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STONE AGE LITHICS FROM NDONDONDWANE

THEMBA ZWANE

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ABSTRACT

Ndondondwane is a well-known Early Iron Age (EIA) site situated near the Thukela River in KwaZulu-Natal. The importance of the site is mainly based on its ceramics and it has been proclaimed a Provincial Heritage site. The discovery of stone tools beneath the EIA occupation layer during the recent excavations has increased the interest as well as the importance of the site. The stone tools, mostly Middle Stone Age, were found from two sterile layers *i.e.* sterile A and B. Although this is not a stratified site its typological resemblance to other MSA sites in South Africa make associations possible.

INTRODUCTION

The Early Iron Age site of Ndondondwane (28.53S; 31.01E) is situated about 50 m from the banks of the Thukela River (Fig.1). Ndondondwane is the name of the traditional ford on the Thukela a few hundred metres down stream of the site, where the water flows over a broad, shallow rapid.

Since 1995 excavations have been conducted at the site by H. Greenfield (University of Manitoba , Canada) and L. van Schalwyk (Ethembeni Cultural Heritage Management) (Greenfield *et al.*2000). During the course of the work at Midden 1 (Fig. 2) it was found that the Iron Age material overlies two layers, named sterile A and B, containing stone artifacts. The tools are not *in situ* but were washed down the slope.

EXCAVATION

The grid (1m x 1m) at Midden 1 (Fig. 3) covers an area of 39 square meters. The square designations that were used for the recovered EIA material were also used for the stone age material. Since the main objective of the project was to recover EIA material and the MSA material was not *in situ*, excavation of the stone artefacts was done by spade and no distribution patterns were recorded.

The stone artefacts were packed in boxes according to the squares and taken to the University of Fort Hare for analysis. The material has not been radiometrically dated.

FINDS

Stone Artefacts

The analysis of this assemblage is based on the classification scheme of A. Thackeray and A. Kelly (1988) as well as other relevant references. The assemblage

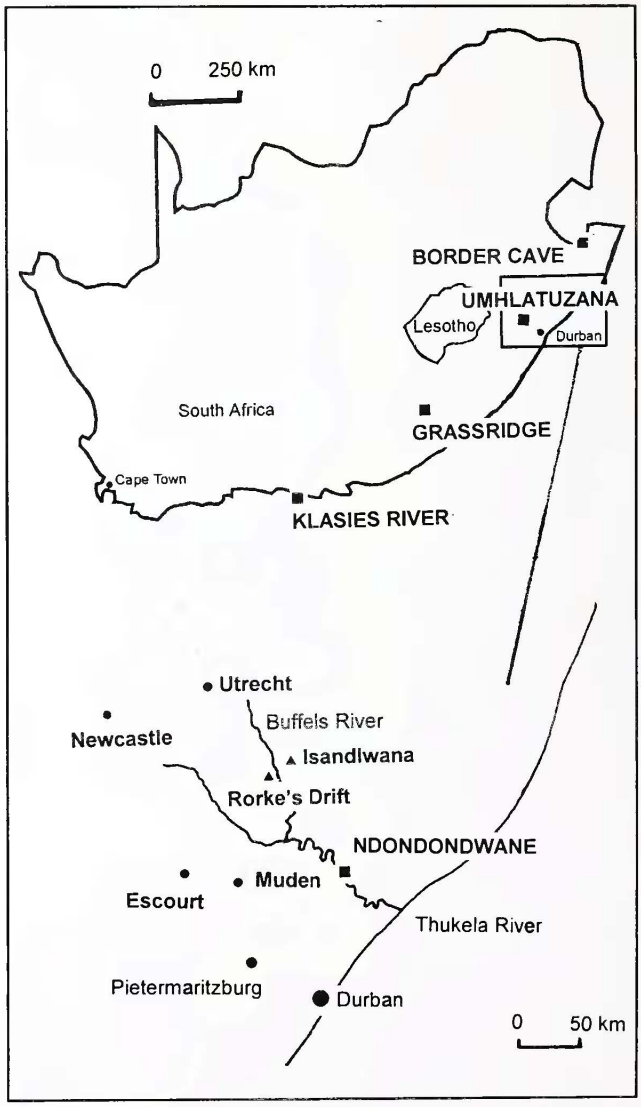

Fig. 1. Location of the sites mentioned in the text (bold letters indicate surface collection areas).

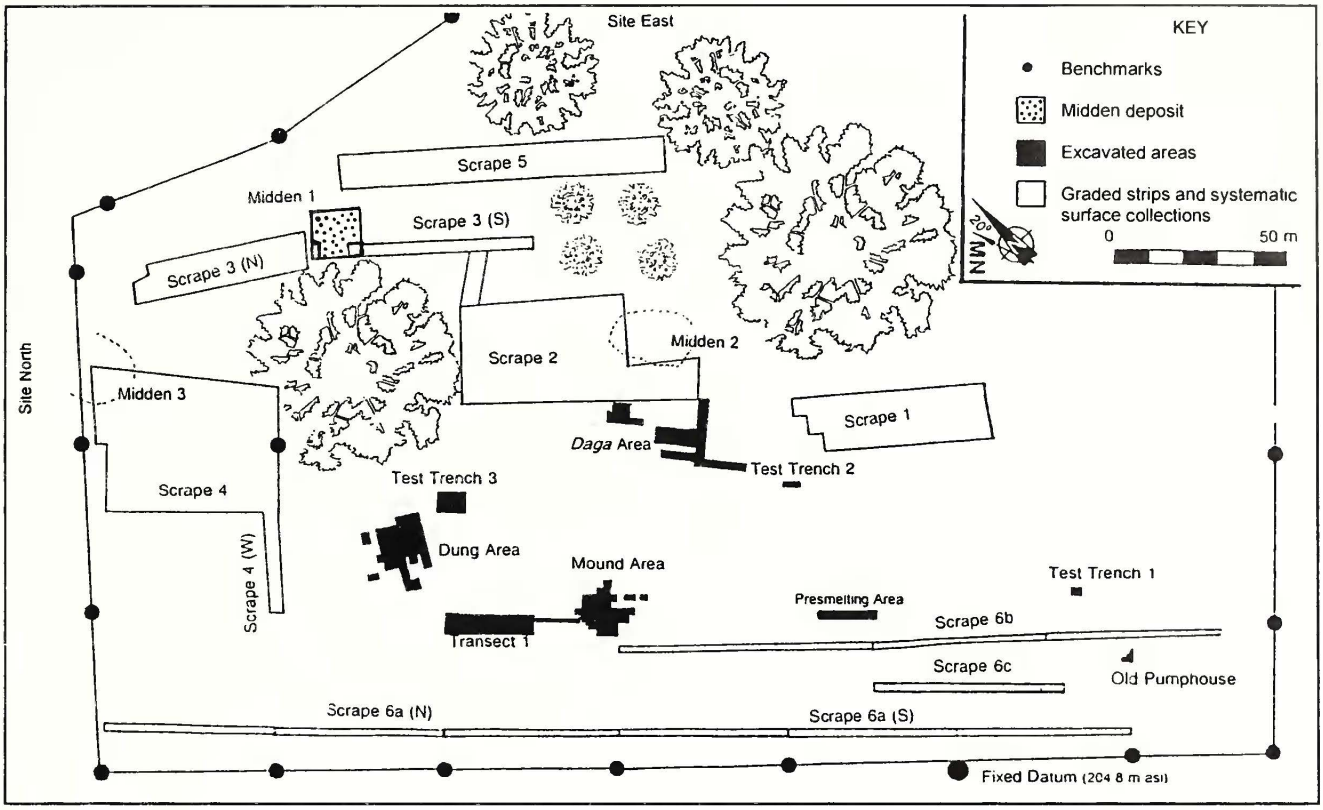

Fig. 2. Site plan and location of the excavations at Ndondondwane, Midden 1 (after Greenfield *et al.* 1997).

