CHAPTER FOURTEEN
(Thesis pages 219-237)

SUMMARY, DISCUSSION AND CONCLUSION

14.1 Summary of the analytical outcomes………………………… 220
   14.1.1 Contributions to analytical methods………………………… 220
   14.1.2 Empirical contributions to Middle Stone Age knowledge …………………… 222

14.2 Answers to the key questions posed in Chapter One………… 225
   14.2.1 Were Still Bay and Howiesons Poort tools hafted and used for hunting?……………… 225
   14.2.2 Were there changes in hafting and hunting strategies throughout the Middle Stone Age, and were similar technologies used or hafted differently at different sites?………………… 227
   14.2.3 Could I detect shifts in the hafting and hunting technologies of the Howiesons Poort?……………… 230

14.3 Hunting, hafting and modern human behaviour………………… 231

14.4 What about the people?……………………………………………… 234

14.5 Conclusion…………………………………………………….. 235
CHAPTER FOURTEEN

SUMMARY, DISCUSSION AND CONCLUSION

14.1 Summary of the analytical outcomes

The analytical studies presented throughout this thesis have made contributions on two levels: first, they have made some methodological advances to use-trace studies; secondly they have provided data that are useful for answering questions about human behaviour during the Middle Stone Age. I now highlight the core methodological and empirical contributions of this study. These summaries underscore the analytical outcomes that answer the questions posed in Chapter One.

14.1.1 Contributions to analytical methods

Macrofracture analysis was identified as a method that could provide comparable data on stone tools that were possibly used as components in hafted hunting weapons. This method does not require special curatorial conditions and is not limited by stone tool morphology. It is therefore ideal to generate comparable data across tool types. I show that, if macrofracture analyses are conducted within stringent parameters, using only diagnostic impact fractures, eliminating possible knapping traces and analysing all the fragments of relatively large samples, they can be used to create comparable inter-technocomplex and inter-site data. Such data can be used to augment evidence created by other methods such as tip cross-sectional analyses. It can also serve as a means of preliminary investigation before more extensive use-trace analyses are conducted. An important benchmark was also established for the expected percentages ($\geq 39\%$) of tools with diagnostic impact fractures when all the tools were used as hunting weapons. This benchmark is based on macrofractures resulting from experimental hunting with replicated weapons.

Surprisingly the comparable macrofracture data for South African Stone Age sites showed distinct time-related clustering of the results. Thus, macrofracture data are different in different technocomplexes such as the Still Bay and the Howiesons
Poort and the post-Howiesons Poort. Although more tools that could have functioned as hunting weapons must be analysed to test the authenticity of these preliminary macrofracture observations, the results suggest that macrofracture studies are important for the study of change in Stone Age hunting behaviours.

A main focus was to evaluate, and improve on, the quality of data that could be gained through micro-residue analysis within the context of this research project. Thus, following previous tests, two additional blind tests for the identification and interpretation of micro-residues on replicated stone tools were conducted. These tests assessed what was learnt from the first tests, and identified further potential problem areas for the interpretation of micro-residues on stone tools. It was shown that, based on their microscopic morphological appearance, animal residues could previously have been mistaken for plant residues. This probability has far-reaching implications for the interpretation of assemblages, site functions and associated behavioural hypotheses. It was also demonstrated that very hard, white, translucent or highly reflective raw materials such as quartz or quartzite might result in less reliable micro-residue interpretations than those on other rock types if the analyst is not aware of the visual effects of quartz or quartzite and how they influence the distributions of adhering micro-residues.

The multi-stranded approach was introduced. This insists that functional and hafting interpretations must be based not only on the presence of single, identified micro-residues, but also on their association with related residues, their frequency, distribution patterns, layering, orientation, and the way in which they adhere to the tool. The results of Blind Test 4 show that this approach can significantly reduce the margin of interpretative errors. Furthermore, the value of replication work, reference collections and preliminary preparation for micro-residue analysis on replicated and archaeologically recovered stone tools was demonstrated.

