

**Report on the 2019-2020 archaeological excavations at Blombos Cave,
southern Cape, South Africa and update on current research with regards
to the Blombos site and materials.**

Report compiled for Heritage Western Cape by:

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PERSONNEL PRESENT AT EXCAVATIONS – 2019 and 2020

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BLOMBOS CAVE PROGRESS REPORT FOR THE PERIOD 2019-2020

Introduction

This report relates to the permit issued by Heritage Western Cape according to Reference numbers:

**1. HWC REF No. 2018/14 /APM
HM/EDEN/HESSEQUA/JONGENSFONTEIN/BLOMBOS CAVE PROJECT PERMIT NO.
CASE #:18101602AS1017E**

This report discusses excavation progress during the 2019 and 2020 excavation seasons related to the above permit. The permit is valid for 3 years and the intention was to excavate for 3 full (6 week) seasons over 3 years. We excavated at Blombos Cave for a full season in 2019, but the 2020 excavation season had only just started when the Covid 19 outbreak halted activities after 3 days. The current permit is valid until December 2021, but we were unable to excavate during 2021 due to the pandemic- related lockdowns and travel restrictions.

We request a renewal of this permit since we were not able to excavate for 2 of the 3 years of its validity.

Site background

Blombos Cave (BBC) ($34^{\circ} 25'S$, $21^{\circ}13'E$, Figure 1) is situated in a steep cliff, 100 m from the Indian Ocean and 34.5m above modern sea level. The sediments of the cave were well protected as the cave elevation sheltered it from erosion by the high sea level stands during Marine Isotope Stage 5e and MIS 1. The cave is situated in the calcified sediments of the Tertiary Wankoe Formation, which contributes to the good preservation of faunal and human remains recovered from the site (Henshilwood et al., 2001a; Henshilwood and Van Niekerk, 2014).

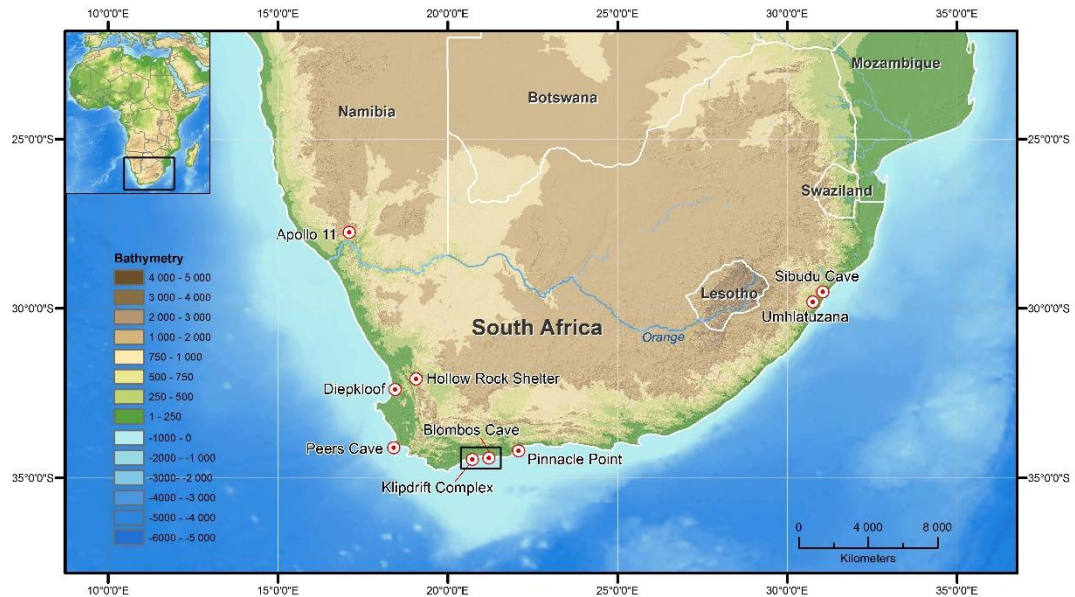


Figure 1. Map showing the location of Blombos Cave

Systematic excavation and analyses of the Middle Stone Age (MSA) and Later Stone Age (LSA) layers at Blombos Cave commenced in 1992 and is ongoing (Henshilwood et al., 2001a; Henshilwood, 2008). The MSA layers are divided into three phases, M1, M2 upper and lower and M3, each comprising a number of discrete layers or units (Figures 2 & 3). These phases have been dated using thermoluminescence (TL), optically stimulated luminescence (OSL) and electron spin resonance (ESR).