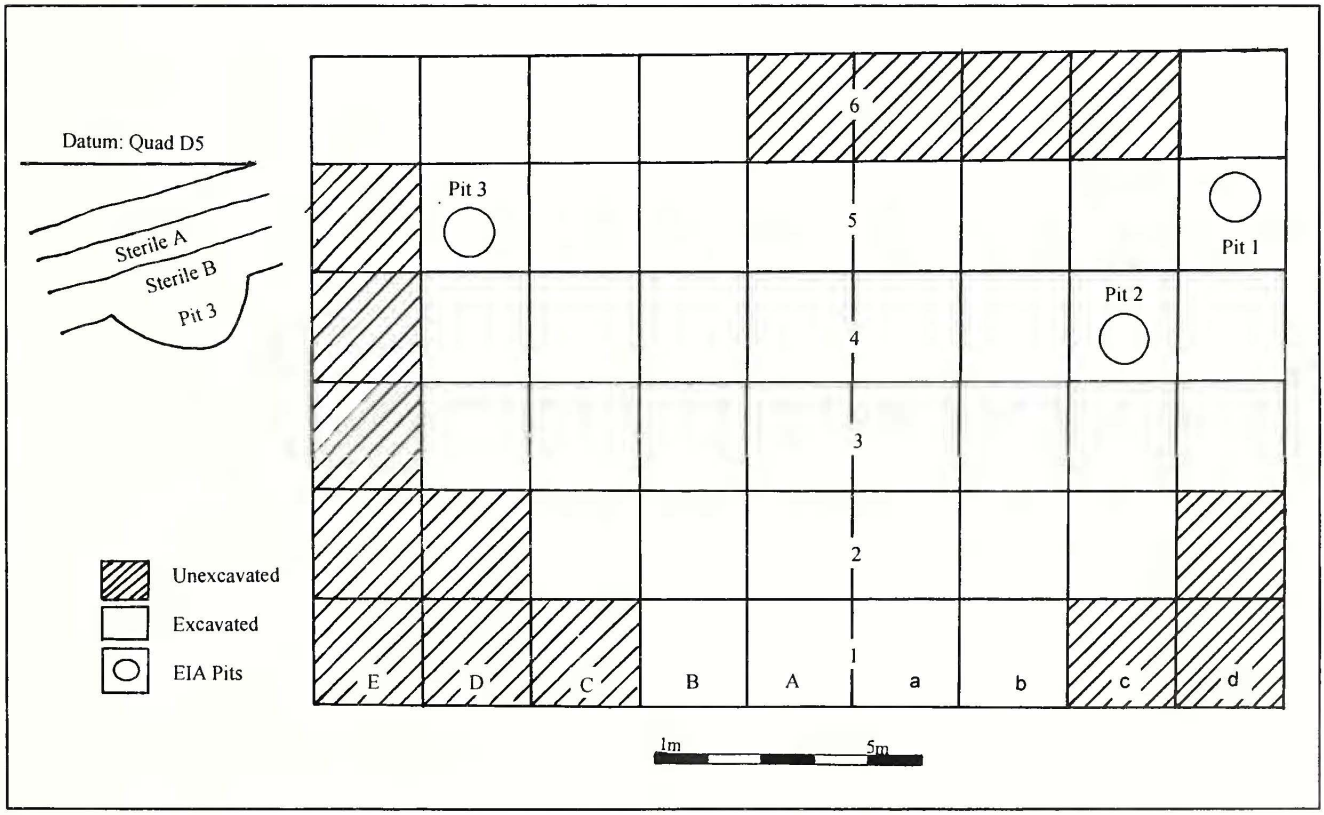

Fig. 3. Grid and the section at QuadD5 to show the position of the sterial layers.

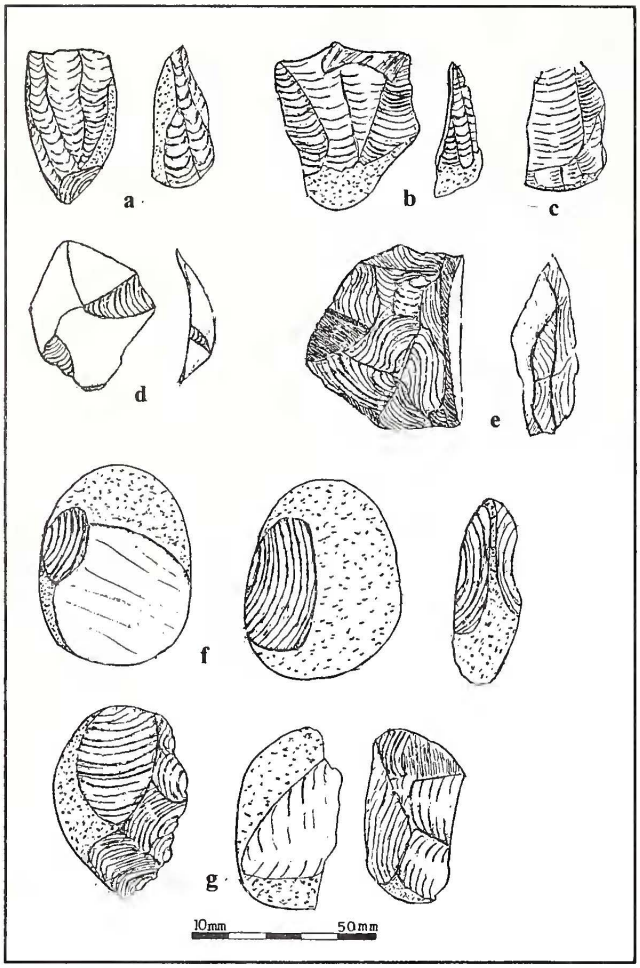

Fig. 4. a - hornfels, D6 sterile B; b -hornfels, B6 sterile A; c-hornfels, A1 sterile A; d - hornfels, A1 sterile A; e-sandstone, A2 sterile A; f- hornfels and g - hornfels, b3 sterile B.

consists of 2089 artefacts, dominated by the waste category (97.43%).