A new method was developed for scrutinising soil samples associated with tools on which micro-residue analysis is conducted. This method, where the soil is fixed to microscope slides, allows for the documentation of particles in the soil
using the same microscope settings as those used during micro-residue analysis. Reference material created in this manner is directly comparable with the microscopic morphological appearance of residues adhering to unwashed stone tool surfaces from the same contexts. This method assists in isolating post-depositional contamination. A similar method was developed to gain familiarity with the characteristics of dust as a possible prehistoric or modern contaminant on stone tools.

The method for creating quantifiable, comparable data for the interpretation of micro-residue distribution patterns on archaeological stone tool assemblages was refined. The surfaces of the tools are subdivided into portions according to tool morphology; all the recorded micro-residue occurrences are carefully plotted and then counted within the predetermined portions. The counted occurrences are then converted into percentages of a residue type for the sample. Using this method it was shown that, with adequate tool samples and good organic residue preservation, sufficient data could be generated to compare results from micro-stratigraphic archaeological contexts, such as single layers within a technocomplex. Interpretations based on this approach have the potential to considerably enhance the resolution of our knowledge of the distant past. Using this method, it was also demonstrated that quantifiable and comparable micro-residue data could be used to assess differences or similarities in the preservation levels of organic residues between stratigraphic layers.

14.1.2 Empirical contributions to Middle Stone Age knowledge

On a methodological level I aimed to produce data for interpreting hunting and hafting technologies during the Middle Stone Age of South Africa and for examining change in these strategies through time. The explicit intent was to make incremental advances in knowledge through a reflexive process between replication, experimentation, testing and examination of archaeological material. An inductive approach was designed to accrue reliable empirical archaeological evidence to enrich existing behavioural models.
Research for this thesis has yielded some of the first direct evidence and data for the functions and hafting technology of Still Bay pointed artefacts. Several existing functional hypotheses were tested and new ones have been formulated for future assessment. The hypothesis that double-pointed, bifacial points with asymmetrical bases from Sibudu Cave were not intended to be reversible in their hafts, but instead were pointed at their bases to facilitate a specific type of hafting, was supported by multi-stranded use-trace analyses. It was shown that double-pointed, bifacial points with asymmetrical bases could have been hafted as butchery knives rather than spearheads. Evidence for hafting Still Bay points to wooden handles was presented. While there is evidence for re-sharpened points having been used as knives, there is no evidence yet for them having been used as spearheads subsequent to re-sharpening – this possibility remains to be evaluated. Macrofracture data from Sibudu Cave and Umhlautuzana Rock Shelter show that some Still Bay/pre-Howiesons Poort pointed tools were probably used as hafted knives while others could have been used to tip hunting weapons. Many points also broke as a result of knapping accidents, not as a result of use. A similar trend was observed on Still Bay Points from the M1 phase at Blombos Cave. A preliminary interpretation of macrofracture results from the Middle Stone Age phases at Blombos Cave indicate that people were hunting with Still Bay points during the M1 phase, but were probably not doing so during the M2 phase. The latter is interpreted as a bone tool phase of the Still Bay at the site.

Detailed new information about the hafting technology and functions of Howiesons Poort segments was generated. The hypothesis that Howiesons Poort segments were hafted with their backed portions in or against the haft was investigated, and micro-residue data from segments excavated at Sibudu Cave and Umhlautuzana rock Shelter provided strong evidence for such hafting. It was established that resin mixed with ochre was probably used in the adhesive recipe to haft Howiesons Poort segments from Sibudu Cave and Umhlautuzana Rock Shelter. Results from a quartz and crystal quartz sample from Umhlautuzana indicate that different adhesive recipes could have been applied to haft segments made on different raw materials. For example, quartz segments show much less
ochre mixed into the resin than tools made on hornfels or dolerite from the same
site. Micro-residue data generated from the unwashed segments from Sibudu Cave
confirm the primary function of these tools as inserts for hafted hunting weapons,
and show that animal and plant residues on the tools accumulated as a result of
different uses.

