written in stone

Hafted axe
unknown location
Stone, resin, wood,
39.5 (h/l) x 17.0 (w) x 7.0 (d) cm
Transferred from University
of Sydney Department of
Anthropology 1960-1964
(ETH1795)

foreword

The objects in *Written in stone* embody the work of many thousands of unidentified people and represent the wide range of knowledges among Aboriginal cultural and linguistic groups in Australia. Through countless hours of craftsmanship, ingenuity and practical necessity, the makers of these stone tools transformed a common element of the Australian landscape into objects with symbolic, philosophical and spiritual purposes. For all the diverse Aboriginal cultures, stone plays an essential role. It is the surface for the inscription of cultural expression; its permanency ensures that it can be read by future generations; and its materiality documents how its use in everyday life aided the survival of thousands of generations of Aboriginal people.

Stone objects were part of an Aboriginal tool kit employed across the Australian mainland and Tasmania from north to south and from west to east, over a period of at least 60 000 years. Just like historical documents in an archive, these tools give information about the history of people negotiating landscape and determining strategies of land use. Their diversity, distribution and ultimately their presentation as records of the continuing presence of Aboriginal history and knowledge in Australia are part of an ongoing process of understanding and learning.

David Ellis
Director
Sydney University Museums

introduction

***Written in stone* reflects on and reconfigures previous histories of objects as they were known through museum, archaeological or anthropological classifications. This exhibition highlights the unique and specific qualities of stone, and how stone embodies information of both the past and the present. The stone tools have been grouped here not according to shape, method or material, but according to their geographical distribution, to highlight the dominant types of stone used by different language groups. Tools are presented here as elements of a tool-kit no different to the axes, knives, grinders or chisels that are used in building sites, camping grounds or kitchens today.**

Today, there are hundreds of social groupings and at least 200 specific language groups that are known across the continent; the innumerable peoples who existed here are known through the tools and other works they left behind. Stone tools are the most persistent artefacts found at occupation sites. The tools exhibited in W*ritten in stone* are a brief glimpse at the remarkable diversity and proficiency of just seven Australian stone tool production sites, arching from the north west, through central Australia, along to the south east coast and across to Tasmania. Over millennia, Aboriginal peoples modified their stone tools, along with other implements so as to adapt to the changing environments of their lands. Where people and families lived was often related to strategic land use patterns. This required maintaining access to specific resources and negotiating seasonal weather variations. The invention and subsequent distribution of the *tula* (a small cutting tool) is an example of a type of tool that was developed in response to the changing climate conditions of central Australia. Longer periods of no rain owing to the intensification of the El Nino weather patterns created a need for this specific multipurpose tool. Tula met the needs of a drier environment, whereas previous generations had existed without needing them.[1]

The craftsmanship involved in tool production was a specialised knowledge, maintained through a close connection to country and an adherence to long preserved cultural knowledges and protocols. The sophisticated working of numerous types of stone, and the diversity of its application into art, tools, food gathering and food preparation utensils, as well as weapons have considerable information to teach contemporary audiences. Stone tools embody information of the everyday lifestyles of people from the deep past right up to the present. Their production techniques embody the practice of teaching and education through oral history and demonstrate the resilience of oral traditions and the ingenuity of Aboriginal people in Australia.

The journeys of people across and beyond their lands for trade, alliance building and ceremony, can be seen in the movement of stone beyond its geological origins. Stone tools reveal geographic

patterns of land use and show intricate knowledges of the sources and uses of stone being preserved over many generations. They hint at the resourcefulness of acquiring different stone types which were then adapted and refined over long time periods to meet particular needs. Artefact scatters on the surface of the ground and deep in shell middens have been cited as proof of intergenerational tenure in Native Title determinations. They have helped reconstruct knowledge of ancient trade routes and show evidence of the communication of complex technological knowledge across vast distances of the continent. Looking through the evidence of past Aboriginal occupation we can see previous environmental landscapes that await further exploration through investigation of both surface phenomena and the many strata underneath the surface of the land.