(a). Cores (Fig.4): These are pieces from which at least three flakes have been systematically removed. Cores form 4.4% of the waste category of the Ndondondwane assemblage. The types of cores represented are multi-platform (24%), irregular (19%), single platform (16%), blade cores (33.1%) and opposed platform cores (3.5%). A measured sample of core-rejuvenated flakes shows that the size of cores was 64.8 mm long and 40.9 mm wide.

(b). Chips: These are products of flaking less than or equal to 20 mm in maximum dimension.Quartz is the dominant raw material in the chip category

(c). Chunks: These are the blocky angular pieces more than 20 mm in maximum dimension resulting from the breaking up of raw materials.They lack typical features such as bulb of percussion, dorsal and ventral surfaces and many have parts of the cortex remaining. Chunks form the largest category (44.5%) in the Ndondon-dwane assemblage.

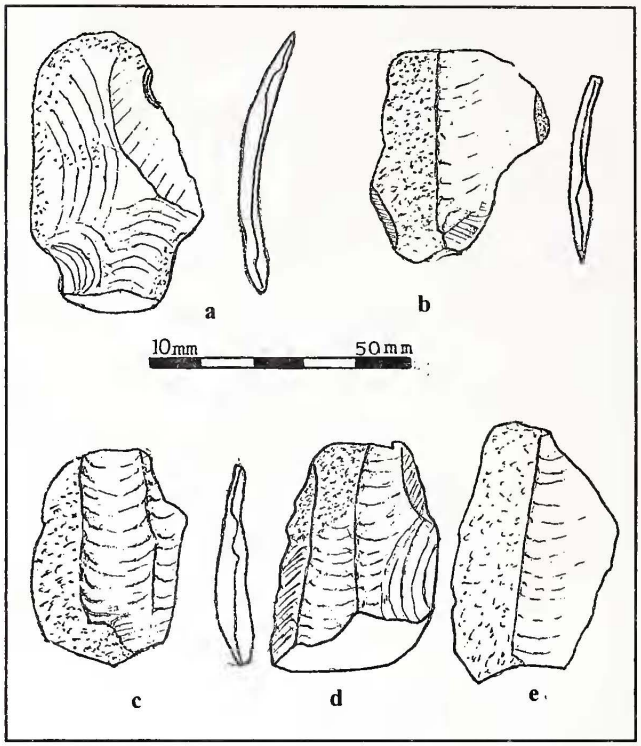

Fig. 5. Ridge preparation: a - hornfels, b4 sterile A, b - sandstone, b3 sterile B; c - quartzite, D1 sterile B; d - quartzite, B4 sterile B and e - quartzite, D6 sterile B.

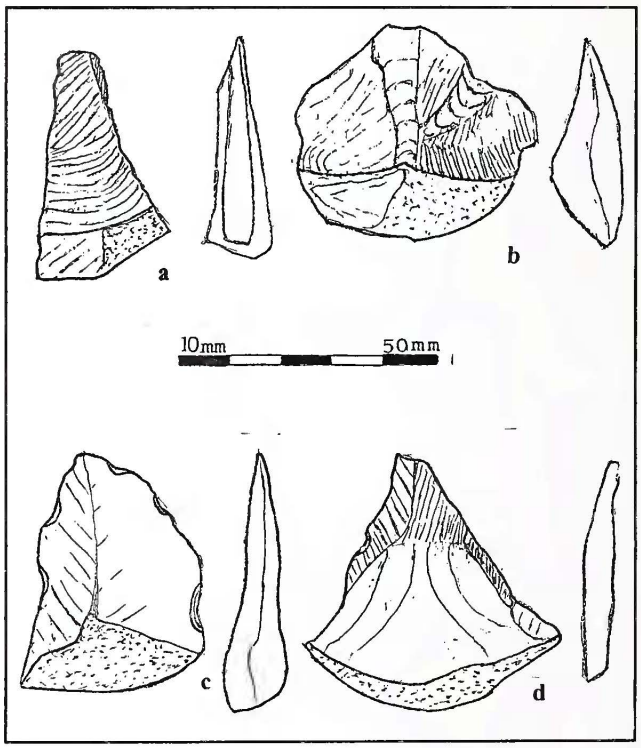

Fig. 6. Platform preparation (crushing): a - quartzite, C6 sterile A; b - c5 sterile B while c and d both quartzite show uncrushed striking platforms from B4 sterile B and D6 sterile B respectively.

(d) Flakes: These artifacts are more than 20mm in maximum dimension and were removed from cores by

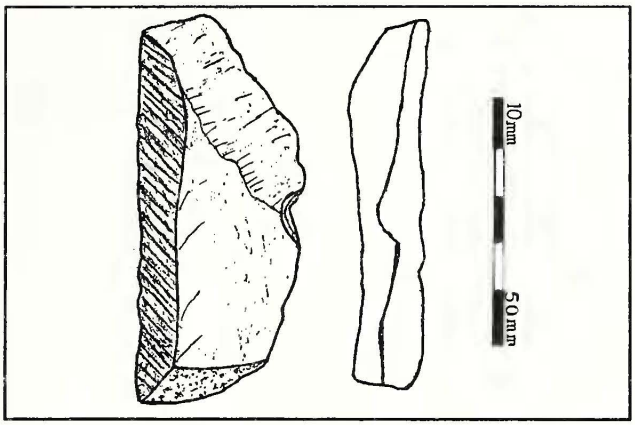

Fig. 7. Core rejuvenated flake from B4 sterile A.

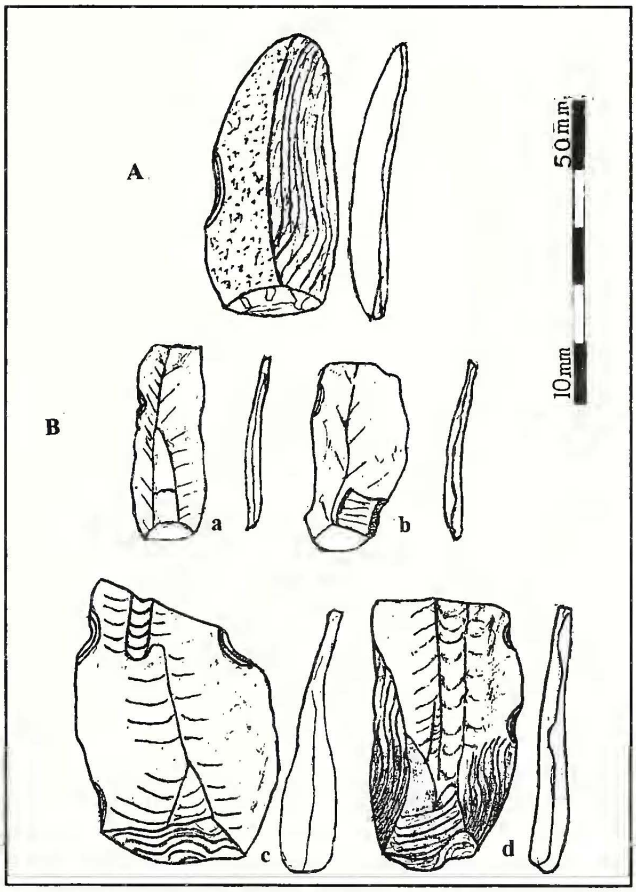

Fig. 8A. Convergent flake blade (ridge preparation) from D6 sterile B.

