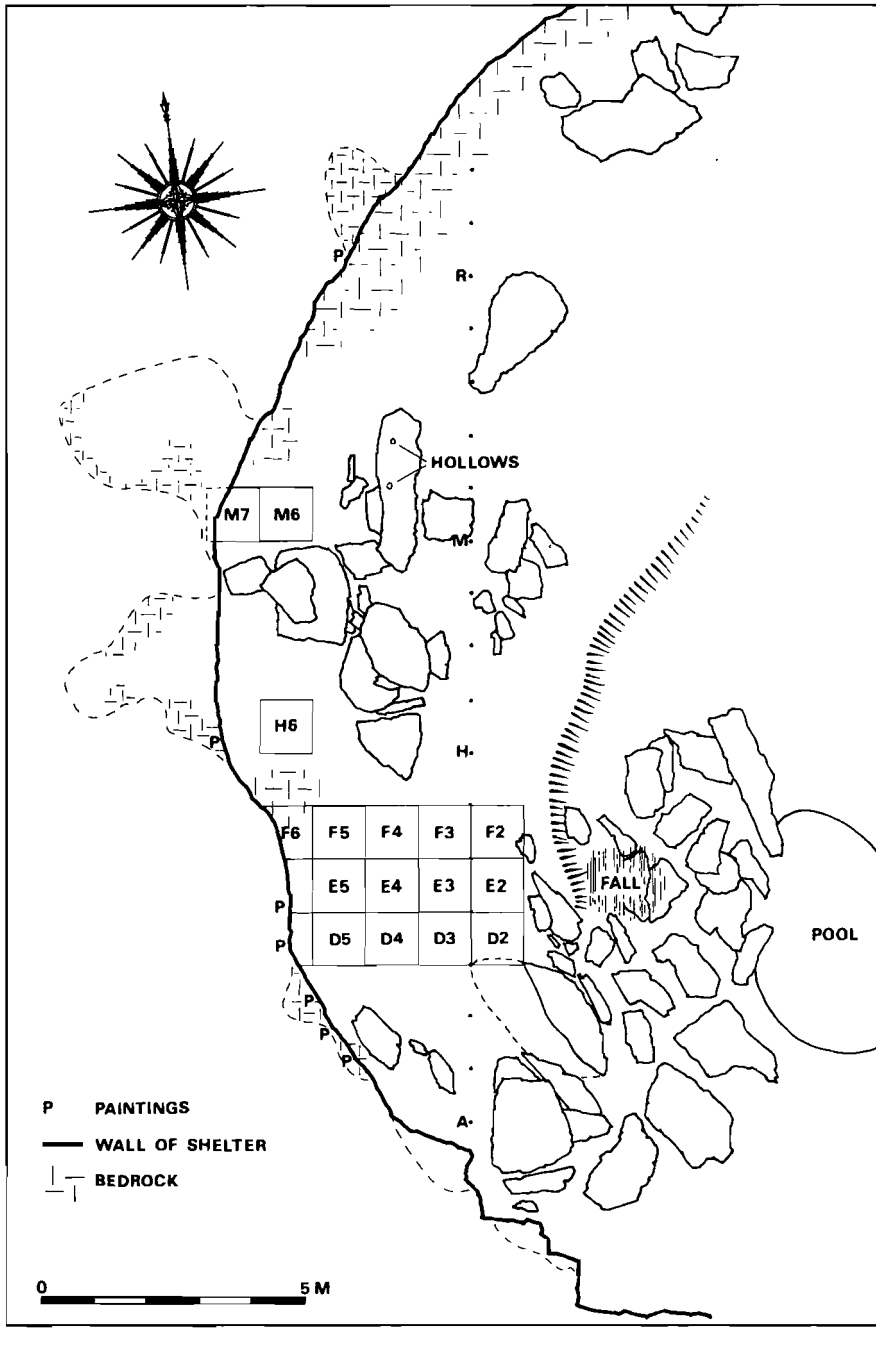

Fig. 4. Plan of shelter.

Fig. 5. Pecked hollows on boulder.

of the foremost human is superimposed on the feline and therefore they may not be contemporary. Certainly they do not seem to form an interacting group such as a hunting scene, although the juxtaposition of lion and running humans may be deliberate. Above and to the right are two badly exfoliated animal torsos.

3. Grid line H.
There are two sketchy human figures in maroon and some paint remnants.

THE EXCAVATION

Work was limited to the deeper southern part of the shelter with the exception of three squares in the central part which proved to have only a few centimetres of deposit. The deeper deposit had accumulated against the tumble of large rocks near the front of the shelter close to the waterfall (Fig. 4). The bedrock of friable siltstone slopes forward, making the deposit deepest towards the rock tumble. It pinches out just before the wall is reached (Fig. 3). Despite the maximum depth of only 55 cm four stratigraphic units were distinguished. Excavation proceeded by layers which approximated to the natural stratigraphy. However, there were some inconsistencies, especially in the earlier squares. As the overall composition became clear, the excavation units were assigned to their closest equivalent among the natural units which are used below. A surface scrape was carried out to remove loose and superficial material prior to excavation.

1. *Upper Occupation.* Towards the rear this consisted of a thin dung floor, often directly on bedrock, with patches of plant remains and brown soil. From the row

Fig. 6. Elephant hunt panel from a redrawing by V. Maggs.

Fig. 7. Lion panel from a redrawing by V. Maggs.

4 squares forward it gave way to a brown or grey-brown soil, often quite hard, which was readily distinguished from the underlying ash. The unit was seldom more than 5 cm thick. It contained modern and Iron Age remains, but most of the finds were of Late Stone Age origin. It therefore seems to represent a Stone Age occupation, contemporary with Iron Age occupation in the neighbourhood. The recent material, including fishing sinkers, airgun pellets and broken glass had been trampled a few centimetres into the deposit.

2. *Younger Ash.* This unit was present only from the row 5 squares forward, because of the wedging out of the deposits. It was predominantly a compact, light coloured ash with some grey lenses. In D3 and 4 it had a pink crust on top and in the E and F rows it was particularly pale and compact. Towards the centre of E3 was a recognisable hearth of dense white ash about 40 cm in diameter. This more-or-less central position within the habitable southern part of the shelter corresponds with the maximum depth of ash in the deposits and it therefore seems that fires were regularly lit here during the occupation of this and the underlying unit. Iron Age material, including a piece of iron, a cane glass bead and a decorated rim sherd apparently of Late Iron Age type was present, but the occupation was evidently by LSA hunter–gatherers. Contamination by modern material (a plastic bead, an airgun pellet and a piece of glass) showed that small objects could penetrate down to this layer through about 5 cm of overlying deposit.

3. *Older Ash.* This was distinguished from the younger ash by being generally softer and greyer. In the F squares it was more earthy while it dipped southwards from the E squares, thus its centre was around E3. It wedged out in row 4 and became a damp grey-brown humic soil in the front part of row 2 where it had been kept damp by splash from the waterfall. Because of this and the presence of numerous rocks, roots and signs of burrowing rodents, stratigraphic separation in this area was less satisfactory than elsewhere and there may have been some mixing.

In the lower part of the unit in E3 fish bones were so numerous as to alter the colour of the deposit to brown. Evidently a large number of fish were caught in a relatively short time. A charcoal sample was collected *in situ* from the southern half of this square after 4 cm of the older ash had been removed. It came from between 15 and 27 cm below surface which included the concentration of fish bones. The sample produced the following result: Pta 1381, 1775 ± 40 (ad 175). Calibration would make little difference at this period.

Towards the base of the ash the amount of rock increased and in some places almost covered the floor. These weathered sandstone slabs are discussed in relation to the underlying unit.

The older ash certainly represents a LSA hunter–gatherer occupation. It produced the largest lithic sample while the 15 sherds, occurring in most squares, would seem to indicate the presence of ceramics rather than the intrusion of a few sherds from the overlying unit.

The stratigraphy within the ash complex as described above was complicated by several factors including small, interdigitating ash lenses and the dip towards the

south. In D4 a pit, 55 cm across and varying in depth from 6 to 20 cm with sloping bedrock, had been dug into the weathered siltstone. It was filled with ash, but it is possible that it was dug through the older ash and filled during the younger ash occupation, although no stratigraphic evidence of this was noted. For these reasons the separation between the older and younger ash units cannot be regarded as absolutely reliable in all squares.

4. *Chestnut Soil.* Being the oldest deposit, this was the most restricted in area, occurring only in the rows 2 and 3 and reaching a maximum depth of about 20 cm. It was a light reddish-brown soil, soft and of a fine sandy texture which readily separated it from the overlying ash except where both became muddy towards the front of E2 and F2. Resting on its surface, particularly in the E and F rows, were the numerous weathered and even rotten sandstone slabs mentioned above.

The nature of this deposit and its paucity of organic remains suggest that it was subjected to leaching before the ash accumulation started. The weathered slabs must have fallen from the shelter ceiling at about the same time. The implications are that there was a hiatus in occupation, at least in this part of the shelter, together with a change in the local hydrological/weathering conditions. While this could have been the result of some more widespread phenomenon, such as a climatic change, a purely local explanation would seem to be satisfactory. A slight change in the morphology of the shelter lip (Fig. 3) could have caused water to flow down the shelter ceiling. This water, dripping on to or running over the deposit, could have caused the leaching as well as speeding up the decay of the sandstone to produce the fallen, weathered slabs. Subsequently, and perhaps as a result of the changed shape of the ceiling, water started falling clear of the shelter, making it dry and habitable. An implication of this period of rock disintegration is that the surviving paintings must almost certainly postdate it, making them contemporary with, or more recent than, the older ash.

The unit contained some bone but little charcoal—not enough from any single square for a dating sample. Resting immediately on bedrock in D2 was the mandible of a hartebeest or wildebeest.