Stone tools were used for tasks such as grinding, cutting, piercing and pounding, while some 'tools' had a more philosophical and spiritual role for communities. A more nuanced understanding of the full spectrum of stone use is apparent in the malleable forms that are used as a pigment. Ochre is one of the softest minerals in the range of geological source material that comprises the Aboriginal tool kit. The use of various hues of ochre (mineral oxides such as hematite) in shades of red, purple, yellow, white and umber, and its application onto the surface of rock shelters, wooden artefacts and as ceremonial designs onto bodies, is essential to the expression of Aboriginal cultural identity. The types and application of ochre used by Aboriginal people is diverse and versatile; it allowed for a variety of symbolic languages and the invention of terminologies that mediated encounters between different language groups. The use of stone as a communication tool stretches into the present through the continuous symbolic use of ochre. It required not just artistic talent, but knowledge of sourcing and the ability to trade, mix and apply the pigments onto a wide range of surfaces. The locations of ochres, stone tools and whole geological features demarcated the territorial and cultural boundaries of Aboriginal lands and linguistic territories. Many rock formations and landmarks serve as signposts to the storylines of the histories and journeys of ancestors that are integral to other kinds of knowledge communicated through song, performance and temporary marks made on the ground. Dating from 42 000 years ago, one of the world's oldest documented mortuary uses of ochre is discernible on the ancestral remains buried at Lake Mungo, in western NSW. The use of ochre, applied to these people in their final resting place, illustrates a long standing cultural application of material associated with trade and laden with symbolic meaning.

The archaeological history of Lake Mungo is a sometimes contentious area among local custodians and the archaeological community, and represents a turning point in Australian archaeology's engagement with Aboriginal Australia. On the one hand, the

Axe
Tiwi Islands, Northern Territory
Stone, resin, red, yellow
and white pigment,
16.4 (h/l) x 10.0 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1960-1964
(ETH1792)

Unidentified stone tool
Ltyentye Apurte,
Northern Territory
Quartzite, 4 (h/l) 2.5 (w) cm
Donated by E Stockton 1985
(ET2014.1351)

discovery and dating of the Lake Mungo remains brought world attention to the longevity of Aboriginal occupation of the Australian continent. On the other hand, the scientific ownership of the information surrounding the remains has excluded community representatives from their responsibilities as custodians of their cultural heritage.

In 2014, Custodian and Mutthi Mutthi elder, Mary Pappin, reversed the narrative of the archaeological 'discovery' of the remains at Lake Mungo and brought a new perspective to thinking about Aboriginal history. She was recorded as saying to archaeologists: 'You did not find Mungo Lady and Mungo Man – they found you!'[2] This simple reversal of the narrative of discovery, showing the Aboriginal belief of the land speaking to us through ancestors being uncovered by natural exposure from the weather, is an important lesson to all interested in Aboriginal and Australian history. The relationships between archaeologists and Aboriginal people in Australia have changed and developed as different advancements in technology have been able to provide answers to questions that Aboriginal people have only recently been seeking themselves. Archaeological investigation reveals periods of both technological stability and change through the assemblage of tools found in each layer. Layers of earth reveal the patterns of floods, droughts and cataclysmic weather phenomena, which impacted on Australian environments. Within these layers is evidence of peoples moving into new locations, taking tool fashioning techniques with them, discarding others or developing entirely new forms from newly discovered resources.

Stone tool artefacts may lead us to think of our own future and the evidence that will be left of our contemporary world; how the tools that we use in our lives today shape our own historical and ecological footprint. For much of the 19th and 20th centuries Aboriginal people were believed to have been isolated from the rest of the world. It is only relatively recently, through international dialogue among first nations people, that a more nuanced understanding has emerged of the valuable ecological and cultural practices that were preserved in first nations societies, such as Australian Aboriginal cultural practices. This understanding has much to teach modern societies in relation to management of biodiversity and the ethical representation of ancient cultural heritages. In contrast to the present digital/technological environment, the history of pre-colonial Aboriginal society that is written with stone may well outlive many aspects of our present technological progression. These tools stand as a testament to the endurance and ingenuity of thousands of generations of Aboriginal and Torres Strait Islander people who have always told the non-indigenous community in Australia that they were always here, and always will be. ■

[1] Hiscock, P., & P. M. Veth, (1991). *Change in the Australian desert culture: a reanalysis of tulas from Puntutjarpa rockshelter. World Archaeology*, 22 (3), pp 332–345