Fig. 8B. Flake blade sections all hornfels (a -a1 sterile A; b - C6 sterile A; c - b3 sterile B; d - D6 sterileB.

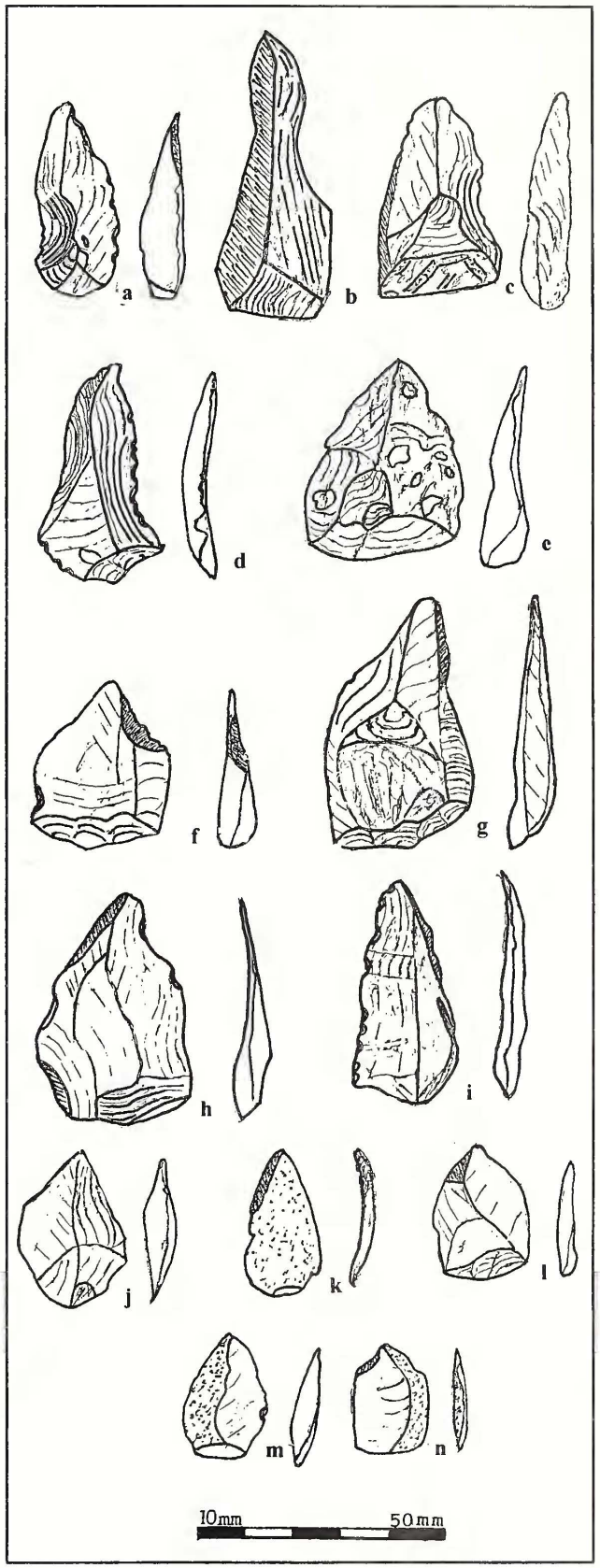

Fig. 9. Triangular flakes: a - hornfels, b3 sterileB; b - hornfels, A1; c - quartz, c3 sterile B; d - hornfels, C6 sterile A; e - sandstone, C6 sterileA; f - hornfels, b3 sterile B; g - hornfels, B4 sterile B; h - hornfels, B5 sterile b; i - hornfels, D6 sterile B; j - hornfels, C6 sterile B; k - hornfels, D6 sterile B; l - hornfels, c3 sterile B; m - hornfels, a2 sterile B; n - hornfels, sterile B.

percussion. They have flake features such as a bulb of percussion as well as dorsal and ventral surfaces. Whole and broken irregular flakes (563) comprise 25% of the waste category and are the second largest component of the whole assemblage.

In this category whole cortical flakes make up 28%, non-cortical flakes (27. 7%), left cortical flakes (6.7%) and right cortical (7.1%). Ridge and striking platform preparation both involve removal of the cortex

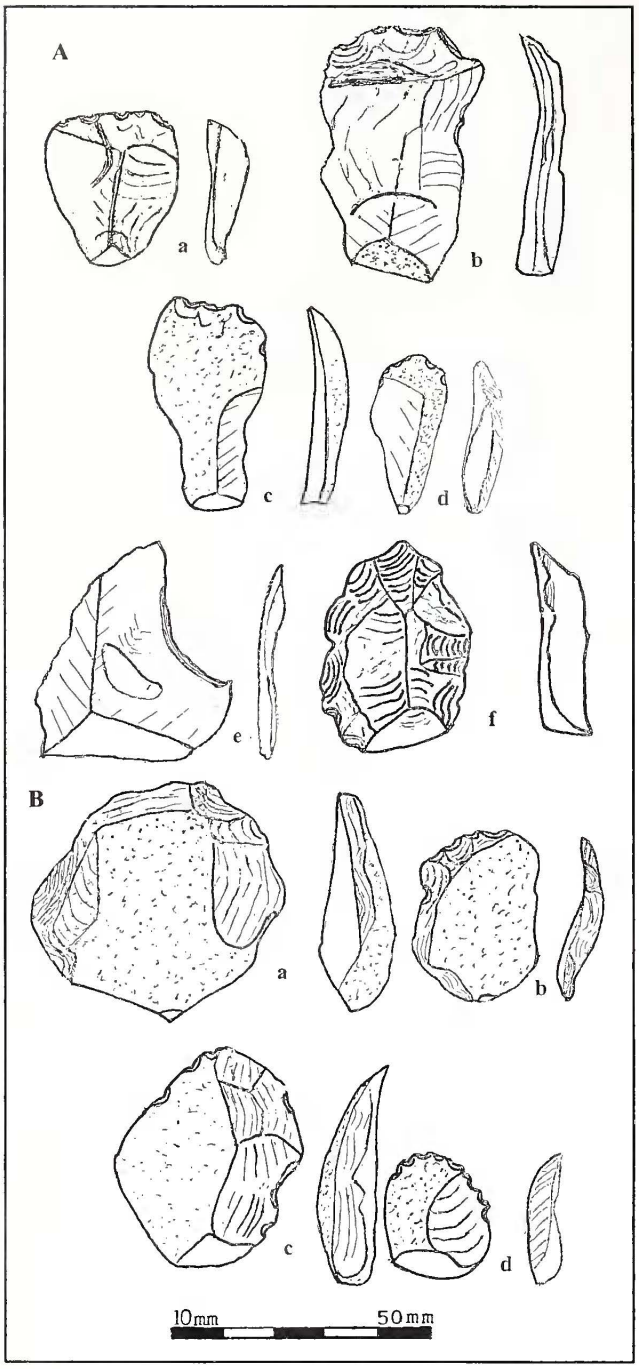

Fig10A. Scrapers a-d (end scrapers): a - hornfels, D6 sterile B; b - quartzite, b4, sterile A; c - hornfels, B5 sterile B; d - hornfels, c3 sterile B, e - quartz, hollow scraper, b2 sterile B; f - quartzite, backed scraper, C4 sterile B.