In the shallow deposit towards the rear two interesting features came to light. In F6 just below the surface dust and dung floor a flat sandstone slab had been set into a depression in the floor (Fig. 8). Its removal revealed a small pit, dug into the friable siltstone bedrock, which contained two small pots and two plant bulbs (Fig. 9). The pots had been placed in an inverted position yet dark staining within them suggests that at some stage they had contained some organic matter, perhaps in liquid form. They were crudely made and one, which had not even been fired, would have had little practical value (Fig. 17.3). These gave the impression of being deliberately made for burial in this feature. The bulbs have been identified by J. Stewart as *Scilla natalensis.* The occurrence may relate to a medicinal practice, for this plant has been used traditionally as an aperient, as an enema for internal tumours and to treat sprains and fractures (Watt & Breyer-Brandwijk, 1932). Nearby, in E4–5, another pair of little pots, of the same rough and irregular quality, were found just below the surface. Again they had been

Fig. 8. Sandstone slab *in situ* over pit.

Fig. 9. Slab removed showing pots and bulbs in pit.

placed upside down in a slight hollow—about 20 cm in diameter and up to 5 cm deep—dug into bedrock, and again they showed traces of staining and carbonised material on their insides. Because of the shallow overlying deposit they had been badly broken by trampling and their bases were missing (Fig. 17.1 & 2).

THE FINDS

Stone implements

Our aim here is to describe the material along lines developed by Stone Age specialists, notably H. and J. Deacon, in order to make our results comparable with much of the recent LSA research in the Cape Province (Schweitzer, 1979; Humphreys, 1979). However, since Driel was a rescue excavation and not related to a broader research programme, we will not attempt to view the results in a wider context.

The terminology requires little comment. We have decided to use the word hornfels instead of lydianite or indurated shale, in line with the recent statement by Sampson (pers. comm.) that hornfels is the correct geological term for this rock. Agate and related rocks evidently cannot be distinguished from one another on any systematic basis and we have therefore adopted the practice of Cable, Scott & Carter (1980) of referring to them as cryptocrystalline silica abbreviated to CCS. The source of this raw material is the Drakensberg basalts, overlying the sandstone of the Little Berg, whence it has been washed down by the Tugela. Hornfels may well outcrop near the site, but the actual source is unknown. We have also decided to use the term *spokeshave* for those implements that have usually been called notched scrapers or strangulated scrapers by previous Natal workers. After discussion with various colleagues, notably J. Deacon, J. Parkington and A. Mazel, we recognise their functional equivalence to the adzes of those workers, although in Natal they tend to be larger and more concave. Our

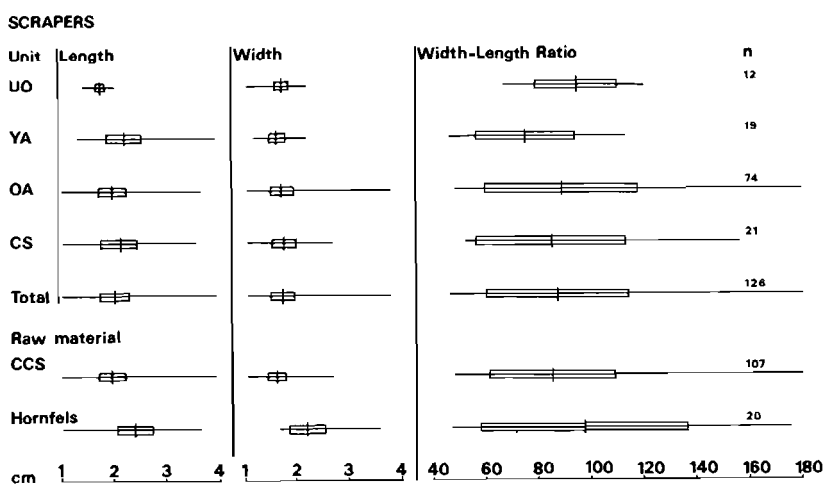

Fig. 10. Dice–Leraas diagram of scraper dimensions.

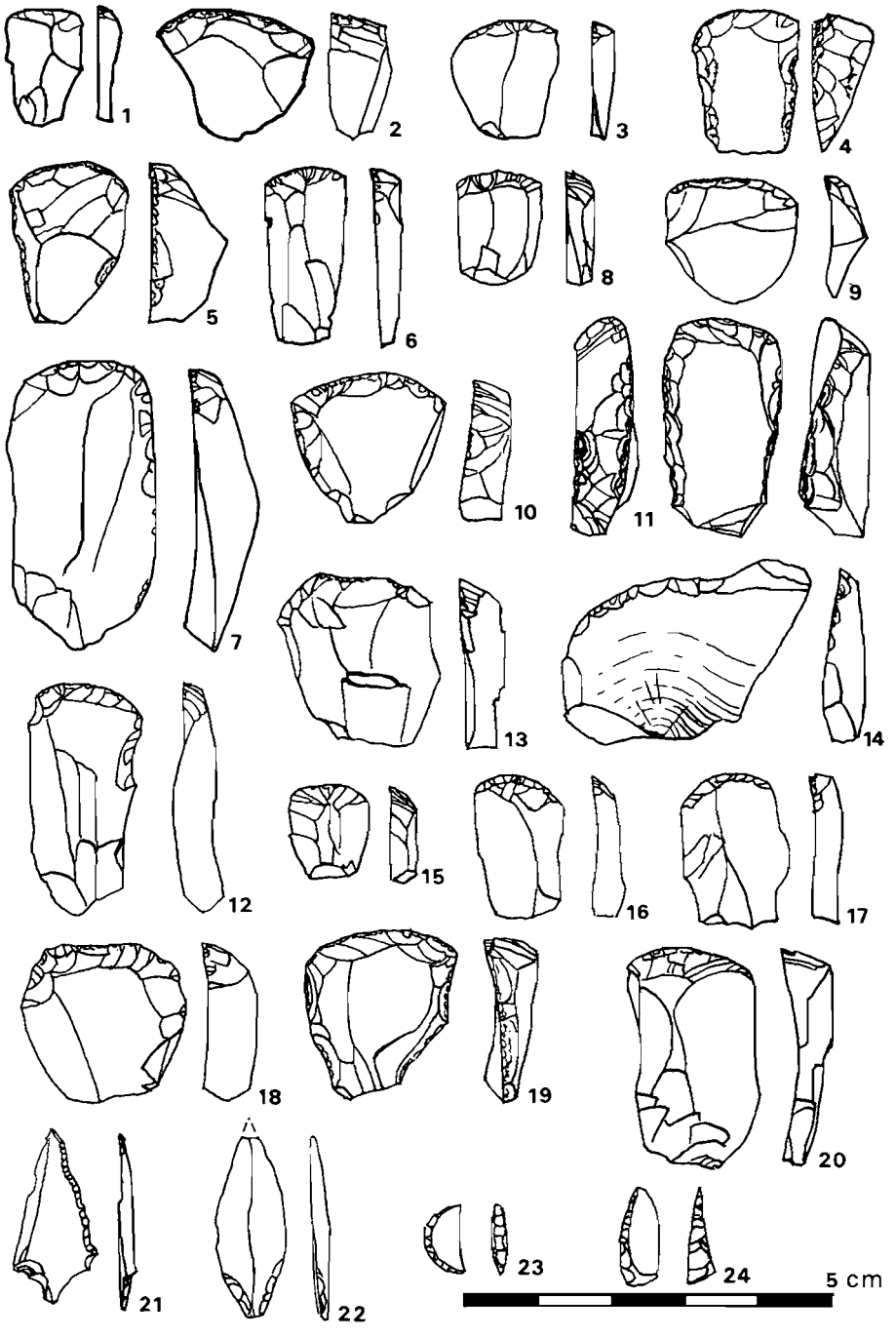

Fig. 11. Scrapers: 1 & 2, UO; 3–7, YA; 8–14, OA; 15–20, CS. Arrowheads: 21, YA; 22, OA. Segment: 23, OA. Backed point: 24, CS.

preference for the term *spokeshave* over *adze* is in line with the widely held view that the former more accurately reflects the action involved in their use.

Among both scrapers and spokeshaves there was a preference for CCS over hornfels, it being more marked among the scrapers. Scrapers (Fig. 10) were analysed as a group, with the exception of one, very large specimen (Fig. 15, 8). Their length was taken from striking platform to opposite edge—the width being at right angles irrespective of where retouch occurred. Scraper dimensions are very stable between the chestnut soil and the older ash where the chronological distance is probably greatest (Fig. 10). There is a change towards longer, narrower ones in the younger ash and shorter broader ones in the upper occupation, but because of relatively small samples this may not be significant. Those made on hornfels are, however, appreciably longer, wider and proportionately broader than those of CCS.

Of the 126 scrapers 109 had retouch on their ends, nine on the end and one side, two on the end and both sides, four were side scrapers and two had scraper retouch on the end together with a spokeshave working edge on one side (Fig. 11.11). One scraper was made on the ventral side of a flake and can perhaps be regarded as a miscellaneous retouched piece (Fig. 11.14).

The very large scraper, excluded from the analysis, was found resting on bedrock below the older ash in D4 and may well be older than this layer. Its size (10,9 × 12,1 cm) and shape (Fig. 15.8) also suggest considerable age. The patinated primary scars on its dorsal surface show that it must have been exposed on a core or quarry face for a long time before the flake was removed and the scraper retouch applied. Subsequently it saw intense use which has rounded the scraping edge.

Spokeshaves show a wide range in size from relatively delicate examples, made on flakes (Fig. 12) to large ones on river pebbles (Fig. 12.11), fossil wood, classified with the CCS, which is available in the immediate vicinity (Fig. 13.4) and even one on dolerite (Fig. 13.8). This would seem to indicate that the makers were much less selective in choosing blanks for spokeshaves than for scrapers. Almost any piece with a fairly flat ventral surface seems to have been adequate. Furthermore the length of the working edges, especially on the larger examples, does not necessarily correlate with the size of the piece itself. We therefore decided to examine the dimensions of the working edges rather than of the tools themselves. Because there were only two each in the upper occupation and younger ash, these units were excluded from the analysis but included in the totals. Length of working edge was measured in a straight line; the depth being the maximum distance from this line to the deepest part of the hollow, following the method of Cable *et al* (1980). We also measured the hollows on a template to find their diameters of curvature, with the possibility that this might bear some relation to the diameter of the object on which they were used. The only working edge which was convex, as well as seven which were virtually straight, were omitted, the great majority (69) being concave. The hollows range in depth from 1 to 6 mm with a mean of 2,7 mm.

