

Bringing the Middle Stone Age into Clearer Focus

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Abstract: *Prior to the 1990s, archaeologists often viewed the Middle Stone Age (MSA) as a period less important for research than the Earlier Stone Age in which early Homo evolved and the Later Stone Age in which scholars envisioned a high degree of archaeological continuity with recent hunters and gatherers. With the realization that modern humans evolved in Africa during the MSA around 200 ka BP, this period became a central topic of international research. Subsequently, new excavations and research projects made southern Africa the leading region for research on the MSA. Based on the results of an international workshop held in Tübingen in September 2014, we summarize the state of this research and demonstrate that current models advocating a clear cultural sequence across the entire subcontinent with well-defined and largely homogeneous cultural-chronological units are too simplistic. Here we stress that the archaeological record of the MSA is more complex and regionally variable than has been recognized in current publications, including what we refer to as the Synthetic Model proposed by Jacobs, Henshilwood and other colleagues. Based on high-resolution observations presented at the workshop in Tübingen, we argue that research is entering a phase in which a more complex record of the MSA will come into clearer focus and improved models of behavioral change and spatial-temporal variation will emerge to examine the dynamics of cultural evolution during the MSA.*

Keywords: *Middle Stone Age, southern Africa, lithic technology, cultural sequence, behavioral variability*

Das Middle Stone Age besser in den Brennpunkt bringen

Zusammenfassung: Bis in die 1990er Jahre beschäftigte sich die Steinzeitforschung in Afrika hauptsächlich mit dem Earlier Stone Age, welches die Entwicklung der ersten Vertreter der Gattung *Homo* umfasst, sowie dem Later Stone Age, welches durch seine zeitliche Stellung mögliche Anknüpfungspunkte an rezente Jäger- und Sammlergruppen aufweist. Erst mit der Erkenntnis, dass moderne Menschen um ca. 200.000 vor heute in Afrika entstanden, begann die Archäologie sich auf das zwischen diesen Perioden liegende Middle Stone Age (MSA) zu konzentrieren. Seit den späten 1990er Jahren bezog sich die Forschung vor allem auf das östliche und südliche Afrika, um die frühe kulturelle Entwicklung von *Homo sapiens* nachzuvollziehen. Infolgedessen wurde das heutige Südafrika aufgrund der Vielzahl an neuen Grabungen und internationalen Forschungsprojekten zur archäologisch am besten erfassten Region für das MSA in Afrika. Im September 2014 veranstalteten wir einen Workshop in Tübingen, zu welchem internationale Teams geladen wurden, um die neuesten Forschungsergebnisse aus Südafrika und anderen afrikanischen Regionen zusammenzufassen, zu diskutieren und in den weiteren Kontext der frühen kulturellen Evolution des modernen Menschen zu stellen. Hierbei sollten vor allem Fragen nach deren Art und Verlauf gestellt und kritisch beleuchtet werden. Die kritische Evaluation dieser Ergebnisse zeigte, dass derzeitige vorherrschende Modelle zu stark vereinfachend strukturiert sind, um

die komplexe archäologische Realität des MSA zu erklären. Das gegenwärtig in der Diskussion dominierende „Synthetische Modell“ von Jacobs, Henshilwood und Kollegen besagt, dass die kulturelle Abfolge des MSA im südlichen Afrika durch zwei klar definierte, einheitliche und zeitlich eng begrenzte Technokomplexe, das Still Bay und das Howiesons Poort, charakterisiert ist. Diese beiden Einheiten sollen demzufolge zwei kulturell hochentwickelte Phasen widerspiegeln, die sich klar in ihrer materiellen Kultur von den Perioden davor und danach unterscheiden. Wir zeigen hier, dass die chrono-kulturelle Sequenz des MSA in Wirklichkeit um einiges komplizierter und regional variabler ist als ihr in dem vorherrschenden Modell zugestanden wird. Vor allem der intensive Fokus der Forschung auf das Still Bay und Howiesons Poort in den letzten Jahrzehnten hat zu einem verzerrten Bild der archäologischen Realität geführt. Neue Forschungsergebnisse zur materiellen Kultur vor und nach diesen Technokomplexen belegen einen vielschichtigeren Verlauf der kulturellen Evolution von modernen Menschen, zumindest in Südafrika. Unserer Meinung nach tritt die MSA-Forschung zurzeit in eine Phase ein, in welcher die räumliche und zeitliche Variabilität im Verhaltensrepertoire von *Homo sapiens* in den Mittelpunkt rückt und Forscher dadurch sowohl empirisch wie auch theoretisch besser fundierte Modelle zur kulturellen Evolution von modernen Menschen entwickeln werden.