10B. Core scrapers. All hornfels: a - c5 sterile B; b - B5 sterile A; c - B5 sterile B; d - c4 sterile B.

form preparation both involve removal of the cortex (crushing) as shown on figures 5 and 6 respectively.

Core rejuvenation flakes (Fig. 7): These are flakes detached in order to renew a core's striking platform. One or both sides of the dorsal surface show evidence of having been part of a core's striking platform (Kuman 1989). At Ndondondwane they make up 0.7% of the waste category.

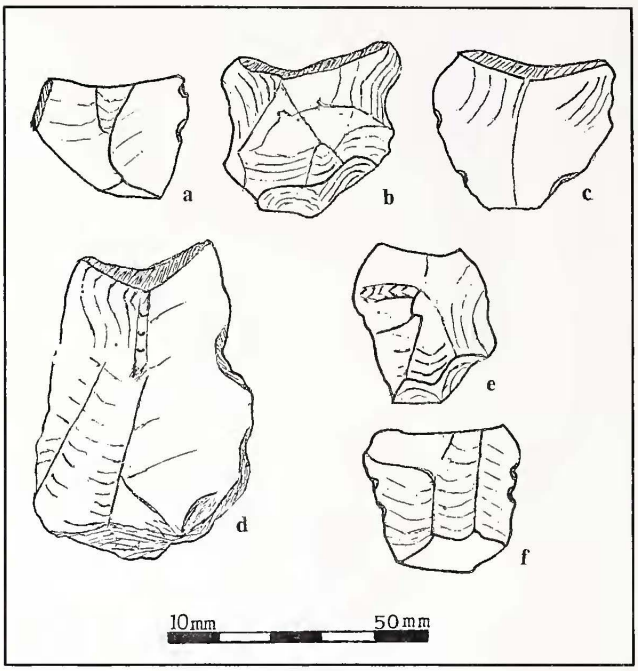

Fig. 11. Gouges: a - hornfels, B6 sterile B; b - Quartzite, A4 sterile B; c - hornfels, b2 sterile A; d - hornfels, B4 sterile B; e - hornfels, A4 sterile B; f - hornfels, b2 sterile B.

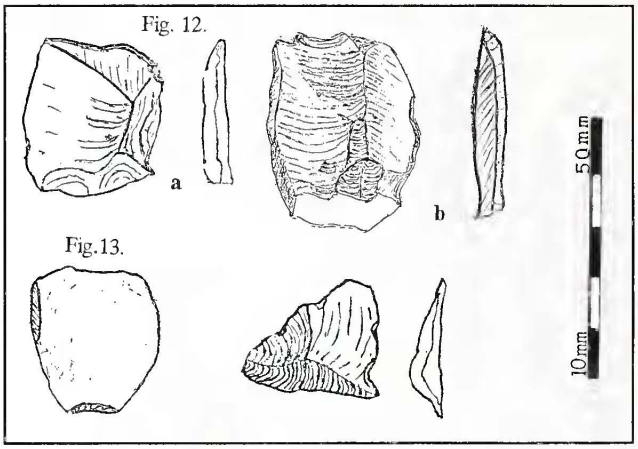

Fig. 12. *Pièces esquillées*: a - hornfels, c3 sterile B; b - sandstone, a2 sterile B.

Fig.13. *Outil éscaillés: sandstone, c3 sterile A.*

The striking platforms of a measured sample are mostly plain (58%) while the remainder is retouched (42%). The dominating shape of the striking platform is irregular and round. The mean lengths and breadths for striking platforms are 32 mm and 9 mm respec-tively. The bulb of percussion is clear in 61.2% of the cases.

The mean length, breadth, and thickness of a measured sample of flakes are 46 mm, 38.6 mm and 13.7 mm respectively. The material from the two sterile layers differs in terms of mean length, breath and thickness. Sterile B means are 55.8 mm, 46.6 mm and 17 mm respectively while Sterile A means are 45 mm, 37 mm and 12 mm respectively.

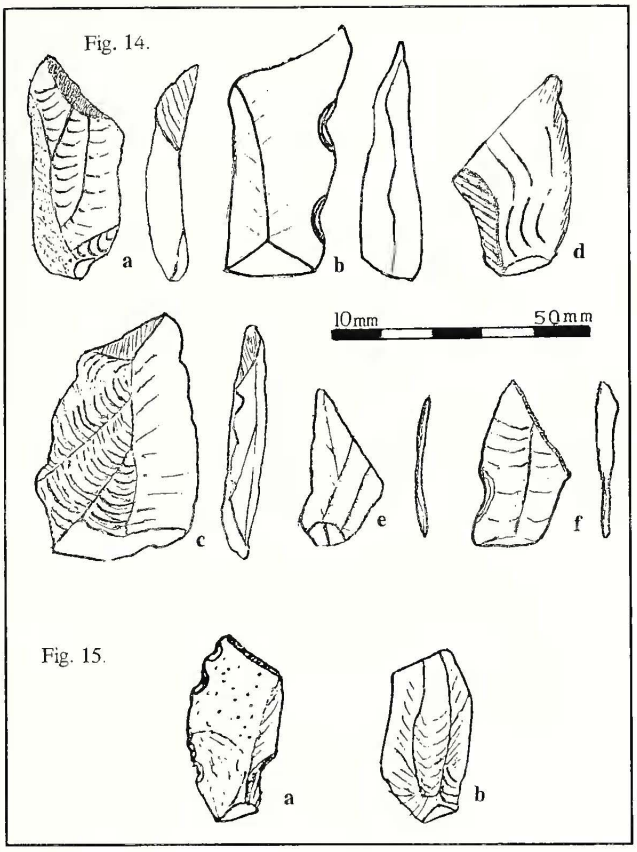

Fig. 14. Burins: a - hornfels, C6 sterile A; b - sandstone, D6 sterile B; c - hornfels, b3 sterileB; d - hornfels, D6 sterile B; e - hornfels, E6 sterile B; f - hornfels, b2 sterile A.

Fig. 15. Gravers: a - hornfels, a2 sterile B; b – quartzite,b3 sterile B.