The realisation that ochre was sometimes mixed into prehistoric adhesives is not
new, but this information has been marginalised by some archaeologists in the last
ten years because of the possible symbolic value of ochre during the Stone Age.
This study generated micro-residue data providing direct evidence for the use of
ochred adhesives on post-Howiesons Poort retouched points and Howiesons Poort
segments from Sibudu Cave, as well as Howiesons Poort segments from
Umhlatuzana Rock Shelter. Evidence for the complex hafting technologies that
included ochre in their adhesive recipes informs on cognitive and technological
skills and planning abilities. It shows that, during the Middle Stone Age, people
understood the characteristics of various raw materials and adapted their adhesive
technologies accordingly.

Macrofracture analyses of backed tools from Sibudu Cave, Umhlatuzana Rock
Shelter and Klasies River Cave 2 indicate that they were used for hunting during
the Howiesons Poort. The data also indicate that they were probably used as
interchangeable pieces, such as tips, barbs or barbed cutting inserts in hafted
hunting weapons – not exclusively as tips. When micro-residue, usewear and
macrofracture data from the unwashed segments were evaluated by stratigraphic
layers at Sibudu Cave, it was shown that there might have been variability in haft
materials over time within the Howiesons Poort. The oldest segments could have
been hafted to bone and the youngest ones to wood. Using the same data, it was
also shown that there might have been differences in preferred hafting
configurations during different phases of the Howiesons Poort at Sibudu Cave.

The analytical advances and empirical contributions summarised in this section
contributed direct evidence for hunting and hafting technologies during the
Middle Stone Age of South Africa. Blind tests and continuous replication work served as important crosschecks and provided modern reference material. The feedback between the approaches also highlighted potential methodological problem areas where caution is required when making use-trace interpretations. The importance of regular, stringent self-testing and replication over a broad spectrum of use-traces cannot be over-emphasised; this practice increases the likelihood of making accurate, reliable and detailed interpretations of use-traces on archaeologically recovered stone tools. The multi-stranded approach to the interpretation of use-traces largely contributes to the quality and credibility of the interpretations discussed in the next section. The analyses produced a series of incremental advances in understanding specific elements of Middle Stone Age life in South Africa. These can now be integrated into existing behavioural models or used to evaluate aspects of such models.

14.2 Answers to the key questions posed in Chapter One
In the first chapter of this thesis I formulated three key questions regarding hunting and hafting within the context of current Middle Stone Age research. I set out to address the questions using use-trace analyses on stone tools. I now assess my results before I integrate them with the issue of interpreting Middle Stone Age modern human behaviour.

14.2.1 Were Still Bay and Howiesons Poort tools hafted and used for hunting?
The first question asked in Chapter One was whether some Still Bay and Howiesons Poort tools were hafted and used for hunting and, if so, whether marked differences between the hafting and hunting technologies of these two technocomplexes can be distinguished? Macrofracture and micro-residue results from the KwaZulu-Natal sites provided multiple strands of evidence for the hafting of Still-Bay/pre-Howiesons Poort pointed artefacts and Howiesons Poort segments. I was also able to establish that both these tool classes played a role in the hunting technologies and strategies of the people who occupied the sites during these technocomplexes. Additional macrofracture analyses were conducted on pointed artefacts from the Middle Stone Age phases at Blombos Cave and
backed tools from the Howiesons Poort at Klasies River Cave 2. These studies provided further data that indicate that the tools were used similarly at some of the southern Cape sites with long Middle Stone Age sequences.