Schlagwörter: Middle Stone Age, südliches Afrika, lithische Technologie, Kulturabfolge, Verhaltensvariabilität

Over the last two decades, studies of the Middle Stone Age (MSA) have moved from relative obscurity to a central focus of international research in early prehistory and paleoanthropology. This development was largely driven by the realization that *Homo sapiens* originated in Africa around 200 ka BP. The MSA spans the vast period between roughly 300 and 30 ka BP, encompassing the archaeological record for the evolution of anatomically and culturally modern humans in Africa.



Fig. 1: Participants of the international workshop “Contextualizing technological change and cultural evolution in the MSA of southern Africa” at Hohentübingen Castle. Front row from left to right: Nicholas Conard, Mareike Brenner, Susan Mentzer, Regine Stolarczyk, Daniela Rosso, Chantal Tribolo, Panagiotis Karkanis, Christopher Miller, Viola Schmid, Darya Presnyakova, Iris Guillemard; second row: Alex Mackay, Jorden Peery, Magnus Haaland, Michael Bolus, Patrick Schmidt, Manuel Will, Gregor Bader, Laura Basell, John Parkington, Sarah Wurz; third row: Pierre-Jean Texier, Stanley Ambrose, Benoît Chevrier, Norbert Mercier, Ralf Vogelsang, Andrew Kandel, Götz Ossendorf, Isabell Schmidt, Katja Douze, Will Archer, Guillaume Porraz. Photo: I. Gold.

From September 8 – 10, 2014, Nicholas Conard and Christopher Miller of the Department of Early Prehistory and Quaternary Ecology and the Institute of Archaeological Sciences at the University of Tübingen, together with Guillaume Porraz from the CNRS and the University of Paris X in Nanterre, hosted an international workshop at Hohentübingen Castle. The meeting aimed to address new trends in the study of the MSA, with a focus on lithic technology in southern Africa. In keeping with its main goal, the workshop bore the name: “Contextualizing technological change and cultural evolution in the MSA of southern Africa”. Gregor Bader, Viola Schmid, and Manuel Will, all Ph.D. candidates at the University of Tübingen, assisted in all stages of the planning and execution. Thirty-five researchers from Africa, Europe and North America participated in the meeting, including most of the active research teams studying the MSA. The workshop was funded by the German Science Foundation (DFG) and the French Ministry of Foreign Affairs (Fig.1).

Although stone artifact technology from southern Africa formed the central focus of the meeting, sessions also addressed topics concerning geoarchaeology and chronostratigraphy, as well as new research in eastern and western Africa. The program of the workshop and all abstracts can be found on the website of the Department of Early Prehistory and Quaternary Ecology of the University of Tübingen.

The long-term cooperation between the organizers at sites in southern Africa including Diepkloof, Sibudu, Elands Bay Cave, Hoedjiespunt, and Bushman Rock Shelter has produced a wealth of new information about the cultural and technological evolution of modern humans during the MSA. The presentation of new data from these projects to an international audience represented one central aspect of the workshop. Immediately prior to the main meeting, the members of the Elands Bay Cave project, which was funded by the German Science Foundation, met to report on results from recent excavations at this important site on the Western Cape of South Africa. Scholars from other active research teams working in southern Africa presented their work on Klasies River Mouth (Sarah Wurz), Blombos (Katja Douze), Pinnacle Point (Panagiotis Karkanas), Mertenhof and Varsche Rivier (Alex Mackay) as well as Holley Shelter (Gregor Bader).