(e). Flake-blades: These are elongated flakes resembling blades. They are at least twice as long as they are broad and may have roughly parallel or convergent sides (Fig. 8a) (Opperman 1984). In the Ndondondwane assemblage flake-blades make up 21% of waste category. The striking platforms show evidence of preparation through small flake removals or crushing. The striking platforms for convergent flake-blades are mostly irregular and round with more plain (53%) than retouched (47%) platforms.

A measured sample for mean length, breadth and thickness of convergent flake blades is 43.3 mm, 37.4 mm and 11.5 mm respectively. The mean for lengths and breadths of the striking platforms is 28.9 mm and 9 mm respectively, while the bulb of percussion is clear for 68,9% of the sample.

Whole flake-blades make up 2.7% of the waste category. The striking platform is mainly retouched (70%) with the remaining 30% plain. The dominating shape is irregular and rounded, while the dominating dorsal scar pattern is random. The mean length and breadth for a measured sample of the striking platform is 13mm and 6mm respectively and for 25% of the sample the bulb of percussion is clear.

The mean length, breath and thickness for parallel flake blades is 51.2 mm, 24 mm and 11 mm respectively.The means differ between the sterile layers as Sterile B indicates 56.3 mm, 26.8 mm and 14 mm respectively and Sterile A 46.1 mm, 21.5 mm and 8.1 mm respectively.

(f). Flake-blade sections (Fig. 8b): These make up 17% of the waste category.

The striking platform on convergent flake-blade proximal sections is mostly plain (68.3%) with retouch amounting to only 31.7%.The shape of the striking platform is generally rounded (32.6%) or peaked (27.9%). Parallel flake blades have dominantly plain striking platforms (82.4%) and with only 17% retouched. The dominant shape is flat followed by peaked and irregular. Means for sections with the distal surface missing are 43 mm, 22 mm and 5mm respectively while for sections with the proximal missing amount to 46 mm, 31 mm and 10 mm respectively.

(g) Triangular flakes (Fig. 9b):These artifacts show minimal trimming at their distal ends in order to make pointed ends and mostly are made on irregular flakes. Triangular flakes are one of the typical features of the MSA industries (Kuman 1989).Highly prepared triangular flakes with dorsal scars and dorsal ridge display faceting of the butt. They are equivalent to Bordes' second order Levallois points.

(h) Core scrapers (Fig. 10b): These are scrapers made on pebbles with large crude flakes removed from one end at an angle varying from 90° to 135° the base being left flat and un-flaked, and finer scraper retouch along almost the entire flake edge (J. Deacon 1965). Nine of these artifacts were founded at Ndondondwane. They display convex working edges (Fig. 10b). surface missing are 43 mm, 22 mm and 5mm respectively while for sections with the proximal missing amount to 46 mm, 31 mm and 10 mm respectively. (g) Triangular flakes (Fig. 9b):These artifacts show minimal trimming at their distal ends in order to make pointed ends and mostly are made on irregular flakes. Triangular flakes are one of the typical features of the MSA industries (Kuman 1989).Highly prepared triangular flakes with dorsal scars and dorsal ridge display faceting of the butt. They are equivalent to Bordes' second order Levallois points.

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(i). Gouges (Fig. 11): These artifacts are made from small used-up cores or flake fragment and are variable in form though the best tend to be rectangular. Characteristics of these tools are scale-like flaking from

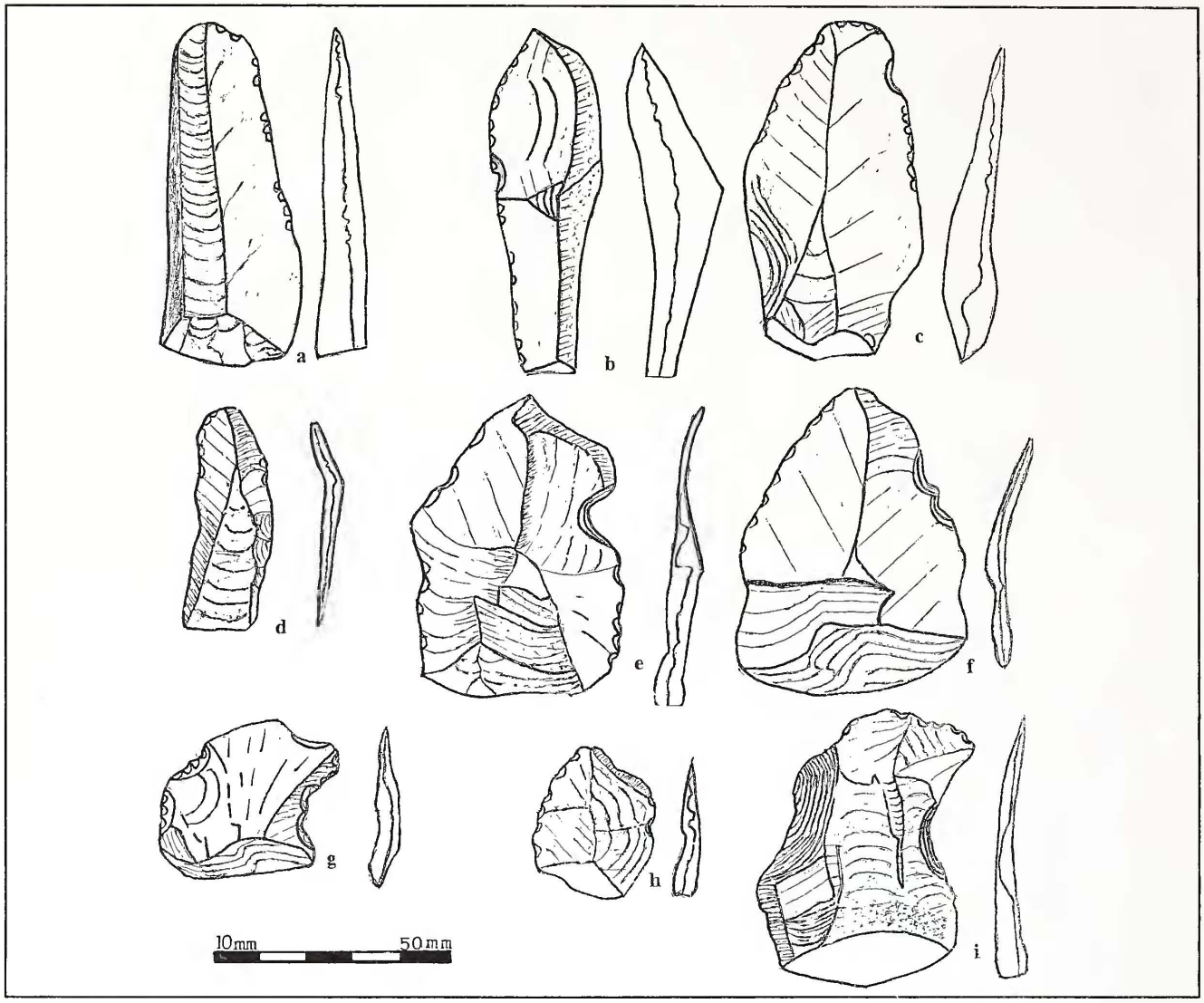

Fig. 16. Utilized artefacts: a - hornfels flake blade, C6 sterile A' b - hornfels blade, c5 sterile B; c - hornfels blade, c5 sterile B; d - hornfels irregular flake, B5 sterile B; e - hornfels flake, D6 sterile B; f - sandstone triangular flake, c3 sterile B; g - hornfels flake, C6 sterile B; h - hornfels flake, a2 sterile B; i - quartz flake, B3 sterile B.

opposite ends which are produced by the use of the tool between hammer stone and the objective (Malan 1955). They display concave/curved working edges and seven were recognized from Ndondondwane assemblage.