Once again raw material produced greater differences than stratigraphic position (Fig. 14). The working edges of hornfels spokeshaves were appreciably

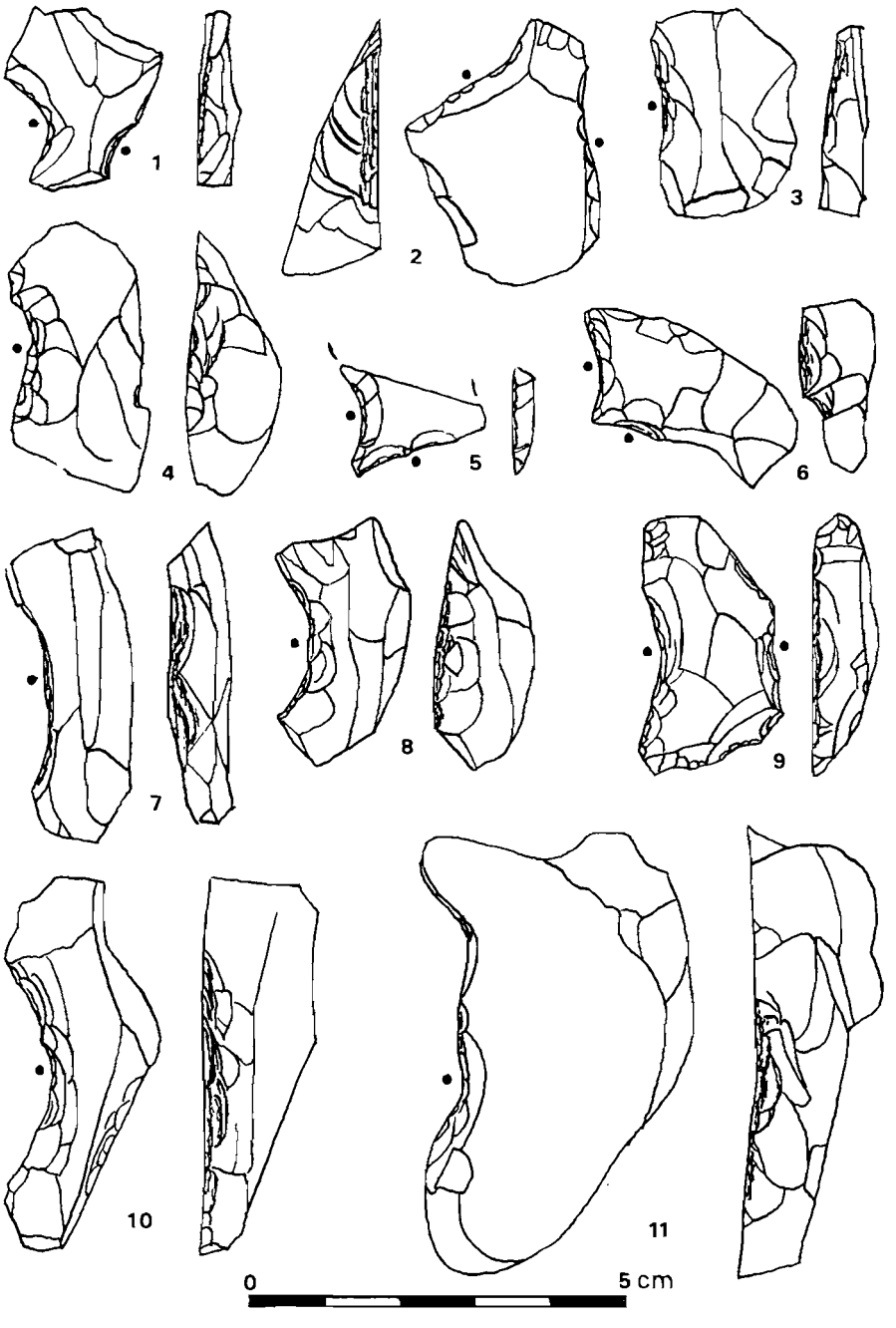

Fig. 12. Spokeshaves: 1 & 2, UO; 3 & 4, YA; 5–8 & 11, OA; 9 & 10, CS. Dot indicates working edge.

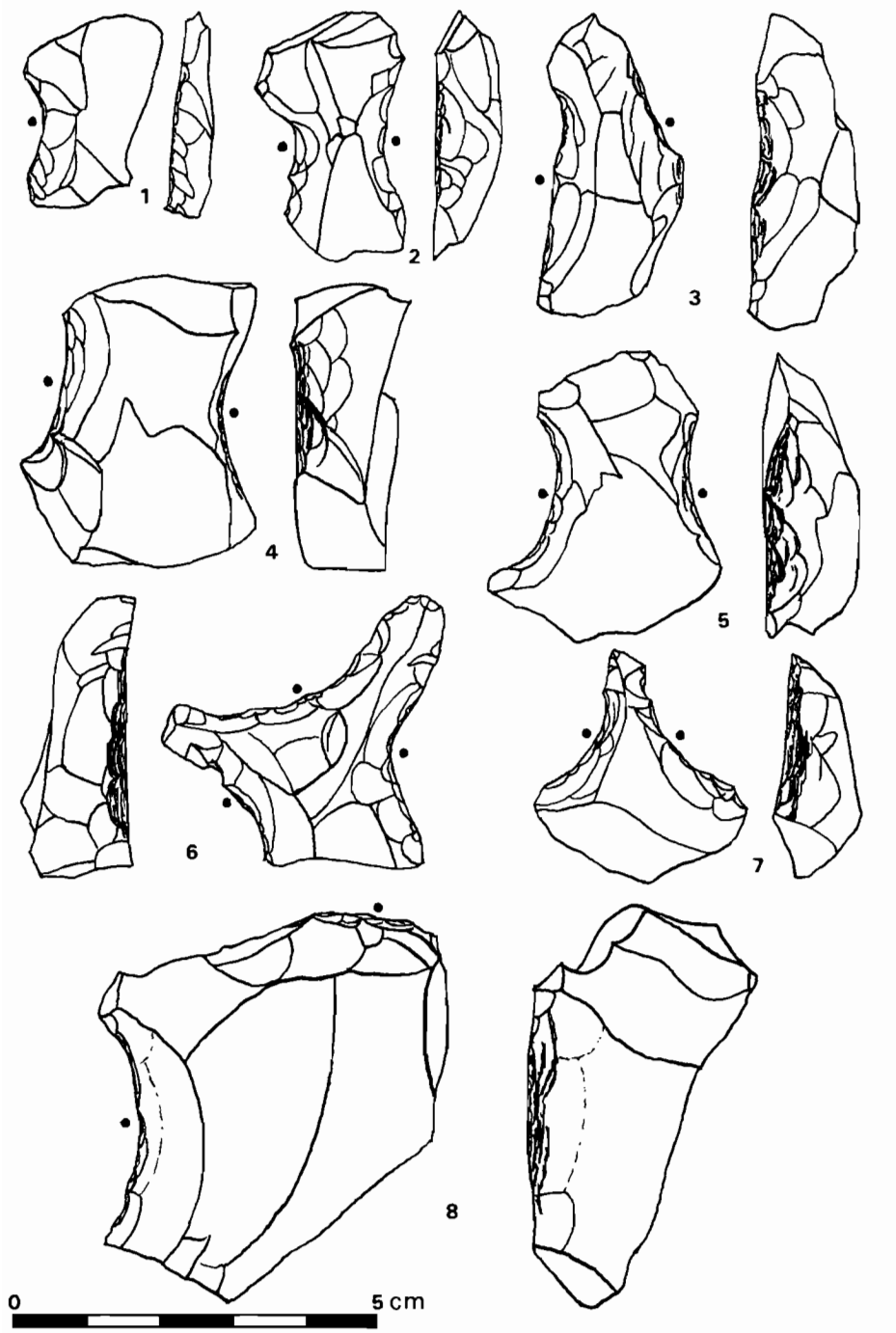

Fig. 13. Spokeshaves: 1–5, CS; 6–8, OA. Dot indicates working edge.

longer, shallower, narrower in depth–length ratio and wider in diameter of curvature than those of CCS. A difference between the chestnut soil and older ash, particularly towards greater length and wider diameter of curvature, may at least in part be attributed to the higher proportion of hornfels in the chestnut soil.

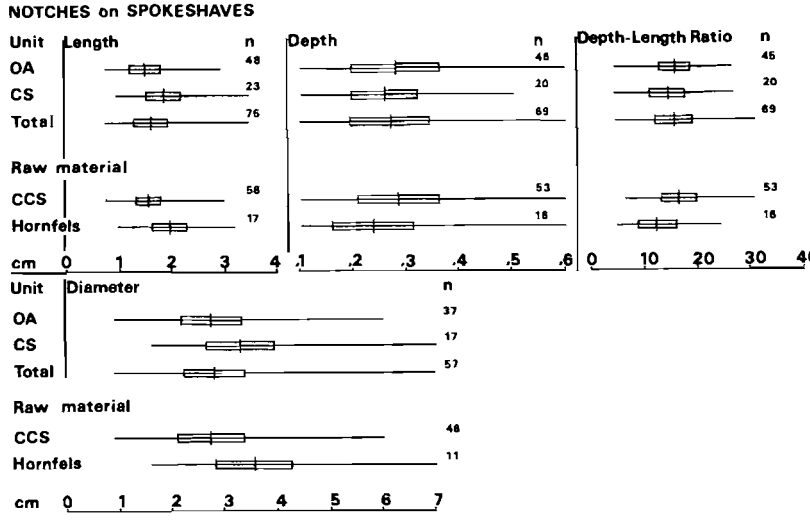

Fig. 14. Dice–Leraas diagram of dimensions of notches on spokeshaves.

The majority of spokeshaves (35) had only one working edge, 18 had two edges and 2 had three edges.

In Table 2 the percentages of scrapers to spokeshaves in each stratigraphic unit are compared. There is a notable decrease in spokeshaves in the upper units. However, because of the small samples this may not be significant.

There were very few other formal flaked implements in the assemblage (Table 1). Only two backed pieces were recovered, a small segment and a small backed point (Fig. 11.23, 24), both from the deeper layers, indicating considerable age. Although the two stone arrowheads (Fig. 11.21, 22) show less retouch than other Natal examples we consider that this was probably their function because of their symmetrical shapes and the fact that both show retouch about their tangs. One (No. 21) has fine backing along one edge, presumably to produce symmetry, and both are very thin.