Figure 2. Interior of Blombos Cave (Image by M. Haaland)

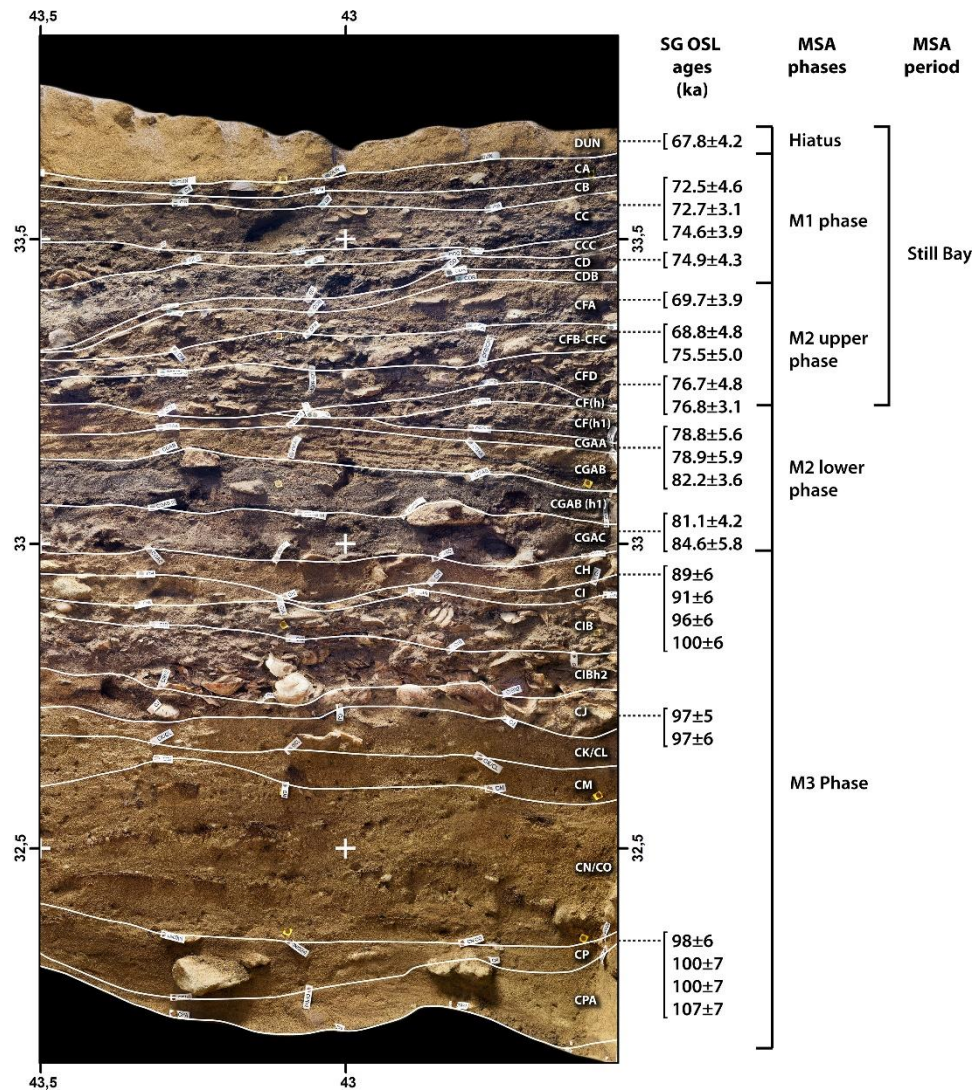


Figure 3. Blombos Cave stratigraphy (Image by M. Haaland)

The earliest LSA occupation layers date to 2000 years ago. The LSA is separated from the MSA by a thick layer of sterile dune sand. The four upper-most MSA layers have been assigned to the M1 phase. This phase consists of medium brown sands surrounding lenses of shell, stone and bone, and numerous small basin-shaped hearths. The upper M2 also consists of medium brown sands containing shell, stone and bone. The M1 and upper M2 layers contain artefacts attributed to the Still Bay techno-tradition and date to ca. 75-73 ka (Jacobs et al., 2020). This phase of the MSA is characterised by the presence of lithic bifacial points, the *fossile directeur* of the Still Bay (Figure 4). Over 400 bifacial points have been recovered from these layers at BBC (Mourre et al., 2010; Villa et al., 2009).