(j) *Pièces esquillées* (Fig. 12): These display battered concave edges and opposite striking platforms that are chisel-like in profile. They also exhibit secondary crushing due to use (J. Deacon 1972; Barham 1986). Only one was found at Ndondondwane.

(k) *Outils éscaillés* (Fig. 13): These are tools that have been deliberately flaked to form a chisel-like form (J. Deacon 1972). This curved edge may be battered or covered with small utilization scars (Barham 1986). Two are present in Ndondondwane assemblage.

(l) Burins (Fig. 14): These artifacts are made in such a variety of forms and by so many varying techniques that they have been the subject of many complicated classifications, resulting in a confusion of technology (Malan 1948). They are spoiled or damaged flakes or flake tools or cores from which narrow flakes had been obtained with great or less success (Heese 1946). They were used for cutting bone and also presumably for cutting across the grain of wood. Six burins were found at Ndondondwane .

(m). Gravers (Fig. 15): These artifacts display retouch on one side of the distal end. Two were found at Ndondondwane.

(n). Lance head (Fig 19): These artifacts are made on flakes with faceted striking platforms.They vary considerably in proportions, size and form. The best specimens are worked completely over both faces by pressure flaking and are double pointed and narrow in relation to their length (willow leaf). Broader

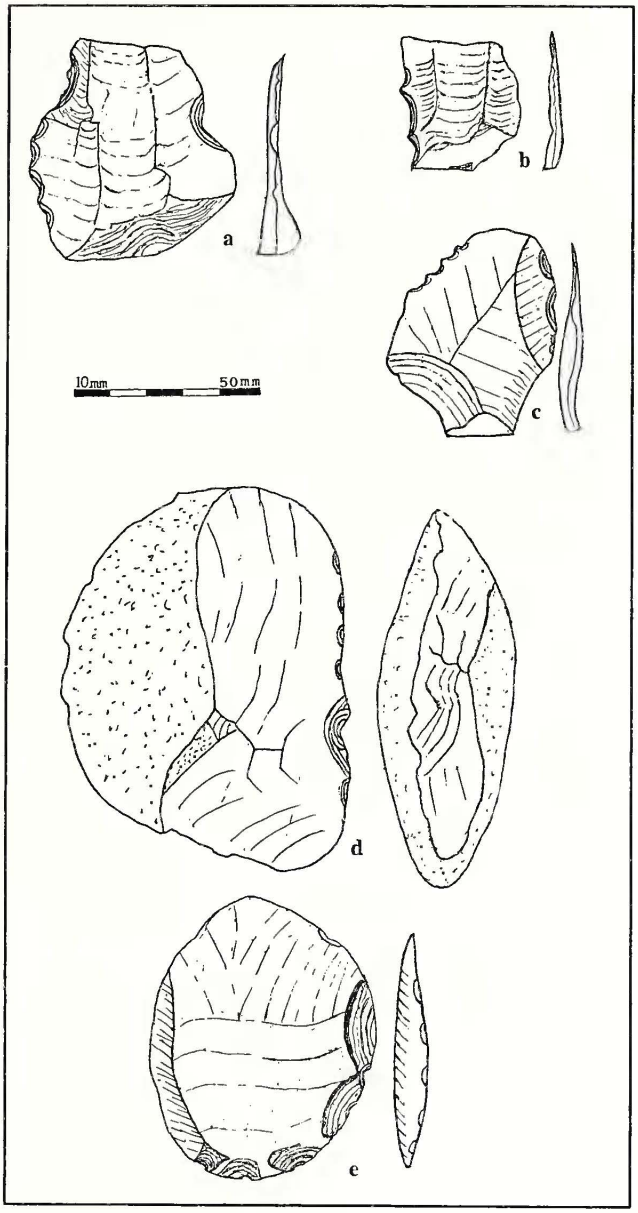

Fig. 17. Retouched artefacts: a - quartzite proximal flake blade section, b3 sterile B; b - quartzite medial flake blade section c5 sterile B; c - sandstone triangular flake, D6 sterile A; d - quartzite pebble chopper, c5 sterileB; e - sandstone flake, b2 sterile B.

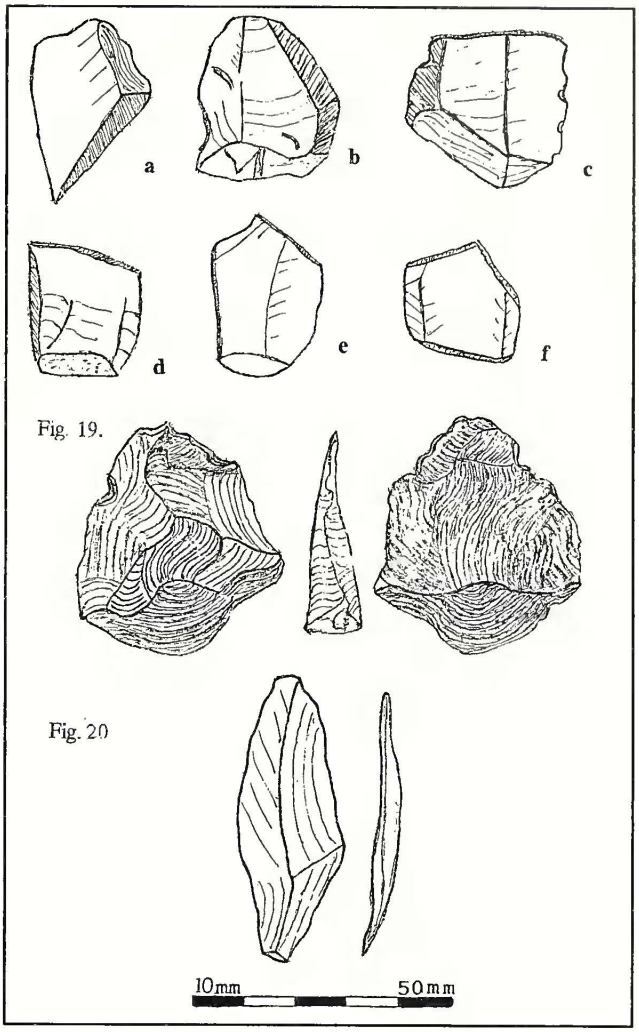

Fig. 18. Trapeziods or miscellaneous retouched pieces: a - hornfels, b4 sterile A; b - hornfels, c5 sterile B; c - hornfels, c4 sterile A; d - hornfels, E6 sterile B; e – hornfels, D6 sterile B; f - hornfels, B6 sterile B.