Two ground stone items from the older ash are of interest. A thin knife-like spatula was made of a relatively soft, fine-grained sedimentary rock (Fig. 15.5). A fragment of what was probably an open bowl (Fig. 15.6) was carved out of talc schist, the nearest known source of which is some 160 km down the Tugela.

Pottery

The fabric varies from clay without temper or with very fine quartz grains to a coarser quartz temper, either angular or rounded. Several sherds, particularly the

TABLE 1

Stone artefacts from Driel Shelter.

CCS = crypto-crystalline silicas; CS = chestnut soil; OA = older ash; UO = upper occupation; YA = younger ash.

Raw material	CCS				Hornfels				Other*				
Unit	UO	YA	OA	CS	UO	YA	OA	CS	UO	YA	OA	CS	Total
Scrapers	11	15	63	18	1	4	12	3					127
Spokeshaves	2	2	30	8			6	6			1		55
Segment			1										1
Arrowheads		1	1										2
Backed point				1									1
Outils écaille		2	2	1									5
Misc. retouch	3	2	11	7			3						26
Utilised pieces	1	2	17	8			1	1					30
Schist 'bowl'											1		1
'Spatula'											1		1
Flakes	10	30	250	98	5	8	173	44	1		15	3	637
Chunks & chips	23	84	389	119	8	17	262	61	2	4	39	6	1 014
Cores		4	18	9	1	1	2	2					37
Hammerstones			1						1	1	2		5
Grindstones											2	2	4
Total	50	142	783	269	15	30	459	117	4	5	61	11	1 946

* 'OTHER' includes dolerite, quartz, quartzite and schist.

TABLE 2

Percentage of scrapers to spokeshaves at Driel Shelter. (abbreviations as for Table 1)

	Scrapers		Spokeshaves		Total
Unit	n	%	n	%	n
UO	12	85,7	2	14,3	14
YA	19	90,5	2	9,5	21
OA	75	67,0	37	33,0	112
CS	21	60,0	14	40,0	35
Total	127	75,8	55	24,2	182

thicker ones and from the upper levels, have a crushed sherd grog. Colour is mainly grey or brown throughout, although some sherds have a reddish surface and a few are oxidised to an orange throughout.

Only three vessel shapes could be reconstructed; a small pot with near-vertical sides, an open bowl with finger-pinched decoration on the lip and a hemispherical pot with notched lip (Fig. 16.1, 5 & 6) all from the upper occupation. Several other rim sherds are from bag-shaped vessels with very poorly defined points of inflection producing weakly developed upright necks (Fig. 16.2, 7–10). This shape occurs in the older ash and upper occupation. In the illustrations, sherds whose orientation is uncertain have no horizontal line connecting their elevation and section views.

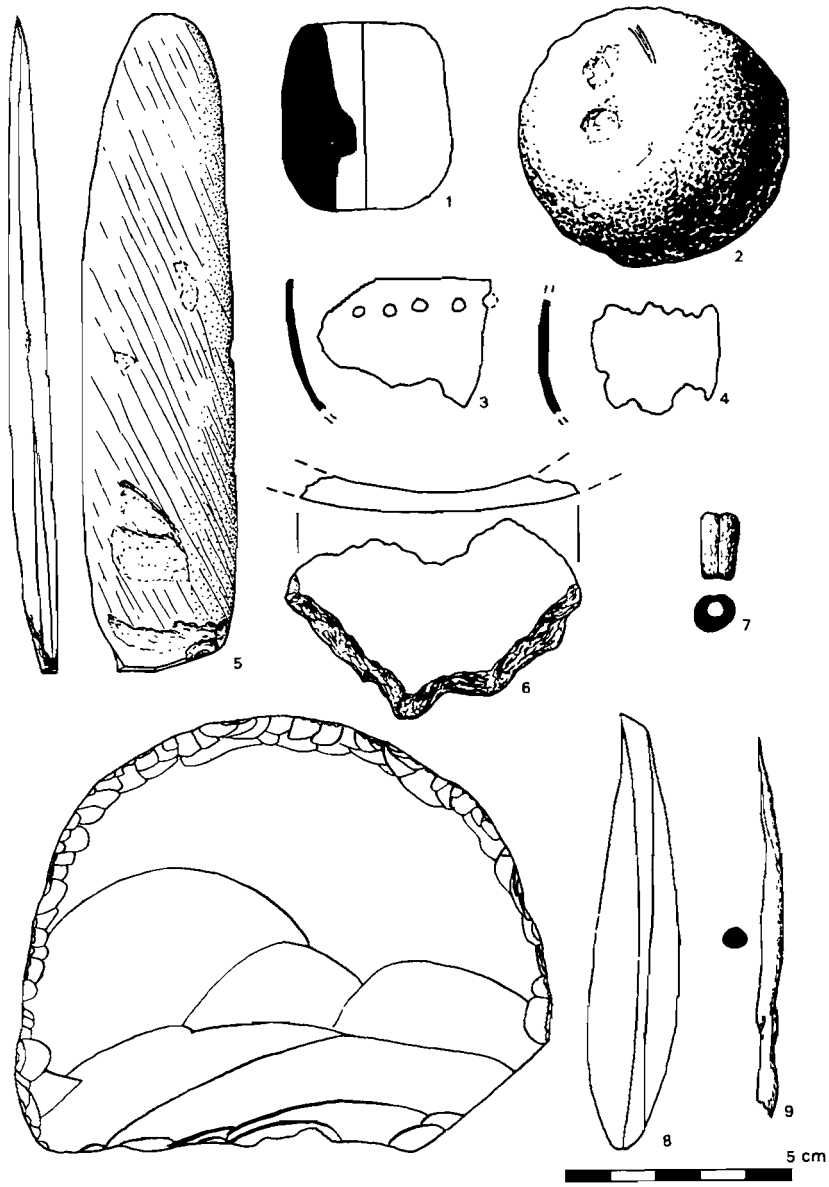

Fig. 15. Clay pipe bowl: 1, UO; ochre ball: 2, OA, drilled gourd: 3 & 4, UO; 'Spatula': 5, OA; hollow ground schist 'bowl': 6, OA; iron bead: 7, OA; iron awl/tang: 9, UO; large hornfels scraper: 8, OA.

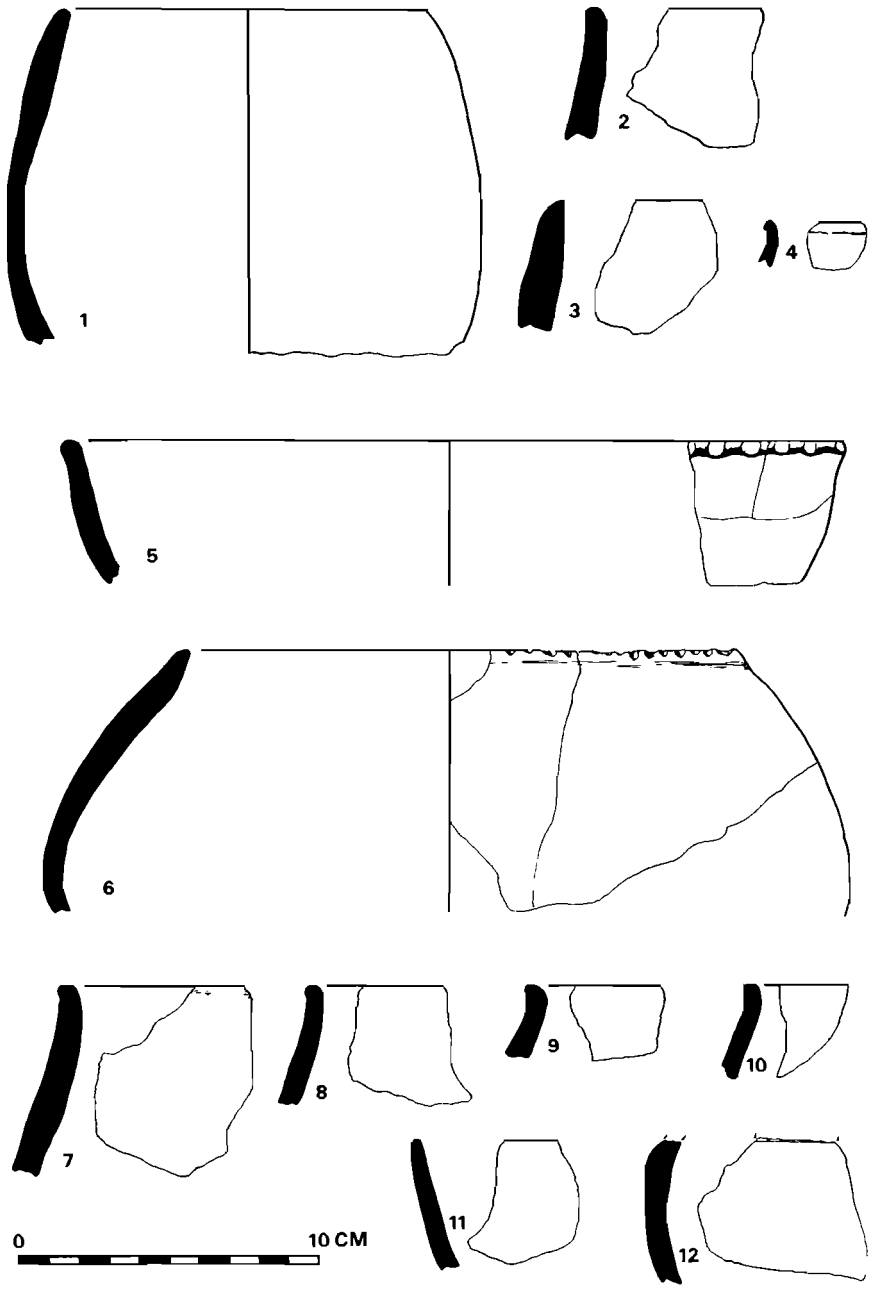

Fig. 16. Pottery: 1–6, UO; 7–9 & 12, YA; 10, OA; 11, CS.

