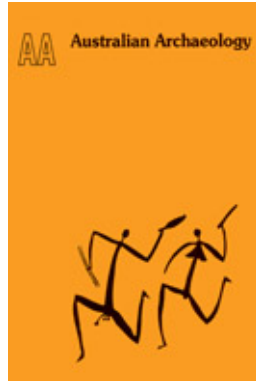


Australian Archaeology



Archived at Flinders University: dspace.flinders.edu.au

Full Citation Details:

Maynard, L. 1980. A Pleistocene date from an occupation deposit in the Pilbara Region, Western Australia. 'Australian Archaeology', no.10, 3-8.

A PLEISTOCENE DATE FROM AN OCCUPATION DEPOSIT IN
THE PILBARA REGION, WESTERN AUSTRALIA

Lesley Maynard

HISTORY

In 1975 Mount Newman Mining Company arranged for an archaeological survey of an outcrop of the Marra Mamba orebody about 3km southeast of their main mine workings on Mount Whaleback near Newman in the Pilbara region of Western Australia (Fig.1). This geological unit is called Orebody XXIX. The bulk of the ore (soft yellow limonite) is subsurface, but there is a horseshoe-shaped outcrop of hard cap about 2km in diameter, which overlooks a flat plain wherein lies the headwaters of the Fortescue River. Kingsley Palmer (then a Research Officer of the Western Australian Museum) surveyed this area and found several rockshelters with traces of occupation, principally along the southern margin of the Marra Mamba outcrop.

At that time the mining company was expected to proceed with development of Orebody XXIX and the Museum therefore decided that the archaeological significance of these sites should be further tested. This work was carried out by Bruce Wright, Registrar of Aboriginal Sites, Western Australian Museum, and myself (then Archaeologist in the Museum Sites Department) in March 1976. After visiting most of the sites located by Palmer we selected one for a test excavation.

THE SITE

This site is numbered P 0187 in the Western Australian Museum system. It consists of a slight overhang situated at the junction of outcropping cliffs of Marra Mamba hard cap and the talus slope. The Marra Mamba formation is lithologically variable but highly metamorphosed throughout. This part of the outcrop contains a high proportion of fine-grained siliceous rock - probably chert and jaspilite (de la Hunty 1965:11). The accumulation of sediment in this particular shelter appears to be related to a fissure in its back wall which is connected by a series of passages and chambers to the plateau above the site. The floor of this cave system is covered with rubble which is spilling across the floor of the shelter down a scree-fan radiating from the fissure. Material coming from this source is 'dammed' by an enormous boulder situated in front of and below the present floor of the shelter. There is a relatively flat floor, about 5m x 4m, adjacent to the scree-fan; the rest of the floor of the overhang slopes downwards along the cliff-line for about 10m. One upper grinding stone, one lower grinding stone (both of dolerite) and several flakes and flaked pieces were collected

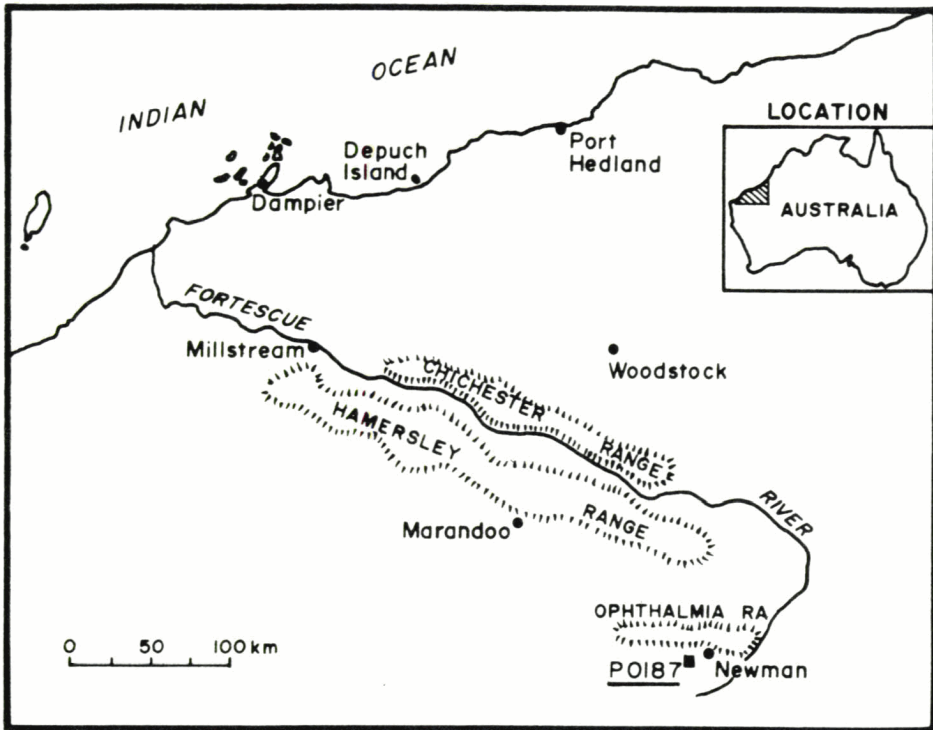


FIGURE 1. Location of Site (P0187)

