

Revisiting the lithics of Cuckadoo 1, a Pleistocene rockshelter on the edge of the arid zone

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Abstract. Cuckadoo 1 in the Selwyn Ranges is a granite rockshelter on the edge of Queensland's arid zone, excavated between 1987 and 1989 during a project led by Emeritus Professor Iain Davidson. Dating to 15,270±210 BP in the lowermost deposits, the site was important in providing the earliest evidence for human occupation of the Lake Eyre Basin at the time. We have recently revisited the stone artefact assemblage from the site, conducting the first comprehensive analysis thereof. Dominated by chert and quartz, the assemblage displays surprisingly little technological change over approximately 14,000 years of site use. This poster discusses what re-assessment of the site three decades after excavation can begin to tell us about human activity at the Cuckadoo 1 rockshelter through the late Pleistocene-Holocene period.

The 1980s excavation

Excavated in the late 1980s, the Cuckadoo 1 rockshelter lies in the Selwyn Ranges of northwestern Qld.

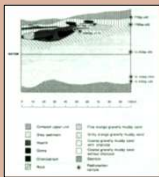
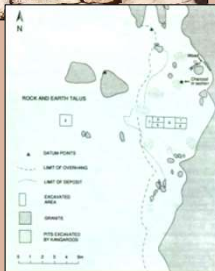
Radiocarbon dates of 15,270±210 BP (uncal.) made this the oldest direct evidence for occupation of the Lake Eyre Basin at the time, a significant find for understanding early human presence in the arid core of Australia. The site was excavated in seven trenches to a maximum depth of approximately 60 cm¹. Stone artefacts were recovered throughout the deposit, and their analysis was reported in 1996 as being in preparation:

Full analyses of the stone artefacts and other materials will be published elsewhere.

Such analysis had not occurred until the present study. Analysis is still ongoing, and this poster reports on initial observations from revisiting this assemblage.



Images showing: (main) the Cuckadoo 1 rockshelter; (upper right) digitally enhanced motifs in the rockshelter², identified by Wayne Beck; (right) a site plan of the Cuckadoo 1 rockshelter excavations; and (below) a stratigraphic section of Trench 6¹.



Acknowledgements

Cuckadoo 1 (also known as the 'Gidgee and Ghostgum Cave') was excavated in 1987 and 1989 by Emeritus Prof Iain Davidson, who at the time was based at the University of New England (UNE). The excavation was part of a larger project supported through the Archaeology Branch of the Department of Community Services and Ethnic Affairs, Qld.

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Conference attendance by Perston was supported by Griffith Centre for Social and Cultural Research (GSCSR) ECR funding. Sorting of artefacts <4 mm was undertaken by PhD candidate Ms Jangra, and those artefacts larger than >4 mm by Dr Perston. The original lithic analysis was commenced by Dr Steve Sutton, at that time a doctoral candidate at UNE, but remained uncompleted until the current project.

References

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1. Stone artefacts of Cuckadoo 1

Initially, Cuckadoo 1 was reported as having stone artefacts that included backed microliths, and raw materials include quartz and chert. Artefact weights from Pit 1 were published, but a full analysis was not conducted.

It was also noted that there were more artefacts on the talus slope in front of the shelter than were present within the dripline².



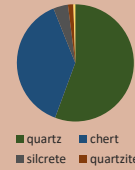
Original stone artefact frequencies for Trench 1¹.

A re-assessment of the artefacts

To date, artefacts larger than 4 mm from Trenches 1 (the deepest in the shelter) and 7 (the largest assemblage) have been completely analysed, while those from Trenches 6 (the largest trench), 3, and 4 are ongoing.

Preliminary results from 1662 analysed artefacts show that the assemblage is largely made up of small pieces (mean = 1.5 g), dominated by unmodified flakes (41%) and shatter (56%). Very few artefacts are modified. Of 13 backed microliths, six are made on quartz, the dominant raw material at the site. Ten of the 16 cores are made of quartz, and three of these doubled as hammerstones.