Thicknesses of the 114 sherds that could be measured are shown in Table 3. There is a trend towards greater thickness with time but the relatively small changes and the sample sizes do not allow any conclusions to be reached.

Lip shapes and surface finishes are listed in Table 4. Rounded lips are rather more common than flattened ones. Burnishing is quite common, particularly among decorated sherds. Red ochre burnish occurs on a few thick sherds from the upper levels, this being characteristic of terminal Iron Age assemblages in the neighbourhood.

In addition to the notched and finger-pinched rims mentioned above there are only two more decorated sherds, both from the younger ash. One has finger-pinching very much like the illustrated example while the other shows only the bottom of a diagonal incised motif (Fig. 16.12).

The two sherds from the chestnut soil were almost certainly intrusive. One is from the damp front part of the deposit in F2 while the other is very small. The four little pots (Fig. 17) from the features near the shelter wall were excluded from this analysis as they are described above and they seem to be specially made rather than part of the assemblage.

Two other items are of interest, one being a smoking pipe of characteristic Iron Age pattern (Fig. 15.1), which was collected from the surface some years

TABLE 3

Thickness of sherds from Driel Shelter.
(abbreviations as for Table 1)

Unit	n	mean	Standard deviation	Range (mm)
UO	57	9,08	3,2	4–17
YA	41	8,43	2,4	5–14
OA	14	8,21	1,8	6–12
CS	2	8,5	3,5	6–11
Total	114	8,73	2,8	4–17

TABLE 4

Pottery analysis (abbreviations as for Table 1)

		Decorated sherds		Undecorated sherds			Total
		Surface		Surface			
	Unit	Plain	Burnished	Plain	Burnished	Ochre	
Rim Sherds							
Lip—rounded	UO			6			6
	YA			3	1	1	5
Lip—flattened	YA		1	2	3		6
	OA			1			1
	CS			1			1
Lip—misc.	UO	1	1		1		3
Body Sherds	UO			36	9	3	48
	YA		1	25	8	1	35
	OA			8	5		13
	CS			1			1
	TOTAL	1	3	83	27	5	119

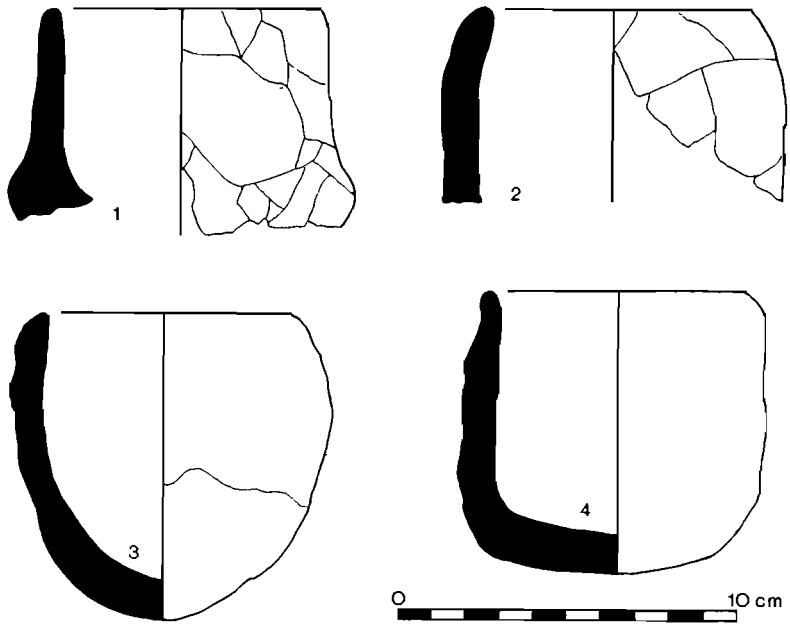

Fig. 17. Pots: 1 & 2 E 4/5; 3 & 4, F6 pit.

previously (catalogue No. 71/4). The other is a ball of yellow ochre with sandy inclusions (Fig. 15.2) which apparently has been fired, for its outer surface is red and preserves the impressions of a few pieces of grass. The material is soft and can be scratched to produce a fine powder. A possible explanation is that it was collected, shaped and fired in preparation for making paint. It is the same mustard colour as some of the paintings, such as the lion (Fig. 7).

Glass and iron

Apart from modern material, six items fall within this category (Table 5). Two snapped blue canes, 3,5 and 4 mm in diameter came from the younger ash, a 2

TABLE 5

Non-lithic artefacts from Driel Shelter.
(abbreviations as for Table 1)

	UO	YA	OA	CS	Total
Pottery—rim sherds	9	11	1	1	22
—body sherds	48	35	13	1	97
—pipe	1				1
Ochre ball			1		1
Glass—beads	2	2			4
Iron—bead			1		1
—awl/tang	1				1
Bone—hooks	1	1	1		3
—points	4	17	18	2	41
—misc.			1		1
Ostrich egg shell—beads		4	15	?	22
Metachatina—bead			1		1
Cowrie—pendant			1		1
Flora—drilled gourd	2				2

mm green spherical bead came from the upper occupation and another snapped cane, blue-green and 3,5 mm in diameter, was found on the surface. The green sphere seems relatively recent but the canes, which are all heavily weathered, probably date from before the nineteenth century.

An iron bead formed from a flat piece of iron hammered into a cylinder is around 9 mm in diameter and 13 mm long (Fig. 15.7). It came from the hollow at the base of D4, which suggests disturbance from a higher level although this material was placed in the older ash. The only other iron object was an awl, or perhaps a broken tang, from the upper occupation (Fig. 15.9).

Bone implements

A range of implements is shown in Fig. 18. The assemblage is unusual in having a number of very short points as well as the fact that 19 of the 41 implements are faceted in length rather than being rounded (Fig. 18, top row nos. 2 & 3). The 'points' were classified using the system of Humphreys (1979) with modification to include the faceted examples (Table 6). Of the 22 ground 'points', three are oval in section, seven have very sharp ground and polished tips while the tips of four are faceted (Fig. 18 bottom row No. 1). Of the 13 examples with one butt end, ten are ring-and-snapped and the remaining three are ground flat. The only 'link shaft' has one end ground and the other ring-and-snapped. Only one example 63 mm long can be regarded as a typical LSA arrow point (Fig. 18, bottom row no. 4). The function of the six very short points, between 14 and 20 mm long and apparently complete, is unknown.

The 19 faceted 'points' tend to be longer than the ground 'points' even when broken, and tend to have wider diameters. Only two are complete, both having faceted ends (Fig. 18, top row no. 2), and there is evidence of grinding on only one or two. It therefore seems likely that they represent stages in the manufacture

TABLE 6

Bone points from Driel Shelter: maximum diameter (length) in mm.

Unit	n	A	B	C	D	E	F	G	H
UO	4	5(14)					4(21)	4(29) 4(25)	
YA	17	4(8)	3(28) 3(11)	3(27) 3(12)	4(17) 3(63) 3(19) 3(17) 3(14)		6(36) 4(9) 4(31) 3(22) 3(11)		5(38) 4(40)
OA	18	3(22) 6(20) 4(25)		3(17) 4(19) 5(24)	4(18) 3(20) 4(36)	3(13)	4(8) 4(39) 6(81) 4(21)	3(39) 3(12) 5(23) 5(41)	
CS	2		4(38)				5(19)		

Ground points. A = shaft fragments—both ends fractured. B = point with butt end fractured. C = ground or ring-and-snapped butt with point fractured. D = complete points. E = link shafts—ends ground flat.

Faceted (shaved) points. F = both ends fractured. G = point or butt end fractured. H = complete points.

Other abbreviations as for Table 1.

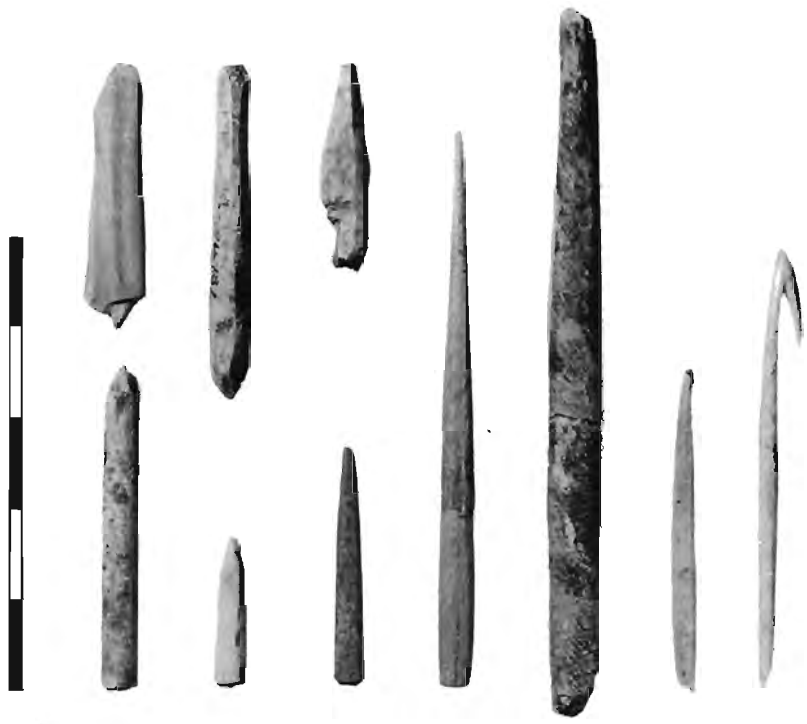

Fig. 18. Bone points: Top row, L–R, flat splinter with chisel-like end, 2 faceted points. Bottom row, L–R, 2 ground points with faceted ends and ring-and-snapped butts, ground point with ring-and-snapped butt, arrow point with ground butt, partly ground point, 2 fish hooks one with broken barb.

of ground 'points', the broken examples having been discarded. It is possible that the shaving process to produce the faceting was done by spokeshave. A similar suggestion is conveyed by Dunn's (1880) words of a century ago: 'Flakes, in the sides of which notches have been chipped are not uncommon. . . . Such an instrument might have been used for fashioning the bone points of arrows, or for rendering arrow-shafts, when formed of wood, of cylindrical shape' (we are grateful to A. Mazel for drawing this reference to our attention).