Interpretations based on use-trace evidence indicate that there were indeed marked differences between the hafting and hunting technologies of the Still Bay and the Howiesons Poort. Even though it is now clear that the Still Bay predates the Howiesons Poort, it is not yet clear whether the latter developed without interruption from the former. Blombos Cave has no Howiesons Poort component, and dating and technological analyses of the two technocomplexes at Sibudu Cave, where they directly follow upon each other, are not complete. The micro-residue analysis conducted on the small Still Bay point sample from Sibudu Cave showed convincing evidence for wood hafting. It does not seem as though double-pointed tools were designed to be reversible in their hafts. Hafting traces were consistently only recorded on the proximal/medial portions of all the point types. The points were glued into place with a resinous adhesive that could have contained ochre and fat. Hafting arrangements were probably strengthened with bindings such as twine or thongs. Adhesive layers must have been relatively thin, or applied over the bindings to keep them in place, because abundant bright polish was recorded on the tools. The polish indicates that during their use the wooden handles came into repetitive, abrasive contact with the stone tools.

The use-trace results obtained from the Howiesons Poort segment samples show that these tools were possibly interchangeable in their hafting positions. There is evidence for transverse, longitudinal and/or diagonal hafting configurations. There is strong evidence for the use of an adhesive recipe that was based on a mixture of resin and ochre. Unlike the Still Bay points, Howiesons Poort segments do not show well-developed polish associated with other hafting traces. This means that there must have been a thick adhesive layer between the stone inserts and the hafts, and that the use of the tools probably did not involve repetitive, friction-causing actions. Haft materials for the Howiesons Poort seem less straightforward than for the Still Bay. My current interpretation is that there is micro-residue
evidence for bone hafting in the older Howiesons Poort layers at Sibudu Cave, while, in the younger Howiesons Poort layers, the evidence indicates wood hafting.

Although macrofracture results for the Still Bay/pre-Howiesons Poort tools from the KwaZulu-Natal sites and Blombos indicate that they were used for hunting, they also indicate that the points were not used exclusively to tip hunting weapons. There is strong evidence that some points were used as butchery knives. This could mean that Still Bay points were multi-purpose tools, or that different point types were designed and used for different purposes. A working hypothesis for the latter possibility has been formulated, and will be evaluated in the future with more extensive Still Bay point samples.

In contrast, the collective use-trace evidence for Howiesons Poort segments provided no evidence that these tools were regularly used for anything other than inserts in hunting weapons. The inserts were not only positioned as tips for these tools, but could also have served as barbs, or as barbed cutting inserts along the sides of the tool shafts. The use-trace evidence indicates a highly flexible hunting technology with tools that could have been constructed in a variety of configurations to suit the subsistence strategy of the moment, the season, group or individual.

14.2.2 Were there changes in hafting and hunting strategies throughout the Middle Stone Age, and were similar technocomplexes used or hafted differently at different sites?

The second question that I asked was whether it is possible to use use-trace analyses to detect changes in hunting and hafting technologies through the Middle Stone Age sequence, and whether there are similarities or differences in the use and hafting technologies of similar technocomplexes at different sites? The first part of the question can be answered for hunting technologies, and in part for hafting technologies. Currently there are not enough comparable data available from sites to answer the second part of the question satisfactorily. Some data are,
however, available for the hafting of segments during the Howiesons Poort at Sibudu Cave and Umhlatuzana Rock Shelter.

The macrofracture results for 12 separate stone tool assemblages from six different sites presented in the different chapters of this thesis represent the first stages of a long-term goal to establish a comprehensive macrofracture database for all phases of the South African Middle and Later Stone Age. Based on the current macrofracture data, which are in some cases supported by evidence from other use-trace analyses, a coarse-grained sequence for change in Middle Stone Age hunting technologies can be reconstructed. There are still gaps in time and space, so that the proposed model (Table 14.1) is presented as a preliminary interpretation. It will be adapted and refined when more use-trace data are accumulated and when data from other multi-disciplinary research projects such as faunal analyses, technological analyses and environmental reconstructions are integrated with my research. However, it is already clear that use-trace analysis can be used successfully to investigate changes in past hunting behaviours. Such analyses do not have to be limited to the simple determination or interpretation of tool function.