In addition to the bifacial points, the Still Bay phase at BBC contains numerous shell beads (*Nassarius kraussianus*) (d'Errico et al., 2005; d'Errico et al., 2015; Henshilwood et al., 2004; Vanhaeren et al., 2013), bone tools (d'Errico and Henshilwood, 2007; Henshilwood et al., 2001b), evidence for heat treatment of silcrete prior to knapping (Mourre et al., 2010), engraved ochre (Henshilwood et al., 2009; Henshilwood et al., 2002) and the oldest known evidence for drawing (Henshilwood et al., 2018) (Figure 4).

The lower M2 phase dates to ca. 85 ka. It is a low-density occupation and contains small quantities of flakes, blades and cores, bone, shell, and some ochre and hearths. Shell beads, bifacial points, engraved ochre and bone tools are absent from this phase.

The M3 phase layers date to ca. 100 – 94 ka (Henshilwood et al., 2011). In these layers lithics and shellfish are abundant. The dominant lithic raw material is silcrete. Bone tools are absent. Modified ochre is common, and several pieces appear deliberately engraved. Two ochre processing toolkits were recovered from the 100 ka layer. These consist of abalone (*Haliotis midae*) shells that contained a liquefied pigment-rich mixture, and associated ochre, charcoal, bone, hammer- and grindstones (Figure 4A).

Previous studies of the faunal collection from BBC shows that MSA people practiced subsistence strategies that included a very broad range of animals, and that these practices changed over time, perhaps partly in response to changes in environmental conditions. There is ample evidence of anthropic involvement in the accumulation of all the fauna (cut marks, percussion marks, notches, burnt bones) (Reynard and Henshilwood, 2017; Reynard and Henshilwood, 2018; Reynard and Henshilwood, 2019; Thompson and Henshilwood, 2011). In addition to mammalian bones, tortoise remains are abundant at BBC (Thompson and Henshilwood, 2014).

The large mammal remains from BBC show that a wide range of mammal taxa are present and the older layers are dominated by small game animals, including rock hyrax, Cape dune mole, steenbok/grysbok and Cape fur seal (Badenhorst et al., 2016). An increase in larger mammals such as Bovidae, Equidae and Suidae over time, compared to small ground game, suggests changes in hunting and prey acquisition strategies. Most of the animals were collected by humans, with minimal evidence for raptor or carnivore activities. The fauna suggests an open and rocky environment (Badenhorst et al., 2014).

Micromammal remains occur in most of the excavated units and quadrates, and these have been used to reconstruct the environment in the immediate vicinity of the cave throughout the entire sequence (Nel and Henshilwood, 2016; Nel and Henshilwood, 2021).

The shellfish from BBC provide early evidence for the extensive use of seafoods from 100 000 years ago. Shellfish were recovered from most layers, but were most abundant in the M3 layers, and least abundant in the M2 lower layers. This follows the pattern of shellfish abundance already observed from previous shellfish analyses (Langejans et al., 2012; Langejans et al., 2013).