A flat piece of bone from the older ash has one end ground to a chisel-like edge (Fig. 18, top row no. 1).

A delicate bone fish-hook, 50 mm long and 2 mm at its widest, came from the upper occupation and another, with barb broken off, came from the older ash (Fig. 18, far right). From the younger ash an unfinished item, probably also a hook but with its barb broken off, was 51 mm long and again 2 mm at its widest. Similar bone hooks are known from Belleview in the southen Natal Drakensberg (Carter & Vogel, 1974).

Shell beads

22 Ostrich egg-shell beads were recovered of which 15 were from the older ash and 13 were from square E3. There were no incomplete examples but two small

unworked pieces of egg-shell were found. The largest bead had a diameter of 8 mm, most of the others being 4 mm. Several had localised wear in two lines opposite each other reaching from the perforation towards the outer edge, which indicates that they were not strung in a row on a single string. They could have been strung in an alternating 'brickwork' pattern as is known from some Bushmen head bands (eg. Humphreys & Maggs, 1970), or perhaps stitched on to a fabric.

One shell disc bead is made of *Metachatina kraussi,* judging by its texture and laminar structure.

A cowrie shell, *Cypraea felina,* had been perforated for suspension.

Gourd

Two pieces of gourd, *Lagenaria siceraria,* had been perforated, perhaps to repair cracks (Fig. 15, 3 & 4). This suggests that gourd containers were in use during the upper occupation.

THE ECONOMY

The organic remains have been identified by several people, to whom we are most grateful. Identifications are listed in the appendices.

The number of larger mammals, particularly antelope, strongly suggests that hunting supplied a major part of the protein diet (Appendix 1).

Evidence for the making of bone points on site may correlate with hunting by poisoned arrows, although other methods such as pit traps could also have been used. Smaller game, including hares, hyrax and tortoises, although present, seem to have been of little significance.

The composition is somewhat different from the pattern at roughly contemporary sites in the Cape fynbos which tend to have a predominance of small game including small antelope (e.g. Deacon, 1972; Klein, 1974), for at Driel the larger antelope seem to have been more important. In this respect the sample resembles the pattern from Late Iron Age sites on the grasslands of the southern Highveld (Maggs, 1975) but it includes a much wider range of other species than these sites. The lack of domestic animals argues against an Iron Age occupation, even in the upper levels where Iron Age cultural material was present.

The migratory, herd antelope—eland, Alcelaphines and springbuck—are thought to have moved down from the southern Highveld to winter in the Tugela Basin, taking advantage of the sweeter grazing (Vinnicombe, 1976: 6). This would suggest that at least part of the Driel occupation was in winter seasons, particularly during the accumulation of the earlier units. While there is no direct evidence, selective veld burning could have been used effectively in this vegetation zone to produce an early spring flush of green grass, and thus attract game. The hippopotamus remains and the elephant hunt painting indicate that even the largest animals were taken.

Some species such as the carnivores and small mammals could have been introduced into the shelter by non-human agencies. Small mammals could have been introduced by owls, one of which was roosting there at the time of excavation. However, the list (Appendix 2) shows a high proportion of moles, a pattern that is not known from any non-human predator. Furthermore the striped fieldmouse (*Rhabdomys*) was rare and the rockmouse (*Praomys*) was absent, yet

both are very common in the area and could be expected in some quantity from the remains of meals of a non-human predator.

Other factors supporting the view that man may have had a hand in introducing the small mammal remains were the spatial distribution and the disproportionate representation of some body parts. Although there was a definite concentration of bones in D4, elsewhere the distribution was fairly even, which is unlikely to have been the case if the source was owl pellets regurgitated during roosting. The high proportion of cranial parts, particularly jaws, is not in keeping with owl pellets, but perhaps some of the smaller mammalian carnivores could produce this pattern.

In conversations with F. L. Farquharson, J. A. Meester and D. T. Rowe-Rowe, it emerged that moles could have been caught by a person waiting at a fresh mole hill and stabbing with stick or spear when there was a sign of movement in the soil. Similarly the vlei rat (*Otomys*) makes well-defined runs in the grass, and could therefore have been caught by traps or perhaps projectiles.

Amphibian remains mainly came from the row 2 squares (Appendix 4) where the damp conditions would have favoured some species such as toads. However, *Xenopus laevis*, being almost entirely aquatic, was probably introduced by a predator. The snake remains (Appendix 3) may also represent predation, human or otherwise.

The quantity of fish remains suggests that it was quite an important resource for the shelter's inhabitants. The suggestion has been made (Appendix 5) that at least part of this accumulation may have been the work of non-human predators such as otters and the water mongoose, which are represented in the faunal sample. In particular the spotted-necked otter (*Lutra maculicollis*) tends to eat fish from the tail forwards, leaving the heads of larger fish (Rowe-Rowe, 1977), which could account for the relatively large proportion of cranial remains. However, there are several factors which indicate rather that man was the main predator. These include the context of the finds in predominantly ashy occupation layers, and the bone hooks which were presumably used for fishing. Furthermore, otters are not known to carry their prey so far from a riverbank, while their faeces could be expected to contain a higher proportion of crab remains than is reflected in the sample (Appendix 6). It therefore seems that man was the main source of the fish remains, although other predators may also have contributed.

The lengths of fish, calculated by the method described in Appendix 5, are shown in Table 7. When this is compared with records made by the Natal Parks Board of samples from the upper portion of the Tugela River it is clear that the Driel size range represents only moderate sized individuals; the smaller and larger

TABLE 7

Standard length of fish based on measurable lower pharyngeal bones (see Appendix 5)

Length mm	120	140	160	180	200	220	240	260	280	300	320	340	360	380	Total
Barbus natalensis	2	6	24	23	22	19	10	10	2	7	5	2	2		134
Labeo rubromaculatus			1		2	1	2	5	2	3	3			1	20

fish of both species were absent. This imbalance could have been influenced by two factors, which we need to consider: catching methods and the range of fish present in this reach of the river while the site was occupied.

Apart from the bone hooks, presumably used for fishing, little can be said on methods. The concentration of bones in the older ash in square E3 might suggest that the inhabitants took advantage of a spring spawning run, but again the size range is too restricted. Both hooks and basket traps might allow the small fish to escape, but some of the larger ones should have been caught. The high proportion of *Barbus* to *Labeo* could well reflect line fishing, for the former will take a hook much more readily than the latter; modern netted samples show fairly similar numbers of the two species.

The absence of larger fish from this reach of the river could have been influenced by depth and temperature of the water. Large fish require rather deeper water, yet there appeared to be some quite deep pools in the neighbourhood of the site which was quite popular with anglers. Of more significance could be the flow of cold water from the Drakensberg in winter, which tends to drive the larger fish downstream. This, coinciding with the lowest water levels, tends to concentrate the larger specimens in the deeper, slower reaches in the region of Spioenkop Dam some 30 km lower down (Coke, pers. comm.).

At this stage of research we cannot reach a conclusion on the size range of the Driel sample. However, an explanation based on the absence of the larger fish during winter, together with catching methods, particularly the use of hook and line, which would let the smaller fish escape, is in accord with the evidence.

The relatively small floral sample and still fewer identifications (Appendix 7) do not give us a comprehensive picture of this part of the diet. The *Iridaceae* corm case is the only evidence for plant food gathering. *Sorghum* and *Lagenaria*, being cultivated plants, could have been obtained from neighbouring Iron Age settlements, or they might reflect occasional visits to the shelter by inhabitants of these sites. The fruit pips were from modern visitors.

DISCUSSION

The cultural material reflects a basic LSA way of life in the chestnut soil into which pottery was apparently introduced during the older ash accumulation, around the second century AD or later.

The practice of fishing with bone hooks can be dated to this period, as can most probably the surviving paintings. The ochre ball from the older ash might indeed be associated with the paintings and it hints that the painters may have known about heat treatment of iron oxide in the preparation of pigments.

The available samples of the stone toolkit are too small to demonstrate significant changes with time. Nevertheless there are no very obvious changes; rather the evidence suggests relative stability in this aspect of the material culture.

Too little pottery is available from the older ash to allow for any conclusions; however, it may be thinner than the pottery from subsequent units. The affinities of the samples from the younger ash and upper occupation are essentially with the Late Iron Age. Only one sherd (Fig. 16.12) might have been from a relatively late date within the Early Iron Age, but too little of it survived for certainty. As

yet we know practically nothing of LSA ceramics in this region, but it seems unlikely that they would resemble the Late Iron Age unless there was a direct connection. Our knowledge of the Late Iron Age during this period 1000–1600 AD in the Tugela Basin is very limited, which makes the task still more difficult. However, it is noticeable that the decorated pottery from Driel as well as that from several shelters in the neighbouring Drakensberg (e.g. Pager, 1971) resembles Late Iron Age material of the last 500 years from the southern Highveld rather than the Tugela Basin (Davies, 1974; Hall & Maggs, 1979; Maggs, 1976).

Contacts of a direct or indirect nature over some distance are also indicated by the schist bowl and cowrie shell. Like the former, several other items made of rocks from the basement complex have been collected in the upper portion of the Tugela Basin, far from the sources of these rocks, but it is too early to attempt any reconstruction of trade routes.

Both the larger mammals and the fish remains suggest a winter emphasis in the occupation. The wide variety of faunal remains and the relatively small floral sample, even from the upper layers, might add support to this pattern, although occupation at other seasons may also have occurred.

The cultivated plants as well as the metalwork and perhaps the pottery in the upper occupation could reflect a degree of dependence on local Late Iron Age communities, perhaps some form of clientship. This is likely to have increased in more recent centuries, as much of the grassy plains of this portion of the Tugela Basin came to be settled by Iron Age groups.

Undoubtedly man, particularly man the farmer, has influenced the environment of the Tugela Basin over a long period of time. However, the two basic aspects of the environment around Driel—the grasslands and the riverine—were reflected throughout the occupation by the surviving organic remains. At least as long ago as the second century older ash unit the ungulates were essentially open grassland species.

This picture clearly contradicts Acocks' (1975) hypothetical map of the distribution of veld types prior to the arrival of herders and cultivators. According to this map Driel would be on the boundary between bushveld and forest, yet species peculiar to these environments are not represented in the sample. We may conclude that the grassland around Driel is a more stable ecosystem than Acocks considered it.