[2] Bowler, Jim, *Mungo Man is a physical reminder of the need for Indigenous recognition*, The Guardian Australia, 25 Feb 2014

macleay bequest

In the lead up to the opening of the Macleay Museum in 1892,[3] the University of Sydney had accepted a bequest of ethnographic items from the Macleays, a wealthy colonial family that first came to Australia in 1827. This private collection, predominantly natural history in composition, included over 300 artefacts of Aboriginal manufacture. Mostly acquired prior to 1887, the ethnographic collections included a large number of stone tools. These were often collected by Europeans interested in classifying Aboriginal people through the different types of stone tools they made, by physically comparing the shapes of tools to those used elsewhere. Early natural history collectors were often dependent upon Aboriginal people to guide and assist them to find specimens that were then traded among collectors and museums around the world. These Aboriginal guides shared their knowledge of tracking animals, or of where particular plants or animals could be found. As an interest in the cultural practices of Aboriginal people became increasingly prevalent internationally, some natural history collectors also began acquiring objects from the Aboriginal people they encountered.

The diplomatic and economic exchange of objects and raw materials has a long history among Aboriginal peoples. In some ways the new trade opportunities offered through encounters with settlers were a continuation of this older Aboriginal practice. It was also a turning point in the purposes of stone tool and other artefacts as they came to be manufactured for use as a form of currency in trade and exchange. Early objects that were collected were those gifted in initial encounters between people, or those that could be found on the surface of the ground, such as grindstones and stone axes. Later, archaeological excavations uncovered a diversity of specialised tools and artefacts.

The most common types of stone tool found in the Macleays' 19th century collection are the axe and the grindstone. Many of these stone axes are roughly provenanced to 'east coast Australia', which was common at the time. Today, archaeologists record precise latitudes and longitudes, along with the depth where something was found. Through fine microscopy and mineralogical trace testing, older objects can give details of the places they were sourced from. Particular patterns of scratch marks on the surfaces of stone implements can show whether it was used to strike against bones, plants, tree trunks or other stone material. Testing residues and traces of resins, or possibly even residues of animal DNA or starch fibres, can provide insights about the environments they existed in and their uses in daily life. Advances in scientific analysis, combined with Aboriginal knowledge, are allowing us to understand more about the people who made and used these tools in the past. Increased collaboration with Aboriginal community representatives in archaeological excavations and analysis is revealing new understandings of the rich community and ceremonial life that these objects were part of. ■

[3] Davies, Susan M and Rose Stack (2002), *Collected – 150 years of Aboriginal art and artifacts at the Macleay Museum* the University of Sydney, p 11

Left to right:

Axe
New South Wales
Stone, 10.4 (h/l) 6.3 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1960-1964
(ETF1848)

Axe
Clarence River District,
New South Wales
Stone, 8.3 (h/l) 6 (w) cm
Transferred from University
of Sydney Geology Department
1960-1964
(ET81.18.8)

Axe
New South Wales
Stone, 14.2 (h/l) x 6.1 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1960-1964
(ETF1872)

Axe
east coast Australia
Stone, 12.3 (h/l) x 6.2 (w) cm
Donated by Macleay Family
1865-1891 (ETF163)

Adze head
Iron, black paint, 17.0 (h/l) x 8.7 (w) x 5.6 (d) cm
Donated by Macleay Family
1865-1891 (ET84.172.36.1)

Axe
Herbert River, Queensland
Stone, 12.2 (h/l) x 6.8 (w) cm
Donated by Macleay Family
1865-1891 (ETF128)

Axe
Herbert River, Queensland
Stone, 13.0 (h/l) x 11.5 (w) cm
Donated by Macleay Family
1865-1891 (ETF115)

stone axe

At present, the earliest known ground-edge stone axe use in Australia dates to 35 000 years ago, it is the earliest known tool made by modern humans in Australia.[4] A stone axe required many hours of labour in its basic construction, as well as continuous upkeep. Stone axes, made from a variety of found and quarried materials, could be hand-held or hafted onto wooden handles. Older tools in museum collections are seldom attached to handles, this more fragile and detachable material long since lost. But some show the trace marks where they used to be hafted, such as a residue of resins or in the grinding down of the middle section to make the attachment of a handle easier.

South-eastern Aboriginal peoples use of stone axes declined with the introduction of small metal 'tomahawks', given in trade and as gifts from the early 1800s. The introduction of the European broad-axe, used in the large scale timber industries of the 19th century, drastically changed many east-coast Australian forest landscapes on a scale that stone axes could not. Aboriginal people adopted the use of the European broad-axe into their tool kit, but also amended previous styles of axe making techniques to incorporate the modern material of steel into their traditional designs and purposes.