The comparable functional data derived from macrofracture analyses indicate that there was probably not much difference in how the respective tool classes under investigation were used at the sites. However, all the represented sites are deep sequence caves or rock shelters that were probably long-term living sites in the Middle Stone Age. It is therefore not expected that major differences in site function would be evident from the results. In order to investigate questions relating to variability in site function, data from other site types such as open sites, hilltop sites or freshwater-front sites will have to be generated.
Table 14.1. Current interpretation of change through time in the hunting and hafting technologies of the Middle Stone Age in South Africa, based on available use-trace evidence.

<table>
<thead>
<tr>
<th>Stone Age phase and approximate age</th>
<th>Source of data</th>
<th>Suggested hunting technology based on use-trace analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Still Bay ~ 98.9 ± 4.5 ka</td>
<td>Blombos (M3 phase) macrofractures</td>
<td>No retouched points were excavated from M3, but convergent flakes show signs of impact use and could have been used as tips for hunting weapons. Faunal data support the hunting of medium to large animals during this phase.</td>
</tr>
<tr>
<td>Still Bay bone tool phase ~ 84.6 ± 5.8 to 76.8 ± 3.1 ka</td>
<td>Blombos (M2 phase) macrofractures</td>
<td>Few retouched points and convergent flakes are in the assemblage. Only one flake showed a diagnostic impact fracture. Thus, stone-tipped weapons were probably not used as the primary meat procurement strategy during this phase. Bone points could have been used for hunting the very small and/or young animals that are abundant in the faunal assemblage, or these animals could have been caught or trapped.</td>
</tr>
<tr>
<td>Still Bay/ pre-Howiesons Poort ~ 72.7 ± 31 ka (Blombos age)</td>
<td>Sibudu, Blombos (Phase M1), Umhlathuzana macrofractures and complete use-trace analyses on Sibudu sample</td>
<td>Retouched points were used to tip hunting weapons, but were also hafted to wooden handles as butchery knives. Faunal data from Blombos suggest the hunting of medium to large animals during this phase, while small bovids are frequent in the preliminary assessment of the faunal sample from Sibudu.</td>
</tr>
<tr>
<td>Howiesons Poort Older than 60 ka (Sibudu age)</td>
<td>Sibudu, Umhlathuzana, Klasies River Cave 2 macrofractures and complete use-trace analyses on Sibudu sample</td>
<td>All indications are that segments were used as interchangeable inserts in the shafts of hunting weapons. It is possible that an array of hunting tools were produced and selectively used for different meat procurement strategies. Although small animals, that could have been trapped or caught, are abundant in Sibudu, a wide range of other animals is also represented indicating flexible hunting strategies during this phase.</td>
</tr>
<tr>
<td>Post-Howiesons Poort ~ 60 to 50 ka (Sibudu age)</td>
<td>Sibudu, Umhlathuzana macrofractures and complete use-trace analyses on Sibudu sample</td>
<td>Retouched points were mainly used to tip hunting weapons. There is not much evidence for these tools being regularly used for other purposes. Different tool classes could have been used for non-hunting tasks. The Sibudu faunal sample indicates that large, dangerous animals were effectively and regularly hunted.</td>
</tr>
</tbody>
</table>

I have already mentioned the possible change from bone to wooden hafting during the Howiesons Poort at Sibudu. In addition, a detailed investigation of the hafting technology associated with Howiesons Poort segments from the two KwaZulu-Natal sites, Sibudu Cave and Umhlathuzana Rock Shelter, shows a similar general distribution of adhesive traces on tool portions. It seems as though ochre was mixed into the adhesive recipe for non-quartz segments at Sibudu Cave slightly
more often than at Umhlatuzana Rock Shelter, but no major differences between the adhesive recipes or hafting technologies of non-quartz segments from the two sites were recorded. However, throughout the Stone Age sequence at Umhlatuzana, quartz tools are the most prolific, probably because there is a rich source for this raw material close to the site. This created the rare opportunity to investigate a sample of quartz segments separate from those made on other raw materials. This analysis produced rather unexpected results, showing a striking difference in the adhesive recipes used for the different raw materials – with ochre almost completely lacking in the mastic used for quartz tools.