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APPENDIX 1

Larger Mammals: **R. G. Klein**. Department of Anthropology, University of Chicago.

There may be two species of hare present, one of which is probably *Lepus capensis* (Cape hare), but for the moment I would prefer to leave the identification of hares at the family level. The jackal is not specifically identifiable on the material that is available, but on geographic grounds, I think *Canis mesomelas* (black-backed jackal) is most likely. The pig is represented mainly by post-cranial material which I have assigned to *Phacochoerus aethiopicus* (warthog) on the assumption that *Potamochoerus porcus* (bushpig) is unlikely to be present. To be properly conservative, it might be better if I listed *P. aethiopicus* only in the Upper Occupation (where there is a canine fragment) and listed 'Suidae gen.et.sp. indet.' for the other units where pig is present.

On the material that is available, I cannot make a secure distinction between black wildebeest and Cape hartebeest, though I think the majority of specimens are probably wildebeest. I have identified the *Raphicerus* material as *R. campestris* on the assumption that *R. melanotis* (grysbok) is very unlikely to be present, though the single available tooth could come from either species. Finally, I have assigned the bovid post-cranial material only to size categories (small, small medium, large medium, and large), and I have taken the MNI for a size category to be the MNI represented by post-cranial, if this is larger than the one given by teeth. This is why an MNI under 'Bovidae-general' is sometimes larger than the MNI obtained by adding the MNI's for the separate species, all of which are based on teeth.

With only one or two exceptions, there is no post-cranial that I think is likely to come from a bovid species not represented by teeth. The exceptions are one or two pieces that are smaller than I would ordinarily expect for steenbok/grysbok and which could possibly come from a duiker (*Cephalophus monticola* or perhaps *C. natalensis*). For the moment, however, I think it is probably best to cover this possibility conservatively through the use of the 'small bovid' category.

In compiling the counts for the bovid species, I made use of wear criteria to determine if two teeth were likely to come from the same individual or not. I have included a sheet on which the rough ages of the animals represented are indicated, but I don't think the samples are large enough to warrant interpretation of the age distributions.

The minimum numbers of individuals by which various species are represented in the different stratigraphic units.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Leporidae gen. et sp. indet., hare(s)	1	—	1	2	1
Hystrix africae-australis, porcupine	1	—	—	1	—
Homo sapiens, man	—	—	—	1	—
Canis cf. *mesomelas*, jackal	—	—	—	1	—
Aonyx capensis, clawless otter	—	—	—	1	—
Atilax paludinosus, water mongoose	—	1	1	1	—
Viverridae gen. et sp. indet., very small viverrid	—	1	—	—	—
Proteles cristatus, aardwolf	—	—	1	1	—
Felis libyca, wildcat	—	—	1	—	—
Felis caracal aut *serval*, caracal or serval	—	—	—	1	—
Orycteropus afer, aardvark	1	—	—	1	—
Procavia capensis, rock hyrax	1	1	1	2	1
Hippopotamus amphibius, hippopotamus	—	—	—	1	—
Phacochoerus aethiopicus, warthog	—	1	1	1	1
Taurotragus oryx, eland	—	1	—	1	—
Redunca arundinum, southern reedbuck	—	—	1	4	—
Connochaetes gnou/Alcelaphus buselaphus, black wildebeest/Cape hartebeest	—	—	—	4	1
Damaliscus dorcas, blesbok	—	—	1	1	—
Antidorcas marsupialis, springbok	—	—	—	—	1
Ourebia ourebi, oribi	1	1	—	2	2
Raphicerus campestris, steenbok	—	—	1	—	—
Pelea capreolus, vaalribbok	1cf	—	—	—	—
Bovidae—general					
Small	1	1	1	2	2
Small medium	1	1	1	2	1
Large medium	1	1	2	9	1
Large	—	1	1	1	1
Chelonia gen. et sp. indet., tortoise (–/– = no. bones/min. no. individ.)	—	1/1	2/1	2/1	—

In the context of the table, small bovids include oribi and steenbok, small medium ones springbok and vaalribbok; large medium ones southern reedbuck, wildebeest/hartebeest, and blesbok; and large ones eland.

Small bovids (*Raphicerus, Ourebia, Cephalophus*)—the minimum numbers of individuals represented by various skeletal elements (–/– = number of bone fragments/minimum number of individuals represented).

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	1/1	—	—	1/1	1/1
Mandibular condyle	—	—	—	1/1	—
Mandibular dentition	—	1/1	1/1	2/1	2/2
Scapula	—	—	—	1/1	—
Lumber vertebrae	—	—	—	1/1	—
Radius—proximal	—	—	—	1/1	—
Carpals	—	—	—	2/1	—
Metacarpal—proximal	—	—	—	—	1/1
Phalanges—1st	—	—	1/1	2/1	1/1
—2nd	—	—	1/1	2/1	—
—3rd	—	2/1	—	2/1	—
Ilium	—	—	1/1	1/1	—
Patella	—	—	—	1/1	—
Calcaneum	—	—	—	1/1	—
Astragalus	—	—	1/1	—	—
Metatarsal—proximal	—	—	—	—	1/1
Rib (articular end)	—	—	—	1/1	—

Small-medium bovids (*Antidorcas, Pelea*)—the minimum numbers of individuals represented by various skeletal elements (—/— = number of bone fragments/minimum number of individuals represented).

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	1/1	—	—	—	—
Mandibular dentition	—	—	—	—	1/1
Lumbar vertebrae	—	—	—	2/1	—
Radius—proximal	1/1	—	—	3/1	—
Carpals	—	—	—	2/1	—
Metacarpal—proximal	—	1/1	1/1	—	—
—distal	—	1/1	—	1/1	—
Phalanges—1st	—	—	—	3/1	1/1
—2nd	—	—	1/1	—	1/1
—3rd	—	1/1	—	—	—
Ilium	—	—	—	1/1	—
Ischium	—	—	—	1/1	—
Femur—proximal	—	—	—	1/1	—
Tibia—distal	—	—	—	1/1	—
Calcaneum	—	—	—	3/2	—
Astragalus	—	—	—	3/2	—
Smaller tarsals	—	—	—	1/1	—
Lateral malleolus	—	—	—	1/1	—
Metatarsal—proximal	—	1/1	—	1/1	—
Indeterminate distal metapodial	—	1/1	—	2/1	—
Rib (articular end)	—	1/1	—	—	—

Large-medium bovids—number of identifiable bones/minimum number of individuals represented (*Redunca arundinum, Connochaetes gnou/Alcelaphus buselaphus, Damaliscus dorcas*).

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	—	—	1/1	8/4	—
Mandibular condyle	—	—	—	1/1	—
Mandibular dentition	—	—	1/1	11/7	3/1
Hyoid	—	—	—	1/1	—
Thoracic vertebrae	—	—	1/1	1/1	—
Lumbar vertebrae	—	—	—	1/1	—
Radius—proximal	—	—	—	2/1	—
Ulna—proximal	—	—	—	1/1	—
Carpals	—	2/1	—	4/2	—
Metacarpal—proximal	—	—	2/1	—	—
Phalanges—1st	—	1/1	4/1	1/1	1/1
—2nd	1/1	—	4/1	4/1	—
—3rd	—	—	1/1	4/1	—
Smaller tarsals	—	1/1	1/1	1/1	—
Lateral malleolus	—	—	1/1	—	—
Metatarsal—proximal	—	—	—	4/1	—
Sesamoids—proximal	—	1/1	6/1	1/1	—
—distal	1/1	—	—	1/1	1/1
Indeterminate distal metapodial	1/1	1/1	—	—	—
Rib (articular end)	—	—	—	2/1	—

Large bovids (*Taurotragus*)—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Mandibular dentition	—	1/1	—	3/1	—
Carpals	—	—	—	1/1	1/1
Phalanges—1st	—	—	—	3/1	—
Patella	—	—	—	1/1	—
Smaller tarsals	—	—	1/1	—	—
Lateral malleolus	—	—	—	—	1/1

Ages of bovids at time of death.

	dP4UW		MTUW		M2UW		M3UW		P4UW		P4×/+		P4++		Totals		
	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U	L	U+L
Ourebia ourebi																	
Surface	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	1
Upper Occupation	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1*	1*
Older Ash	—	—	—	1	—	—	—	—	—	—	—	—	1	—	1	1	2
Chestnut Soil	—	—	—	—	—	—	1	1	—	1	—	—	—	—	1	2	2
Raphicerus campestris																	
Younger Ash	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1
Antidorcas marsupialis																	
Chestnut Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1*	1*
Pelea capreolus																	
Surface	—	—	—	—	—	—	1cf	—	—	—	—	—	—	—	—	1cf	1cf
Redunca arundinum																	
Younger Ash	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1
Older Ash	—	—	—	—	—	—	—	—	—	1	—	1	—	2	—	4	4
Taurotragus oryx																	
Upper Occupation	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1
Older Ash	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	1
Connochaetes gnou/Alcelaphus buselaphus																	
Older Ash	—	—	—	—	1	—	1	1	—	—	—	—	1	2	3	3	4
Chestnut Soil	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1
Damaliscus dorcas																	
Younger Ash	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1
Older Ash	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1

* molar fragment (not ageable).