Similarly, researchers from the collaborative research center in Cologne (SFB 806) reported new research on sites in Namibia including Apollo 11 and Pockenbank (Götz Ossendorf, Isabell Schmidt and Ralf Vogelsang).

To help contextualize the new research from southern Africa, Stanley Ambrose reported on excavations in the Central Rift region and southwestern Kenya and Benoît Chevrier presented his work in eastern Senegal. Additional papers addressed the various uses of ochre at Porc Epic in Ethiopia (Daniela Rosso), and cultural stratigraphic trends from the long sequence of Mumba Cave in Tanzania (Knut Bretzke), which have implications for large-scale cultural exchange and human migrations. Similarly, Laura Basell examined the relationships between cultural and environmental changes in eastern Africa.

In his keynote address, Christopher Miller presented an overview of the innovative geoarchaeological research in southern Africa and illustrated the many new insights about human behavior that studies using micromorphological methods and Fourier Transform Infrared Spectrometry have facilitated. Chantal Tribolo discussed the current

state of chrono-stratigraphic research on the MSA of southern Africa and pointed to uncertainties in what we refer to as the Synthetic Model advocated by Jacobs, Henshilwood and colleagues (Jacobs et al. 2008; Henshilwood 2012). Patrick Schmidt reported on his research that focuses on the tempering of silcrete. In contrast to colleagues such as Brown (Brown et al. 2009) and Wadley and Prinsloo (2014), he found that heat treating of silcrete does not require special cognitive skills or complex technology, but is rather a fairly straightforward process that can be done parallel to other activities at hearths (Schmidt et al. 2013). These are clearly areas of ongoing dynamic research and debate, where we can expect further breakthroughs in the coming years. In other methodological developments, Will Archer presented results from the Max Planck Institute in Leipzig that focus on developing new numerical methods for capturing patterns of variation in bifacial points of the Still Bay (SB). Archer and colleagues used three-dimensional CT scans to document lithic variability and to test competing explanations for technological change.

Turning to broader issues in human evolution, Regine Stolarczyk used the methods derived from problem-solution-distance analysis (Haidle 2010, 2012) to examine the cognitive complexity involved in the manufacture of organic artifacts from the MSA of southern Africa. Finally, Andrew Kandel presented a model, developed by the ROCEEH team of the Heidelberg Academy of Sciences and Humanities, for the evolution of behavioral hyperplasticity among *Homo sapiens* to help explain the appearance of cultural innovations, such as new lithic technologies and abstract engravings on ochre and ostrich eggshell.

What have we learned from the workshop? First, it is becoming increasingly clear that the Synthetic Model for the cultural chronology of the MSA of southern Africa, proposed by many scholars including Jacobs, Henshilwood, and others (Jacobs et al. 2008; Henshilwood 2012), reflects an oversimplification of the archaeological reality (Fig. 2). This model came into focus in recent years, and it represented a major breakthrough at that time. Its main thrust was the proposition that the Still Bay and Howiesons Poort (HP), which had previously been defined solely on their characteristic stone artifacts, represented well-defined cultural entities and periods of exceptional innovation. Proponents explained these observations by increases in population sizes as well as exchange of information between groups over long distances. The Synthetic Model was significantly based on results from excavations at sites including Blombos, Diepkloof, Sibudu, Hollow Rock Shelter, Klein Kliphuis, and Apollo 11, as well as from Jacobs' optically stimulated luminescence (OSL) dates from MSA sites across southern Africa. Building on these observations, many researchers argued that the SB and HP represented well-dated and short episodes of cultural florescence that correspond to ca. 75–71 ka BP and 65–59 ka BP, respectively. This synthesis of what had previously been rather unstructured information met considerable support in the archaeological community, since it fits expectations and perhaps also the longing for order and clarity in what had previously been a complicated and uncertain cultural sequence. The Synthetic Model had implications for many ideas under discussion related to the nature and tempo of cultural change and innovation during the MSA. The model, if valid, would also have major implications for our understanding of the relationships between environmental change, cultural change and population dynamics, as well as topics including claims for a causal relationship between the Toba volcanic super-eruption, population bottlenecks, and the spread of modern humans out of Africa (Mellars 2006; Mellars et al. 2013).