This is compelling evidence that the people using the sites during the Howiesons Poort understood the characteristics of various raw materials and adapted their adhesive technologies accordingly. Quartz segments are usually smaller than those made from other raw materials and therefore they could have been hafted and used differently. A preliminary micro-residue analysis of a small sample of crystal quartz backed tools from Sibudu Cave (Delagnes et al. 2006) shows evidence for the processing of animal material which is consistent with the evidence from the complete unwashed segment sample from Sibudu Cave. Unfortunately the Sibudu quartz sample is still too small for separate comparable use-trace analyses that might establish whether these tools were used differently from those made on hornfels or dolerite.

14.2.3 Could I detect shifts in the hafting and hunting technologies within the Howiesons Poort?

The last key question asked whether I was able to detect shifts in hafting and hunting technologies within the Howiesons Poort through use-trace analyses? It is my opinion that the data generated during the micro-residue analysis of the unwashed Howiesons Poort segment sample from Sibudu Cave clearly indicates shifts in these technologies during the technocomplex. Currently I suggest that the micro-residue evidence indicates bone hafting for the oldest Howiesons Poort layers. Tools from the middle layers could have been hafted to both bone and
wood handles or shafts and those from the youngest Howiesons Poort layers mostly show evidence for wood hafting.

Micro-residues on the segments from all three Howiesons Poort contexts in the Sibudu Cave stratigraphy show overwhelming evidence for use on animal material. Usenear and macrofracture traces indicate their primary use as inserts in composite hunting weapons supporting the micro-residue evidence. There also seems to have been a shift in preferred hafting configurations. During the oldest layers segments were mostly hafted in longitudinal, transverse or paired configurations with relative fewer tools showing evidence for diagonal hafting. Most segments from the middle layers were hafted in a diagonal position, while those from the youngest layers show evidence for an equal portion of tools hafted diagonally or in the other positions. While these interpretations remain explanations for the use-trace data, that may or may not be an accurate reflection of past technological behaviour, they do provide unambiguous evidence for change over time within the relatively short duration of the Howiesons Poort. Replicated hunting experiments with segments showed that all the hafting positions described here work well (Pargeter 2006).

14.3 Hunting, hafting and modern human behaviour

At present I subscribe to the Henshilwood and Marean (2006) definition for modern human behaviour i.e., behaviour that is mediated by socially constructed patterns of symbolic thinking, actions and communication that allow for material and information exchange and cultural continuity between and across generations and contemporaneous communities. Therefore, it is probably not the capacity for symbolic thought that is the key defining factor for modern human behaviour, but rather the use of symbolism to organise behaviour (Henshilwood & Marean 2006; Wadley 2001, 2006a). Conclusive physical evidence for external (out-of-brain) symbolic storage in the archaeological record of the South African Middle Stone Age is available in the form of engraved ochre, engraved ostrich eggshell fragments and shell beads (Henshilwood et al. 2002; 2004; Parkington et al. 2005).
This study provides evidence to support other data in the literature that suggest effective and innovative hunting in the Middle Stone Age. My work contributes independent datasets for the ‘fully effective hunter’ model that was previously based mostly on zooarchaeological evidence. Archaeological evidence for technological innovations, change and variability in hunting and hafting behaviour, such as described throughout this study, might indicate accumulated advances in cognitive abilities. However, in themselves, these innovations cannot be considered conclusive evidence for modern human behaviour. This point is emphasised by Wadley (2001, 2006a) who cautions against a simplistic link between technological innovations and modern human behaviour, even though they might appear simultaneously. It is not necessarily the invention that proclaims symbolism, but rather the subsequent use of artefacts for purposes such as the definition or negotiation of individual or group identity (Wadley 2001).

Such definitions and negotiations are notoriously difficult to identify in the archaeological record, particularly when artefacts or materials are known to have been functional. Although a web of symbols underlies almost everything humans do today (Kusimba 2002), artefacts or materials that have demonstrated technological, economic, or secular roles (such as ochre or quartz hunting tools) need not have functioned symbolically in the past, even if behaviourally modern humans made and used them. Notwithstanding this caveat, empirically derived data from technological innovations and their flexible use do have the potential to allow detailed interpretations of behaviour in the deep past. Archaeologists need, however, to recognise that there are limitations to the interpretations that they can make from material culture, particularly in the absence of supporting strands of evidence.