Conclusion: The assemblage is dominated by small flakes and shatter, with very few modified pieces. Quartz dominates as a raw material. Artefact numbers are highest beyond the dripline (trench 7) matching surface observations - perhaps this is where activities were focussed, or material has eroded out of the shelter²?



■ quartz ■ chert ■ silcrete ■ quartzite ■ other

Analysed artefacts		
Trench	Number of pieces >4 mm analysed	Number of pieces <4 mm analysed
1	317	425
2	NA	NA
3	Ongoing	9
4	Ongoing	8
5	Ongoing	35
6	324 and ongoing	151
7	1022	87



Quartz artefacts: (left) backed microlith; (right) core with hammerstone battering.

2. Heat treatment pits

The original paper reported on a heat treatment pit found in Trench 6 (Hearth 5), dating to 4270±70 BP. The pit contained red ochre, heat retention stones, and chert artefacts including backed blades¹.

What is heat-treatment?

Heating certain silicious stones can permanently change the fracture toughness, making them easier to flake but also more brittle. Successful heat treatment incidentally increases the internal lustre of the stone. If the stone heats or cools too fast it causes catastrophic failure, including potlid fractures and internal crazing/crenulations. Such destruction can be avoided through various control measures, such as burying the raw material with a layer of sand between the stone and the overlying fire.

A re-assessment of heat treatment

At this stage there is no evidence to support arguments about deliberate heat-treatment of the artefact assemblage having occurred. While 19% of the >4 mm pieces analysed have signs of burning, all show signs of uncontrolled burning causing structural destruction (indicated by the presence of heat crenulations and/or potlids). This reduced the functionality of the stone rather than improving the flaking quality, indicating the burning was most likely incidentally by heating of discarded artefacts with fire pits or bush fires on top of them, rather than through deliberate human intent.

Further, it seems highly unlikely that the backed artefacts were subjected to heat treatment processes, as these were already flaked and thus did not require treatment to improve the flaking properties.

Successfully heat-treated artefacts can be identified by having heat-gloss exposed on scars that were struck post-treatment, given that the purpose of treatment is to improve ease of flaking. It may be that all successfully heat-treated artefacts were removed from the site or are amongst those that have not yet been analysed.

Conclusion: A lack of heat-treated artefacts may suggest that an assemblage analysis alone is insufficient for identifying the practice, or that the presence of a heat treatment pit need to be reconsidered.



Above: Backed microliths with destructive heat potlids that have clearly occurred after backing.

3. Age of the site

The initial publication reported four late Pleistocene dates (shown in bold in the table below). At the time this was highly significant, as these represented the earliest known occupational dates for the entire Lake Eyre Basin.

Recalibrated dates for Cuckadoo 1

Trench	Depth (mm)	Published calibrated date ¹ (cal. BP)	Recalibrated date ² (cal. BP)
6	270–238 above datum	68	764–557
1	147 below top	1067	1178–930
1	188 below top	1590	1700–1409
6	170–159 above datum	1711	1807–1535
3	50–75 below top	3349	3440–3005
6	~130 above datum	4858	4964–4530
3	175–200 below top	4858	5475–4095
3	100–125 below top	4950	5284–4625
1	294 below top	6284	6446–5905
6	134–110 above datum	6877	7156–6496
6	58–82 below datum	14,500	14,809–13,813
6	315–349 below datum	14,700	14,957–14,114
6	286–315 below datum	14,400	15,785–13,091
1	528 below top	17,900	18,925–18,182

A reassessment of the age

The original published dates have now been recalibrated using the latest calibration curves (SHCal20⁴), as shown in the adjacent right column, returning even older dates than those originally proposed. Davidson and Sutton also raised the possibility of horizontal stratigraphy at Cuckadoo 1². Organic samples were preserved throughout the deposits, raising the opportunity to obtain more dates from previously undated trenches to better clarify the stratigraphy.

Conclusion: Re-assessment of the dates is ongoing, but indicates that the site may be older than originally thought. With occupation through the height of the LGM, this site is relevant to debates about population contractions/expansions and shifting land-use strategies.