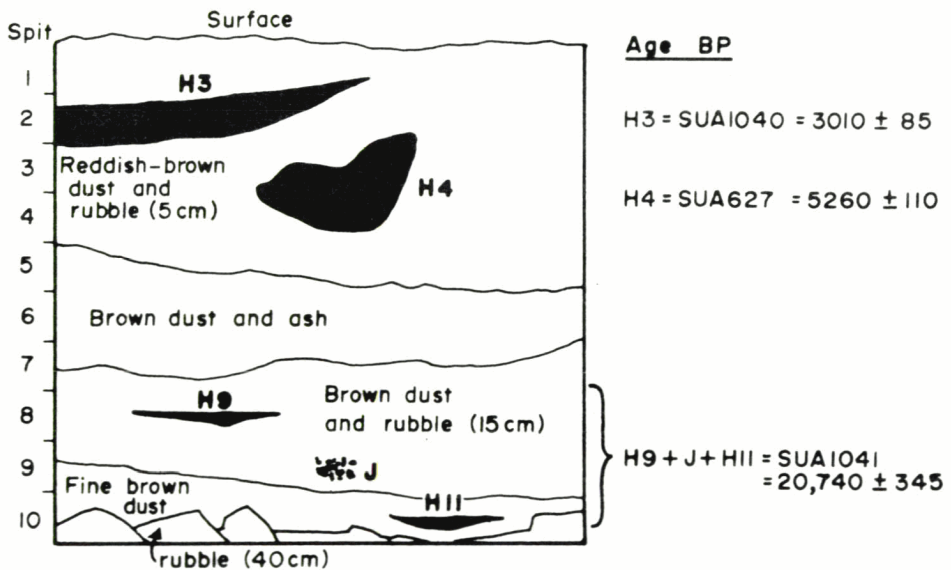


FIGURE 2. Schematic diagram (combined from sections) of stratigraphy and dates. Spits = 10cm. Numbers in brackets indicate average size of rubble.

from the surface of the site.

THE EXCAVATION

A 1m square was marked out near the scree-fan and excavation proceeded by 10cm spits. The methods adopted were appropriate for a test pit. At the 1m level a layer of larger rocks (up to 40cm) gave the initial impression that bedrock was being approached. However, a steel rod driven into a gap in this rubble 'floor' penetrated without bottoming 110cm into a soft matrix below. For practical reasons the excavation was halted at this point and the pit was lined with plastic and backfilled. A 1976 coin was dropped down the sounding hole for future reference.

THE DEPOSIT AND ITS CONTENTS

Most of the deposit consists of fine reddish-brown dust and rubble derived from the rock which forms the shelter. The deposit is stratified, dry and very friable. It was difficult to maintain sections. There were no layers sufficiently distinctive to suggest basic changes in the process of deposition; nor was there evidence for a marked break in the depositional sequence. Layers were distinguished by differing ratios of dust, rubble (in different size ranges), ash and charcoal. The last was plentiful throughout the excavated deposit as well as in 11 hearths. One of these was about 20cm deep and 30cm wide and had a cross-section which suggested a fire pit of the kind used by contemporary Aborigines for baking animals. The rest of the hearths had typical shallow cross-sections and were up to 50cm in width.

Because the rubble contained a high proportion of fine-grained siliceous rocks which fracture conchoidally, sorting the spoil to extract artefacts was not easy. Being pressed for time (this test pit was supposed to occupy one day of an extended field trip, but actually stretched itself to seven days), I retained only those pieces of chert and quartz that showed positive or negative bulbs of percussion. Later at the Museum I re-sorted the material and consulted with colleagues to confirm (as far as this is ever possible) that I had not selected pieces that had been flaked by natural forces. The 400 artefacts which I found should be regarded as the minimum yield of cultural material from the excavated cubic metre. I recognised only two diagnostic implements, both steep-notched scrapers from the same spit. Table 1 has no 'waste' or 'residue' category, which would be irrelevant in the circumstances.

One macropod tooth from the top spit was the only organic item found. Pieces of red ochre were found at various levels, but the site's location within an iron orebody casts doubt on a cultural origin for them. These finds, plus bulk samples are now in the archaeological collection of the Western Australian Museum, Accession Nos C 003-64.