Resource intensification has long been considered as a prime mover in hunter-gatherer technological and subsistence change amongst fully modern humans (Henshilwood & Marean 2006 and references therein). As more environmental data become available for Middle Stone Age sites (e.g. Wadley 2006b and references therein) it becomes increasingly clear that several of the behavioural
traits used as test implications for modern human behaviour are candidates for alternative explanations under a resource intensification model (Henshilwood & Marean 2006). The most obvious of these behavioural traits are those that directly involve shifts in subsistence and accompanying technological changes. The complexity of these technological changes may well be linked to mental capacity. However, the evolution of complex traditions does not necessarily drive the evolution of still more sophisticated traditions. Even amongst cognitively modern humans the maintenance of complex traditions is not certain, and in some instances toolkits shrink in size and sophistication through time (Henshilwood & d’Errico 2005) – tendencies that might explain shifts such as the transition from the Howiesons Poort to the post-Howiesons Poort.

Sometimes, even if sophisticated cognitive capacity exists, it might not be accompanied by technological complexity. This capacity may only be exercised and become archaeologically visible when conditions justify the use of more labour-intensive behaviours (Henshilwood & Marean 2006). Thus, innovations that guarantee a better exploitation of resources or the maintenance of information within the group are not necessarily those determining its success in all circumstances (Henshilwood & d’Errico 2005).

Using quantifiable and comparable use-trace datasets, my study demonstrates change, complexity and flexibility in hunting and hafting behaviours from the pre-Still Bay phase at Blombos Cave, about 100 ka ago, to the post-Howiesons Poort at Sibudu Cave, about 50 ka ago. Not only is there evidence for variability on a broad technocomplex level, but it is also shown that within a single technocomplex such as the Howiesons Poort, possibly spanning about 10 ka, subtle shifts in technological behaviour can be determined. Compelling evidence was produced that is contrary to the once-held notion that the Middle Stone Age shows little meaningful change through time. These results support the work of other researchers who used different methods to identify a pattern of technological change during the Middle Stone Age (e.g., Kusimba 2002; Parkington et al. 2005; Soriano et al. in press; Wadley & Harper 1989; Wurz 2005). The cumulative
research results from the South African Middle Stone Age provide clear evidence for change in the archaeological record associated with anatomically modern humans. It is time finally, and permanently, to discard the characterisation of the Middle Stone Age in South Africa as a period of technological stasis.

Kuhn and Stiner (2001) suggested that, if ancient human groups showed similar ranges of variation to modern foragers, then the basic structure of modern hunter-gatherer adaptations was probably in place long ago. If the expected patterns of variation are not manifest archaeologically, we are dealing with a very different sort of hunting and gathering hominin (Kuhn & Stiner 2001). While few direct comparisons between patterns of variation are available thus far, it is apparent that we are moving towards establishing more data on which such comparisons can be constructed. Based on the available data, it is also obvious that during the Middle Stone Age of South Africa we are not dealing with a ‘different sort of hunting and gathering hominin’, but with people who were doing at least some things in the way that modern hunter-gatherers do. Whether the variation and change recorded here can be linked to the concept of style is outside the scope of this study, but it is obvious that Still Bay points and Howiesons Poort segments were used for hunting and possibly for other subsistence tasks. As a result, they cannot be described as ‘non-functional’ and therefore decisive evidence for symbolic behaviour. Although there is the possibility that these artefacts could have carried symbolic information, they were unquestionably functional.