[4] Geneste, Jean Michelle (2010). 'Earliest Evidence for Ground-Edge Axes: 35,400±410 cal BP from Jawoyn Country, Arnhem Land'. *Australian Archaeology 71* (December): 66–69

Kodja axe
Forrest River, Western Australia
Stone, resin, yellow pigment,
8.7 (h/l) x 6.9 (w) cm
Transferred from University of Sydney Department of Anthropology, 1960-1964
(ETF1918)

Axe
unknown location
Stone, fibre string, resin,
12.3 (h/l) x 8.5 (w) cm
Donated by Macleay Family
1865-1891 (ETF156)

Axe
north east Arnhem Land, Northern Territory
Stone, resin, plant matter,
7.5 (h/l) x 7.5 (w) cm
Transferred from University of Sydney Department of Anthropology, 1960-1964
(ETF1903)

Axe
north east Arnhem Land,
Northern Territory
Stone, resin, plant matter,
7.5 (h/l) x 7.5 (w) cm
Transferred from University
of Sydney Department of
Anthropology, 1960-1964
(ETF1903)

Axe
Lismore, New South Wales
Stone, 23.0 (h/l) x 8.6 (w) cm
Unknown source, collected 1924
Acquired before 1964 (ETF178)

grindstone

The function of the large grindstone is no different to the mortar and pestle commonly used in kitchens today. These large and heavy platforms were often left at particular sites to be re-used during seasonal harvests. Thought to be abandoned, such grindstones were frequently collected by settlers who didn't realise they were purposefully left there by people ready for harvesting and processing the food of that region. Today, grindstones can still be seen near water and camp sites, reminders of the places people engaged in these daily activities. Harvesting, predominantly by women, included hours spent collecting different types of seeds for grinding. Seeds from plants such as Nardoo (*Marsilea drummondii*) were ground into flour and then mixed with water into a paste that could be eaten either wet like porridge or baked into a damper (bread). Smaller hand held portable grindstones, or muller, were not used for food but for grinding ochres for ceremonies or corroborees. As well as grinding, they could be used as a palette for mixing ochre pigments with particular binders that made the ochre suitable for body painting, rock art and artefacts, such as shields.

Grindstone
New South Wales (attributed)
Sandstone, remnants of plant seed, 33.0 (h/l) x 25.9 (w) cm
Donated by Macleay Family
1865-1891 (ETF330)

Grinding stone
Rocky Ponds, Narromine,
New South Wales
Sandstone, 43.0 (h/l) x 25.0 (w) cm
Donated by Mrs Henrietta
Dorothea Johnston 1989
(ET89.2.36)

Grindstone
Bourke, New South Wales
Sandstone, 10.2 (h/l) x 7.6 (w) cm
Unknown source,
Acquired before 1964
(ETF282)

western australia

The items in this section are from the south and a small coastal region along the red Kimberley coast, between Broome and Derby, with the earliest acquired around 1882. Quartz is particularly prevalent and versatile, but is only one of many materials that were transformed into implements in the region.

In the south, one tool used for the cutting and preparation of meat, is a unique style of knife, called *taap*. It was made by embedding small flakes of quartz in pliable sap, sourced from *Xanthorrhoea* species (grass trees), to create a neat serrated edge. Another iconic tool is the 'Kimberley point', a small triangular stone point, with neat serrated edges along the fine-grained stone. People of the north west used kangaroo bone to fashion the small dentated serrations in quartz; the bone itself was also shaped with stone into an awl. Kangaroo bone awls and knives of pearl shell are part of the extended tool kit here. The making of spearheads was considered the most time consuming profession of adult men.[5] Kimberley points, attached with resin to the spear shafts, can also include fine painted detail on the point, a signal of a further symbolic purpose and function beyond hunting. The introduction of glass and ceramic enabled Kimberley points to be made more easily and quickly, an example of how people translated new and introduced material for some purposes, while maintaining stone points for others.