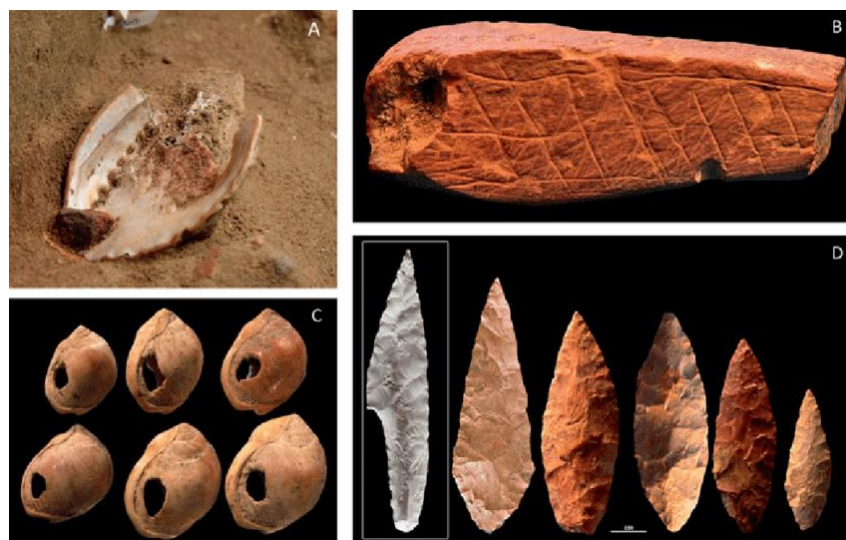


Figure 4. Artefacts from Blombos Cave. A: Part of the ochre processing toolkit from M3 phase, B: engraved ochre from the Still Bay layers, C: *Nassarius kraussianus* beads from the Still Bay, D. Bifacial points from the Still Bay. (Image from Wadley, 2015)

Excavation Method

Excavation methods follow those described in previous reports submitted to Heritage Western Cape and follows the Standard Best Practice for Middle Stone Age and Middle Palaeolithic excavations. The excavations were carried out by a multi-disciplinary team led by Christopher Henshilwood and Karen van Niekerk.

The surface of Blombos Cave is divided into square metres (D-I), and further subdivided into 0.5m quadrates (a-d). Different units are identified, based on texture, composition, colour, thickness and features.

Excavations proceeded with brush or small trowel following individual strata or layers. The term “layer” describes a single stratum that accumulated through natural and/or human deposition. Counts of buckets of deposit provide a measure of volume excavated. All artefacts larger than 1.5cm are systematically 3D plotted on a Trimble Total station and pieces are individually bagged, labelled and numbered according to square, unit, artefact category, plot number as well as entered on the digital site record form. Recovered deposits are sieved through 3.0 mm and 1.5 mm meshes. The plotted items include stone artefacts, bone, modified shellfish, ochre and features. Material smaller than 15 mm is wet sieved, through 3mm and 1.5 mm screens, and air-dried. Coarse fraction (>3mm) material is sorted on-site as well as at the Wits Satellite laboratory situated at 167 Buitenkant Street, Gardens, Cape Town.

A photographic record is kept of all surfaces before excavation and the context of any special finds. Soil, dating and other samples are systematically collected during excavation. Figure 3 indicates the stratigraphy of the site, the different phases and dates of the various layers.

A full set of records, field notes, and data sheets of the plotted material is currently housed at the WITS satellite laboratory at 167 Buitenkant Street, Gardens, Cape Town, but will ultimately be archived at the IZIKO South African Museum. Raw data sets are being processed within the scope of individual research projects that form part of the larger Blombos Cave project, and some results are available in the listed published material. Below is a summary report on excavation dates, squares and stratigraphic levels excavated during the 2019-2020 seasons.

Units and Quadrates excavated 2019 and 2020 seasons

Table 1 lists the units and quadrates excavated during the two seasons respectively.

Table 1. Units and Quadrates excavated during 2019 and 2020 seasons

Quadrate	2019 Units	2020 Units
G7a	CFD, CGAA, CGAB, CGABh1, CGAC, CH7CI, CIB	CC
G7c	CA, CB, CC, CCC, CD, CDB, CFA, CFB/CFC, CFD, CGAA, CGAB, CGABh1, CGAC	
G7d	CA, CB, CC, CCC, CD, CDB, CFA, CFB/CFC, CFD, CGAA, CGAB, CGABh1, CGAC	
H7b	CGAA, CGAB, CGABh1, CGAC, CH/CI, CIA, CIB, CIBh2, CJ	
H7c	CA, CB, CC, CCC, CDB, CFA-CGAA, CFA/CFB/CFC	CFD, CGAA, CGAB, CGABh1, CGAC
H7d	CA, CB, CC, CCC, CDB	CFD, CGAA, CGAB, CGABh1, CGAC

Plotted artefacts

The numbers of the plotted lithics, bone, ostrich eggshell and ochre are listed below in Table 2. In total 979 individual artefacts were plotted using the Total Station. The ‘Lithics’ category includes stone artefacts as well as ochre. The ‘Other’ category includes ostrich eggshell (OES), modified shell and charcoal. ‘Bone’ includes bone fragments with identifiable to genus/species landmarks and/or culturally modified pieces, with evidence of, for example, cutmarks or other modifications.