Lagomorpha—number of identifiable bones/minimum number of individuals represented

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	—	—	—	2/1	—
Mandibular dentition	—	—	2/1	—	1/1
Lumbar vertebrae	—	—	—	1/1	—
Ribs	—	—	1/1	—	—
Scapula	—	—	—	2/1	1/1
Humerus—proximal	—	—	1/1	1/1	—
—distal	—	—	1/1	3/2	—
Radius—proximal	—	—	—	1/1	—
—distal	1/1	—	—	2/1	1/1
Ulna—proximal	—	—	1/1	2/1	—
—distal	—	—	1/1	—	—
Phalanges—1st	—	—	1/1	—	—
Femur—proximal	—	—	—	—	1/1
—distal	—	—	1/1	—	—

Hippopotamus amphibius—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla (canine fragment)	—	—	—	1/1	—
Astragalus	—	—	—	1/1	—
Sesamoids—proximal	—	—	—	1/1	—

Atilax paludinosus—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	—	—	—	3/1	—
Mandible	—	1/1	—	—	—
Ulna	—	—	1/1	—	—
Femur—proximal	—	—	—	1/1	—

Canis sp.—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Mandibular dentition	—	—	—	3/1	—
Lumbar vertebrae	—	—	—	1/1	—
Phalanges	—	—	—	1/1	—

Felis libyca—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Mandibular condyle	—	—	—	1/1	—
Mandibular dentition	—	—	—	1/1	—
Phalanges	—	—	1/1	—	—

Felis caracal aut *serval*—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	—	—	—	1/1	—

Aonyx capensis—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Metatarsals	—	—	—	1/1	—

Viverridae gen. et sp. indet. (very small)—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Metapodials	—	1/1	—	—	—

Orycteropus afer—number of bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Phalanges—1st	—	—	—	1/1	—
—2nd	1/1	—	—	—	—
—3rd	—	—	—	1/1	—

Homo sapiens—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Phalanges—2nd	—	—	—	1/1	—

Hystrix africae-australis—number of bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Quills	2/1	—	—	—	—
Dentition	—	—	—	1/1	—
Metapodials	1/1	—	—	—	—

Phacochoerus aethiopicus—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Mandibular dentition (canine fragment)	—	—	—	—	1/1
Carpals	—	1/1	—	1/1	—
Metapodials—central—proximal	—	—	—	2/1	—
Phalanges—central—1st	—	—	—	1/1	—
—central—3rd	—	—	1/1	—	—
Phalanges—lateral—2nd	—	—	1/1	—	—

Procavia capensis—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	—	1/1	—	2/2	—
Humerus—proximal	—	—	—	1/1	—
—distal	—	—	—	1/1	—
Ulna—distal	—	—	—	1/1	—
Carpals	10/1	—	—	—	—
Metacarpals	8/1	—	—	—	—
Femur—distal	—	1/1	—	—	1/1
Astragalus	—	—	1/1	—	—

Proteles cristatus—number of identifiable bones/minimum number of individuals represented.

	Surface	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil
Maxilla	—	—	1/1	—	—

APPENDIX 2

Small mammals: **J. A. Meester,** Department of Zoology, University of Natal, Pietermaritzburg.

	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil	Total
Cryptomus hottentotus—rodent mole	5	3	5		14
Otomys cf *irroratus*—vlei rat	3	7	8	1	19
Rhabdomys pumilio—striped field mouse	1	1			2
Crocidura flavescens—shrew	2				2
cf *Amblysomus hottentotus*—golden mole		1			1
cf *Mus musculus*—house mouse	1				1
Chrysospalax villosus—rough haired golden mole			1		1
cf Bathyergidae—mole rat			1		1
Myomorph rodent unidentified	1				1
	13	12	16	1	42

APPENDIX 3

Snake remains: **L. R. G. Raw,** Cedara College of Agriculture.

Philothamnus cf. *natalensis* (Colubridae *sensu stricto* Underwood) Natal Green Water Snake—E4 Younger ash.

It has not yet been possible to identify the other remains which may be from snakes or lizards.

APPENDIX 4

Frog and toad remains: **D. E. van Dijk,** Department of Zoology, University of Natal, Pietermaritzburg.

Xenopus laevis	2 from E2	Older ash
Xenopus laevis	1 from E3	Younger ash
Xenopus laevis	1 from M7	Upper occupation
Unidentified toad	1 from E2	Older ash
Unidentified frog/toad	1 from E2	Younger ash

APPENDIX 5

Fish remains: **F. L. Farquharson,** Department of Zoology, University of Durban, Westville.

	Upper Occupation	Younger Ash	Older Ash	Chestnut Soil	Total
Lower pharyngeal bones:					
Barbus natalensis	7	38	145	4	194
Labeo rubromaculatus	—	4	22	4	30
Minimum number of individuals					
Barbus natalensis	4	25	84	3	116
Labeo rubromaculatus	—	2	12	2	16
Anguilla cf. *mossambica*			1		1
Vertebrae	120	302	2 331	148	2 901
Premaxillae	3	6	4	—	13

Pharyngeal bones (fifth ceratohyal) of *Barbus natalensis* and *Labeo rubromaculatus* are shown in Fig. 19.

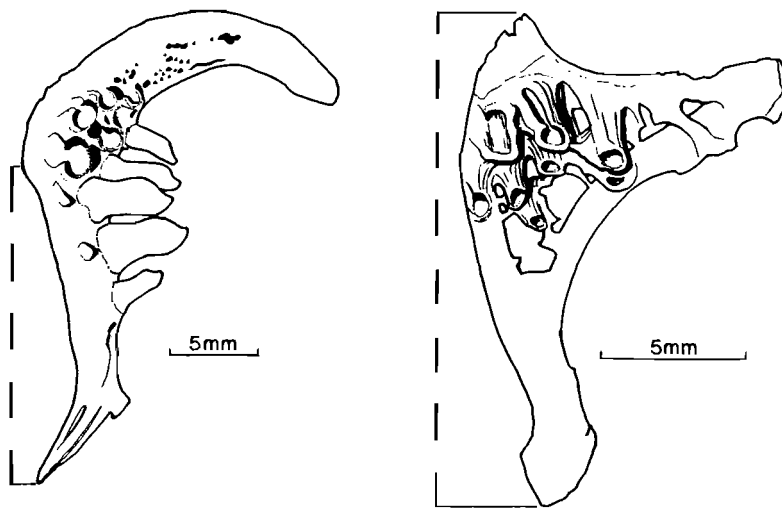

Fig. 19. Pharyngeal bones of *Barbus natalensis* (L) and *Labeo rubromaculatus* (R).

The length of the fish from snout to end of vertebral column can be calculated by measuring the bone dimension, as shown on Fig. 19, and multiplying this by 20.

The size range for *B. natalensis* is 120–360 mm, and that for *L. rubromaculatus* is 160–380 mm, which shows an absence of very small specimens.

There is a relatively high proportion of cranial material. This suggests either that it was a defaecation site for species with a preference for the cranial portion of the fish such as the clawless otter (*Aonyx capensis*) or a midden site for species with a preference for the post-cranial portion, such as man and the spotted-necked otter (*Lutra maculicollis*). The size of fragments is remarkably similar to that of faecal scats voided by otters in the Drakensberg areas. If otters were the predator a considerable amount of crab remains would be expected as well as some from small mammals, reptiles, frogs and perhaps birds.

APPENDIX 6

Molluscan and crustacean remains: **T. Maggs** and **V. Ward.**

Minimum number of individuals	UO	YA	OA	TOTAL
Crab (chelae)	2	3		5
Unio sp. (hinges)	1	2	3	6
Achatina sp.	2	3	6	11

APPENDIX 7

Floral remains: **J. Stewart**, Department of Botany, University of Natal, Pietermaritzburg.

The following identifications were made:

Acacia caffra—twig with thorns	M7 UO
Iridaceae—fibrous corm case	M7 UO
Lagenaria siceraria (gourd)—gourd fragments.	D4 Surface, E5 Surface, D5 UO
Prunus persica (peach)—pip	D3 UO
Prunus sp. (plum)—pip	E5 Surface
Scilla natalensis—2 bulbs	E4/5 Feature
Sorghum caffrorum—threshed heads.	E5 Surface, D5 OU, M7 OU
Xanthium strumarium (cockleburr)—burrs	E5 Surface, D5 OU

APPENDIX 8

Avian remains: **G. Avery**, South African Museum, Cape Town.

Taxonomic determination (Table 1) was limited due to the fragmentary nature of the bones, small sample size and lack of comparative material of species occurring in the area. Thus, except for the specimen fairly reliably referred to *Numida meleagris* it was not possible to assign the other fragments with any certainty. The presence of airgun pellets in the upper parts of the Upper Occupation should be noted although it appears that all the bones, with the possible exception of the undetermined passerine and perhaps the Columbidae, are sufficiently stained and porous in appearance to be in context with the other archaeological material and represent food remains. The Columbidae specimens are not referable to *Columba guinea* (rock pigeon) which roosts in rocky areas. The possibility that these birds were shot more recently or deposited by a bird of prey or small carnivore should be borne in mind. Some starling species roost in rock shelters and the one specimen could have died in the shelter.

A further problem related to small samples is illustrated by the fact that a minimum of nine individuals representing six taxa was determined from a total of 12 bones. This is typical of very small samples in which virtually every fragment has an equal chance of belonging to a different species or individual and rare species tend, therefore, to be over-represented. Inferences on the role of birds in subsistence and the relative importance of different species can only be limited.

Trapping of birds, especially game birds (Phasianidae, Numididae, Otidae), by modern hunter–gatherers is well recorded ethnographically (Lee 1967, Silberbauer 1965, Steyn 1971, Tanaka 1969) and it appears that this practice can be traced back archaeologically into the Upper Pleistocene. It seems reasonable to assume therefore, that the game birds represented at Driel were obtained in this manner and that birding provided a small but regular supplement to inland subsistence.

Habitat preferences of the birds suggest that the environment included scrub and grassland (McLachlan & Liversidge 1978). Although the sample is small and any inferences drawn from it tenuous, this agrees with the suggestion made by Acocks (1975) that before farming altered the situation in the area the vegetation was bushveld.

The material was made available by Dr T. Maggs of the Natal Museum. Dr R. G. Klein separated the avian remains from the other faunal components.

TABLE 1: Driel: Taxonomic determinations and minimum number of individuals.

Taxon	*Stratigraphic unit				Common name
	1	2	3	4	
1) Phasianidae					
Francolinus sp.	1	2	1	—	Francolin
2) Numididae					
cf *Numida meleagris*	1	—	—	—	Crowned guinea fowl
3) Otidae					
gen. et sp. undet.	—	—	—	?1	Bustard
4) Columbidae					
gen. et sp. undet.	1	—	—	—	Pigeon
5) Sturnidae					
gen. et sp. undet.	—	—	?1	—	Starling
6) Family undet.					
Suborder Passeres	1	—	—	—	Small perching bird
Total	4	2	2	1	

* 1 = Upper Occupation; 2 = Younger Ash; 3 = Older Ash; 4 = Chestnut Soil.

Note: Fragments of Chiroptera (bat) occurred in layers 1, 2.

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