Fig. 19. Lance head (pressure flaked): sandstone D6, sterile B.

Fig. 20. Artifact showing intermediate punch (sandstone blade from b3 sterile B).

specimens are known as laurel – leaf forms (Malan 1955). Sometimes the edges were chipped to make them saw-like (Goodwin 1946; Beater 1959). A lance head from Ndondondwane assemblage conforms to Malan's second type i.e. broader specimens (laurel leaf forms). It has a faceted striking platform, is broad, shows utilization marks and is partially bifaced.

Utilized Artifacts

This category makes up 2.73% of the whole assemblage. Utilization is in the form of edge damage such as light retouch. On 34 flakes and three cores (two from quartzite and one from hornfels) the damage is in the form of a notch with polish and negative flake scars. One lance-head displays utilization marks on both left and right sides.

Four flake-blades display edge damage, notching and light utilization marks. Two rubbing stones, of unequal size from hornfels, have their dorsal surfaces flattened through use and also display light chip scars. An EIA grinding stone fragment was also found. Utilized artifacts are shown in figure 16. This category also includes the *pièces esquillées* and *outils éscailés* mentioned above.

Retouched Artifacts

This category makes up 2.54% of the whole assemblage. Seven flakes and two choppers have been retouched. The choppers are broken river pebbles trimmed to a steep edge which demonstrates utilization marks. Other retouched specimens displays denticulation, including a proximal section of a flake, a medial section of a flake blade and a

triangular flake (Figs 17a, b & c). Another slightly circular flake has a cortical dorsal side. The right side is trimmed with big shallow flake scars while the left side is trimmed to a steep edge (Fig. 17e). Eight triangular flakes (all hornfels) display retouch (oblique truncation) that is steep and confined to the end of artefacts. The retouch is on one side of the flake in order to make a pointed end (Fig 9).

Scrapers (6) have convex (4), concave (1) and circular (1) retouched edges. Four scrapers are made from hornfels while the other two are from quartzite. Core scrapers (8) mainly display convex scraper edges due to trimming. The striking platform and bulb of percussion are also present. Most core scrapers are made from hornfels.

Other retouched pieces include burins. Five burins are made from hornfels and one from the sandstone. The have battered concave edges. The gravers (2) made from gouges are made from hornfels (5) and two from quartzite hornfels also fall under this category.

Miscellaneous retouched pieces include trapezoids (5) and other obliquely truncated pieces and which are shown in figure 18.

Raw Material

Raw materials of different artifact types indicate that waste is dominated by quartzite (33%) which is followed by quartz (29%), hornfels (23%) and sandstone (14.8%). These categories constitute 97.1% of the whole assemblage.

Amongst the utilized and retouched artifacts the sequence of occurrence of different raw material changes. Quartzite remains dominant (55.6%) for utilized artifacts, hornfels (35.6), while quartz make up the rest (8.9%). Sandstone is not represented. Hornfels predominates (75%) for retouched artefacts, quartzite and sandstone (18%). Quartz is not represented. Hornfels appear to have been the preferred raw material for making formal artifacts.

Raw material representation for the artefact types shows that chunks are mostly from quartz (43.6%) and quartzite (30.3%). Flakes (whole and broken) are dominated by quartzite (48.7%) while flake blades (whole and broken) are mostly from hornfels (40.25%). Cores are dominated by hornfels (38.2%) followed by quartzite (29.1%), sandstone (27.3%) and quartz (5.5%).

DISCUSSION

Ndondondwane stone age material was not recovered *in situ* and therefore no attention was given to the distribution pattern of the stone tools.

Although this assemblage originally comes from a surface scatter it is possible make associations with other Stone Age sites in South Africa. The technology used for artifact manufacturing belongs to the MSA. Ridge and striking platform preparation as well as the presence of core rejuvenation flakes make the association possible (Thackeray & Kelly 1988). The technique of pressure flaking was recognized on one lance head. According to Goodwin (1946) lance heads is the final development of the Middle Stone Age derived from the concept of the bifacial handaxe.

Miscellaneous retouched pieces such as trapezoids and truncated pieces were recovered at Border Cave (Beaumont *et al.*1978) and Umhlatuzana (Kaplan 1990).

A very small and plain striking platform shows the use of the intermediate punch during the flaking process and this feature was recognized in the Ndondondwane material (Fig. 20). This feature was also recognized at Border Cave (Beaumont 1978) and Grassridge (Opperman 1984).

The striking platform of Ndondondwane Stone Age material is mainly plain (58%) and retouched (42%) a condition that differs from the surface collection of artifacts (mainly with faceted striking platforms) collected by the British Army Officers during the Anglo – Zulu War. At Ndondondwane only 8% of the striking platforms are faceted mainly from the retouched category while cortical and shattered striking platforms are also present. According to Mitchell (1988) artifacts were collected from the surface at Isandlwana, Newcastle, Rorke's Drift, Utrecht and Pietermaritzburg by British Army Officers. This material is dominated by hornfels (80%), a condition also noted for Ndondondwane material (retouched category). The report indicates that the material is invariably patinated and the Ndondondwane material shows a similar high degree of patination for both sterile layers. There was a difference between the sterile layers where sterile B has a higher percentage of patinated material

On typological grounds, the Ndondondwane assemblage contains no definitive evidence of formal tools that can reliably be associated with the MSA apart from the lance head, gravers, burins, gouges, *pièces esquillées* and *outils écaillés*. On the other hand the Stone Age material recovered at Umhlatuzana, Border Cave, the surface collection from Muden (Farnden 1968) as well as that of the British Army Officers (Mitchell 1988) had an abundance of formal tools such as points and scrapers. Truncated pieces (including oblique) are abundant at Umhlatuzana as is the case with the Ndondondwane material

It is not possible to distinguish the time period involved at Ndondondwane. Blade lengths are very variable but this has also been observed from the well-dated MSA sample from Strathalan Cave B (29000 – 22000 BP) (Opperman & Heydenrych 1990). One would expect more chips with the use of quartz as a raw material.

Some of the stratified sites display material that is transitional from MSA to LSA, such as Border Cave and Umhlatuzana. The LSA artefacts at Ndondondwane include endscrappers (5), a backed scrapper and a hollow scrapper. Hollow scrapers were also found at Muden. *Pièces esquillées* and *outils écaillés* were found at Ndondondwane, and at Umhlatuzana *outils écaillés* were reported by Kaplan (1990).

The occurrence of the notched utilization indicates the possible use of sticks or bone mountings for scrapers. Gouges, *pièces esquillées* and *outils écaillés* are known as wood working tools (Malan 1955; Sampson 1973) and support the suggestion that woodworking was taking place. The presence and description of this MSA material together with the EIA component gives a more complete picture of the prehistory of the site.

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