In recent years, this model has come under criticism. First, problems in reproducing the dates at Diepkloof raised questions about previous chronometric results (Tribolo et al. 2009, 2013). The sequence at Diepkloof also demonstrated that the HP is less narrowly restricted in time than was previously thought, and instead that the HP represents a long, multi-phased period of cultural and technological development rather than a homogeneous episode (Porráz et al. 2008, 2013). Additionally, Porráz and colleagues published data indicating that the HP was not a uniform spatial and temporal phenomenon.

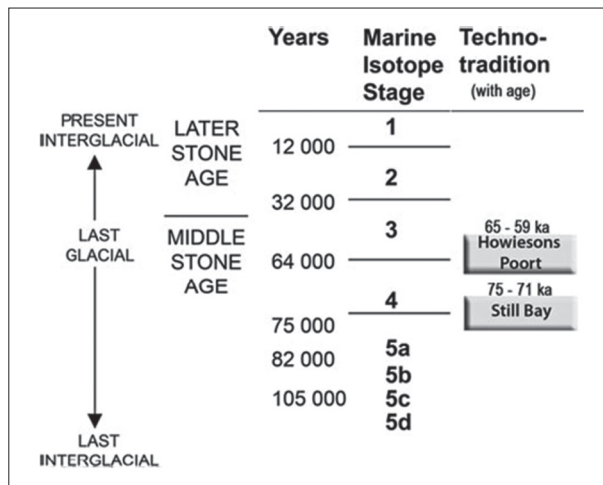


Fig. 2: Schematic representation of the cultural chronostratigraphy of the MSA in southern Africa after Henshilwood (2012). The authors point to the need to revise what we refer to as the Synthetic Model proposed by Henshilwood, Jacobs and colleagues (Jacobs et al. 2008). New data from Sibudu, Diepkloof and other sites indicate that the Still Bay and Howiesons Poort are not uniform cultural entities narrowly focused in time but rather dynamic, heterogeneous cultural phases. Additionally, as the cultural units before and after the SB and HP come into better focus, it has become increasingly clear that the material culture of these periods also shows greater spatial and temporal variability than had previously been assumed. Many of the participants of the Tübingen workshop are currently working to refine our view of the MSA in the light of new data on the cultural sequence from across southern Africa.

At the same time questions emerged about the SB. A critical look at Apollo 11 raised issues about the definition of the SB and to what extent any small assemblage with bifacial artifacts could be considered to belong to this cultural entity. The recent finding of small bifacial points made on quartz in an otherwise typical HP context characterized by an abundance of backed artifacts at Sibudu underlines this observation (de la Peña et al. 2013). Meanwhile excavations at Sibudu continued beneath the horizons Wadley had defined as “pre-Still Bay” and which Jacobs had dated to before the Still Bay (Wadley 2007). To the surprise of the team from Tübingen, the deepest stratigraphic units at Sibudu, called Adam, Annie, Bart, and Bea, all yielded abundant evidence for bifacial technology (Fig. 3) and assemblages that based on available arguments and our present knowledge, must be placed within the Still Bay complex rather than belonging to the “pre-Still Bay” (Conard 2013, 2014). Obviously, these observations are in no way a criticism of Wadley’s outstanding work at Sibudu, since her excavation stopped in the stratigraphic unit BS (Brown Sand) above these layers. Together with new technological and chronometric data from Diepkloof (Porráz et al. 2013; Tribolo et al. 2013) these

observations suggest a longer duration and a more complicated cultural trajectory of the SB than was previously acknowledged.