Table 2. Number of artefacts plotted during 2019 and 2020 seasons.

Artefact class	Number plotted 2019	Number plotted 2020
Lithics	674	20
Ochre	44	0
Bone	166	26
Other	31	9
of which are OES	12	7

Lithics and ochre

Planned analysis of lithics and ochre excavated during 2019 and 2020 by Pollarollo and Velliky, respectively, had to be postponed due to restrictions related to the Covid 19 outbreak.

Analysis will resume once mobility and safety is resumed. Several papers have been published on the lithics and ochre from Blombos Cave to date (Archer et al., 2015; Douze et al., 2015; Henshilwood et al., 2018; Henshilwood et al., 2001a; Henshilwood et al., 2009; Henshilwood et al., 2002; Lombard, 2007; Mourre et al., 2010; Moyo et al., 2016; Soriano et al., 2015; Villa et al., 2009; Watts, 2002, 2009).

Lithic types and raw material

The raw materials are dominated by silcrete, quartz and quartzite (Table 5). Low numbers of lithics in other materials (chalcedony and hornfels) were found. The vast majority of plotted lithics are flakes and blades, with some cores. Several bifacial points at various stages of production were recovered from the Still Bay layers in 2019.

Table 5. Lithic raw material and type (excluding ochre)

Raw material	2019	2020
Silcrete	364	5
Quartz	173	8
Quartzite	130	5
Other	7	1
Lithic type		
Flake	520	11
Blade	45	1
Core	9	2
Bifacial point, tip, roughout	18	
Other	82	6

Fauna

The mammalian fauna from these two excavation seasons have not yet been studied.

We aim to increase the number of identified specimens by applying novel methods such as ZooMS (Zooarchaeology by mass spectrometry) to unidentifiable fragments from both macro and micromammal bones.

Shellfish was abundant in the M3 phase layers. Two more *N. kraussianus* beads were recovered in 2019.

Ostrich eggshell

Ostrich eggshell fragments were fairly numerous displaying a variety of colours from pale beige/cream to orange, brown and black, evidence that some pieces were burnt. Ostrich eggshell retrieved is indicated in Table 6.

Stable isotope analysis on ostrich eggshell from BBC were previously used as palaeoenvironmental proxy records (Roberts et al., 2016).

Table 6. Ostrich Eggshell

Quadrat	2019 Units	2020 Units
H7b	CIBh2, CJ	
G7a	CH/CI, CIB	
G7c	CB	
H7c	CC	CFD
G7d	CC	
H7d		CFD

Geomorphological sampling and dating

Geomorphological analysis was undertaken at Tübingen University by Magnus Haaland (Haaland et al., 2017; Haaland et al., 2021a; Haaland et al., 2021b).

OSL dating was undertaken by Simon Armitage at Royal Holloway University.

Geomorphological and dating samples collected in 2019 for analysis are indicated in Table 7. None were collected in 2020.

Table 7. Geoarchaeological and dating samples

Quadrat	Unit	Sample Type	SampleID	Sample Location	Alt. ID
H7b	CGAC	Block Sample	1	Profile	BBC-19-01
H7b	CGAC	Block Sample	2	Surface	BBB-19-02
H7c	DUN	Block Sample	3	Profile	BBC-19-03
H7c	CB	Block Sample	1	Surface	BBC-19-04
G7c	CB	Block Sample	1	Surface	BBC-19-05
H7c	CFA	Block Sample	1	Profile	BBC-19-06
G7c	CC-CDB	Block Sample	1	Profile	BBC-19-07
West	Section	Block Sample	1	Profile	BBC-19-08
West	Section	Block Sample	2	Profile	BBC-19-09
H7b	CIBh2	OSL	1	Profile	BBC 3622, 64

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