14.4 What about the people?
Hafted hunting weapons represent elements within broader strategies that place people in a powerful and relatively safe place in relation to their prey and smooth out some uncertainties of the future (Sinclair & McNabb 2005). Gaining resolution in our understanding of these technologies and strategies provides rare glimpses of moments in the lives of people in the Middle Stone Age. A person exists in the context of other members of her/his society and social relationships that might be constructed according to gender, kin relations, or other alliances. There is the bodily context related to sexuality and sense of age, or the place in a
landscape defined by the tasks that an individual might engage in, as well as the
settlement history and pattern of her/his society. Each of these contexts also has a
dimension in time (Sinclair & McNabb 2005).

At any moment an individual might have acted in the contexts of technological or
subsistence activities, such as hunting and hafting. Raw materials such as ochre,
wood, bone, stone or fibrous plant material had to be procured, each to be
processed or treated, probably by using specialised toolkits, before they could be
assembled into effective hunting or butchering tools. Hunting weapons could have
been used in an assortment of meat procurement activities, ranging from a solitary
person hunting small game for a family to communal hunting forays supplying
meat for large groups or special events. The toolkits were probably curated and
maintained throughout their use-lives, because there is evidence for re-hafting and
re-sharpening at some sites. For the most part these glimpses into work processes
represent disjointed contexts for what may be simple sequences of deliberate
actions. They cannot be placed within the same contexts that explain the
archaeology of more recent hunter-gatherer periods. However, when the results of
use-trace analyses are interpreted, the deliberate actions of groups and individuals
in the deep past can be viewed in a more detailed and nuanced manner than usual –
our rare glimpses of everyday life gain resolution in colour, texture and pattern.

14.5 Conclusion

Recently it has been asked of the Later Stone Age of South Africa:

> How do we know that certain artefact attributes were really used to
signal social affiliation or adherence to particular genders, when we still
have so much to learn (from residue, microwear and technological
analyses) about artefact use and know so little ethnographically about

Even more worrisome; it has become popular (perhaps because of the lack of
empirical work), to impose the little we know about tool use during the Later
Stone Age on tools from the Middle Stone Age. This practice might seem justified
based on the nature of research questions, theoretical paradigms, or the conviction
that we are unable to generate direct empirical data for the distant past that will empower us to evaluate behavioural hypotheses about tool use.

Use-trace studies and experimental lithic studies are sometimes neglected or downplayed because they are perceived to be less challenging or informative than behavioural hypotheses based exclusively on theoretical models. I believe that the data and evidence presented throughout this study and the continuous development of more secure methodological and interpretative frameworks clearly show that this is not the case. Indeed, we are able to generate comparable datasets and direct evidence for work processes such as hunting and hafting for the Middle Stone Age – if we are willing to take the time and effort to explore and develop new ways to do so. The detailed and relatively plausible accounts that are outcomes of methods such as micro-residue analysis provide valuable tools with which to evaluate, corroborate or revise, behavioural models derived from other sources. Thus use-trace analyses provide a robust strand of evidence to add to the multi-stranded interpretive approach.

This is an exciting time to be involved in South African Middle Stone Age archaeology. Not a month goes by without new finds in the field or laboratories. Previously we might have conceived of a simple and rather disadvantaged life for people in the Middle Stone Age in comparison to the apparent adaptive advantages and complexities of Later Stone Age hunter-gatherer life. But as we gain insight, our perceptions are changing. People in the Middle Stone Age and Later Stone Age were not necessarily disadvantaged or advantaged relative to each other. Subsistence patterns varied in time and space throughout the Stone Age, probably due to variability in social and settlement strategies, environmental conditions and technologies, but we cannot easily rank such behaviours on a scale that measures change for the better. The closer that we get to looking at the world of opportunity and risk during the Middle Stone Age, the more it seems that these ancient hunter-gatherers may have thought much like their more recent counterparts. Identifying clear criteria for the origins of behavioural modernity is perhaps more likely in the realms of ideology and symbolic communication than
in the nuts and bolts archaeology of stone tools (Conard 2005). But the nuts and bolts archaeology of work processes such as hunting and hafting, represented by stone tools and the information they might carry today, are exceptionally rewarding for those of us who enjoy refitting the jigsaw pieces of everyday life in the remote past.