On a more general level, other colleagues, including Lombard, Conard, Porraz, and Will (Conard et al. 2012; Lombard et al. 2012; Will et al. 2014) have questioned the hypothesis that the SB and HP represented periods of exceptional cultural innovation and perhaps even the epicenter for the evolution of cultural modernity from both theoretical and empirical perspectives. These researchers demonstrated that modern humans after the HP continued to possess highly structured and sophisticated lithic technologies and maintained high population densities. These studies highlight the fact that a selective research focus on the HP and SB in recent years has led to a distorted picture of the periods that preceded and followed these technocomplexes. This bias is best exemplified by the usage of terms such as “pre-SB” or “post-HP”, the latter denoting a ca. 20,000 year-long period of cultural evolution following the HP.

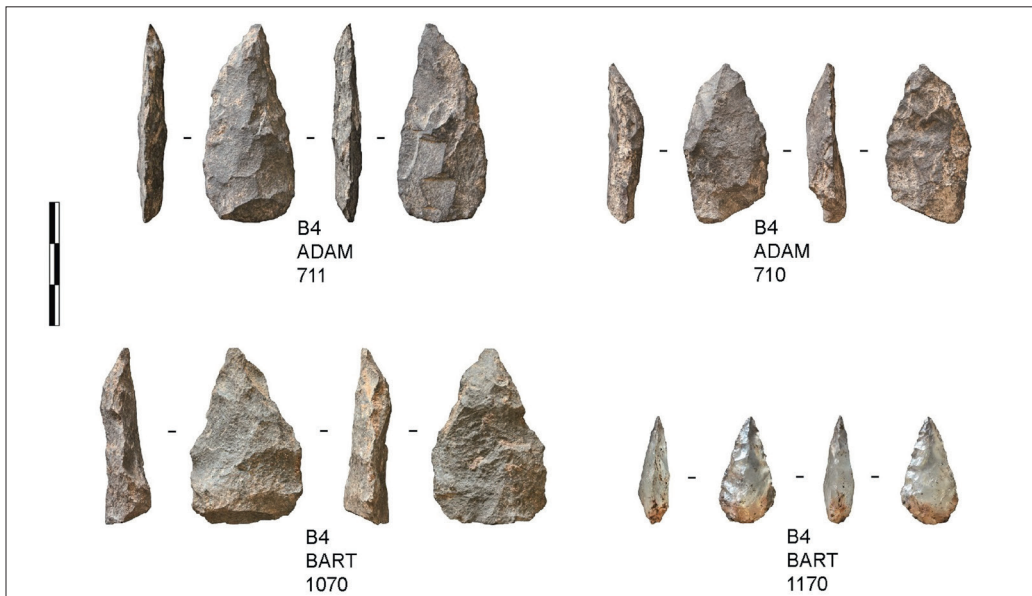


Fig. 3: Sibudu, KwaZulu-Natal, South Africa. Bifacial points from the so-called “pre-Still Bay”-layers at the base of the current excavation.

All of these observations raise serious questions about the validity of the Synthetic Model. While debate continues about the specific answers to the ambiguities raised above, new interpretations are gradually coming into focus. First we need to view technologies such as the manufacture and use of bifacial points and segments as dynamic functional adaptations that are mediated through learned behavior and cultural transmission, rather than as strict chrono-cultural markers or *fossils directeurs*. The new results from Sibudu and Diepkloof indicate that previous models for the SB and HP were too simplistic, suggesting a lack of more sophisticated approaches to interpret our data. At the moment, we are working to develop new ways of explaining the chrono-stratigraphic and cultural variability in the MSA. Work of international scholars including

those who presented papers at the workshop in Tübingen will help to correct errors in current views and will help to define a path that provides a more refined understanding of the cultural evolution during the MSA.

Finally, the presentations and discussions at the workshop have shown that the study of the MSA is an international, ever-growing and vibrant field of research. The fact that the Tübingen workshop yielded more questions than answers underlines the vitality of the field and illustrates the important challenges that the scientific community studying the MSA still faces. Having said that, the workshop showed that we have moved a long way forward in understanding the archaeological record of the MSA during the last two decades, both from theoretical and empirical points of view. More than just filling gaps, new results emerging from across Africa are elucidating the complex pathways of the cultural evolution and population dynamics of modern humans.

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