TABLE 1: EXCAVATED ITEMS FROM PO 187, OREBODY XXIX, NEWMAN, WESTERN AUSTRALIA
TEST PIT, MARCH 1976

Spit no.	Raw material		Artefacts		total	Hearths, samples and dates
	quartz 'chert'	flakes	flaked pieces	retouched pieces		
Surface	1	3	4	-	4	
1	4	16	18	1	20	H1, H2
2	9	20	24	-	29	H3 = SUA 1040 = 3010±85
3	31	52	71	9	83	}
4	16	24	33	5	40	
5	8	23	20	10	31	H5, H6
6	8	29	26	7	37	H7
7	16	65	61	13	81	H8
8	3	32	28	4	35	}
9	2	13	12	1	15	
10	1	24	24	-	25	
Totals	99	301	321	55	400	

* includes two steep-notched scrapers - the only diagnostic implements found in this excavation

DATING

Samples were collected from each hearth, but not from the loose charcoal that was liberally distributed through the deposit. Most of the sample from the lowest hearth was lost when a chunk of the section collapsed onto it during the collection process.

From my own experience and verbal reports of other Pilbara fieldworkers it appears that most rockshelters in this region have very shallow floor deposits that are much disturbed by dust-bathing kangaroos. Palmer excavated a test pit near Marandoo in an unstratified deposit, 12cm deep, of which the basic matrix was deconstituted macropod faeces. He found some small stone flakes and (unlike the site under consideration) bones. As the depth of deposit in P 0187 appeared to be the result of the particular structure of this shelter I believed that build-up could well have been comparatively rapid, thus accounting for the presence of 11 well-defined hearths in a region where every other shelter floor appears to have been thoroughly scuffled by animals. I submitted two samples - the uncontaminated material from the lowest hearth and a sample from the 'fire pit' to the Radiocarbon Laboratory at Sydney University and reported to the Museum that I anticipated dates of less than 500 years.

The lower sample proved insufficient for dating but the one from the 'fire pit' (whose upper margin was only 18cm below the surface) produced a date of 5260 ± 110 BP (SUA 627). I therefore sent off two more samples, one from above the 'fire pit' (from a hearth whose upper margin was 13cm below the surface) and one consisting of material from the three lowest spits, comprising three hearth samples plus one discrete patch of charcoal (J) that I had collected separately. The laboratory was instructed to combine these individual units of charcoal, in a prescribed order starting from the bottom, until they made up a sample sufficient for dating.

The result was a date of $20,740 \pm 345$ BP (SUA 1041) from three samples from the three lowest spits and a date of 3010 ± 85 BP (SUA 1040) from the second highest. Figure 2 presents these results in schematic form (i.e. combined from separate section drawings). The sequence is pleasantly tidy. As the 20,000 year old date is made up from small samples from three spits it seems likely that the true date of the lowest hearths may be even older.

DISCUSSION

This site is about 360km from the present coastline, and more than 500km from the 200m isobath which approximates the coastline at glacial maxima (Jennings 1971:4). It is located well within the arid zone (cf. Bowdler 1977) in a 'mountain and piedmont desert' (Mabbutt 1971:75). I do not know where the nearest source of water is. The site is located 7km from the dry bed of the Fortescue River, which, although it drains an enormous area, flows only after heavy rain and has few pools on its upper section.

It seems premature to speculate on the economic adaptation of the site's prehistoric inhabitants, but I am satisfied that my test pit has shown that it is a valuable archaeological resource. I do not know of any other proven deep occupation deposit in the Pilbara region. Even considering my rough sorting methods, the low artefact

density and lack of diagnostic implements suggest that much digging would be required to establish a cultural sequence for this site. I think its main potential is for dating and sediment studies.

The Western Australian Museum is currently (December 1979) planning further archaeological research at this site.

ACKNOWLEDGEMENTS

Bruce Wright helped to dig the hole and Marjorie Sullivan and Grahame Harrison suggested geological and stylistic amendments to the first draft of this article.

Department of Prehistory and
Anthropology, ANU

BIBLIOGRAPHY

- Bowdler, S. 1977 The coastal colonisation of Australia. In J. Allen, J. Golson and R. Jones (eds) Sunda and Sahul. London: Academic Press
- de la Hunty, L.E. 1965 Mount Bruce, Western Australia: Explanatory Notes, 1:250,000 Geological Series. Bureau of Mineral Resources
- Jennings, J.N. 1971 Sea level changes and land links. In D.J. Mulvaney and J. Golson (eds) Aboriginal Man and Environment in Australia. Canberra: Australian National University Press
- Mabbutt, J.A. 1971 The Australian arid zone as a prehistoric environment. In D.J. Mulvaney and J. Golson (eds) Aboriginal Man and Environment in Australia. Canberra: Australian National University Press