Archaeologists have estimated that Aboriginal people were using a variety of tools in the north west of Australia at least 55 000 years before the present.[6] Ochres blended together for the rock-art sites of north west Australia depicted the *gwion gwion* and the *wanjina* ancestral beings. Several of these are conservatively dated; the gwion gwion as being painted 7 000 years before the present (BP) and the wanjina at least 4 000 years BP.[7] Whether written on stone through rock art, or manufactured with stone such as in spear tips, the versatility of the north west Australian stone tool kit presents numerous examples of how this material was adapted. This versatility is also seen in the two distinct styles of painting and aesthetics produced by people living in the same landscape over many thousands of years. ■

[5] Ackerman, Kim (2008) 'Missing the point' or 'what to believe — the theory or the data': Rationales for the production of Kimberley points' *Australian Aboriginal Studies*, No. 2, 2008: 70-79

[6] Roberts, Richard G., Rhys Jones, Nigel A. Spooner, M. J. Head, Andrew S. Murray, and M. A. Smith. 'The Human Colonisation of Australia: Optical Dates of 53,000 and 60,000 Years Bracket Human Arrival at Deaf Adder Gorge, Northern Territory'. *Quaternary Science Reviews* 13, no. 5–7 (1994): 575-83

[7] McGowan, Marx, Moss, Hammond (2012) Luminescence dating of mud wasp nests overlying Gwion Gwion paintings has confirmed an age of at least 17,000 yrs. B.P. with the most recent dates for these paintings from around the mid-Holocene (5000 to 7000 yrs. B.P.).'Evidence of ENSO mega-drought triggered collapse of prehistory Aboriginal society in northwest Australia'. *Geophysical Research Letters*, Vol. 39

Left to right:

Blade
Karadjeri Tribe,
north west Australia
Quartzite, 8.0 (h/l) x 3.7 (w) cm
Transferred from University
of Sydney Department of
Anthropology, 1965-1979
(ET83.31)

Blade
Karadjeri Tribe,
north west Australia
Quartzite, 11.1 (h/l) x 4.4 (w) cm
Transferred from University
of Sydney Department of
Anthropology, 1965-1979
(ET83.32)

Blade
Karadjeri Tribe,
north west Australia
Quartzite, 11.9 (h/l) x 4.0 (w) cm
Transferred from University
of Sydney Department of
Anthropology, 1965-1979
(ET83.33)

Blade
Karadjeri Tribe,
north west Australia
Quartzite, 7.8 (h/l) x 2.5 (w) cm
Transferred from University
of Sydney Department of
Anthropology, 1965-1979
(ET83.30)

Five Needles or Awls
Forrest River Mission,
Western Australia
Kangaroo bone, resin,
(largest) 15.5 (h/l) x 1 (w) cm
Acquired by A P Elkin 1946
(ETC346.1-5)

Unknown stone tool
Derby, Western Australia
Stone, 16.7 (h/l) x 6.4 (w) cm
Donated by Macleay Family
1865-1891 (ETF131)

Kimberley flakes
Kimberley region,
Western Australia
Quartzite, quartz, stone, glass,
shell, various sizes
Donated by Macleay Family
1865-1891 (ETF170.1-9)

Left to right:

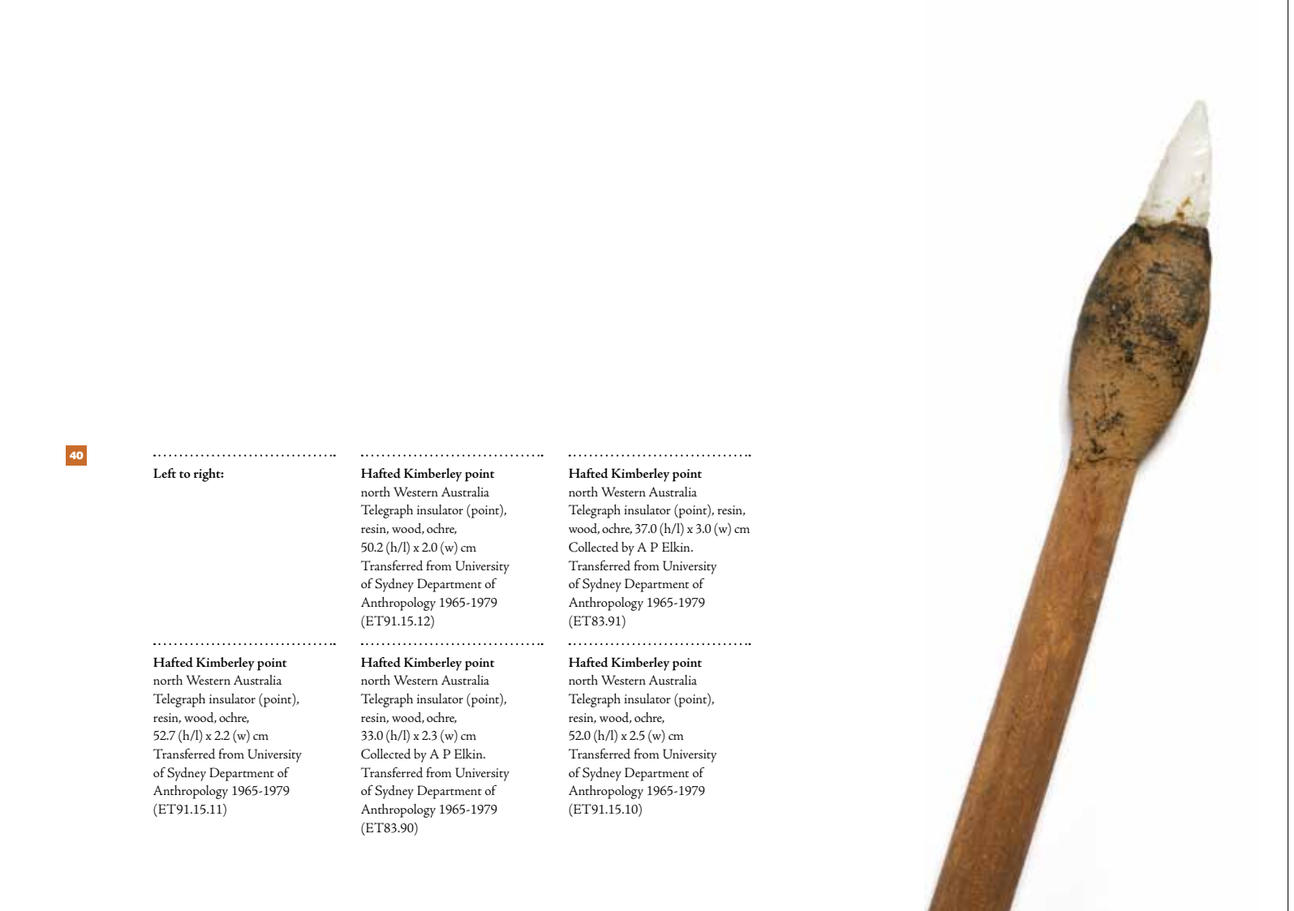
Hafted Kimberley point
north Western Australia
Telegraph insulator (point), resin, wood, ochre,
52.7 (h/l) x 2.2 (w) cm
Transferred from University of Sydney Department of Anthropology 1965-1979
(ET91.15.11)

Hafted Kimberley point
north Western Australia
Telegraph insulator (point), resin, wood, ochre,
50.2 (h/l) x 2.0 (w) cm
Transferred from University of Sydney Department of Anthropology 1965-1979
(ET91.15.12)

Hafted Kimberley point
north Western Australia
Telegraph insulator (point), resin, wood, ochre,
33.0 (h/l) x 2.3 (w) cm
Collected by A P Elkin.
Transferred from University of Sydney Department of Anthropology 1965-1979
(ET83.90)

Hafted Kimberley point
north Western Australia
Telegraph insulator (point), resin, wood, ochre, 37.0 (h/l) x 3.0 (w) cm
Collected by A P Elkin.
Transferred from University of Sydney Department of Anthropology 1965-1979
(ET83.91)

Hafted Kimberley point
north Western Australia
Telegraph insulator (point), resin, wood, ochre,
52.0 (h/l) x 2.5 (w) cm
Transferred from University of Sydney Department of Anthropology 1965-1979
(ET91.15.10)



Hafted axe
Derby, Western Australia
Stone, resin, wood, European string, natural plant fibre,
35.3 (h/l) x 15.0 (w) x 5.0 (d) cm
Donated by Macleay Family
1865-1891 (ETH1038)

Taap knife
King George Sound,
Western Australia
Wood, resin, quartz,
42.5 (h/l) x 2.0 (w) cm
Donated by Macleay Family
1865-1891 (ETH1080)

Taap knife
King George Sound,
Western Australia
Wood, resin, quartz,
43.0 (h/l) x 2.0 (w) cm
Donated by Macleay Family
1865-1891 (ETH1081)

Left to right:

Kimberley point
north Western Australia
Green bottle glass, resin, ochre,
8.5 (h/l) x 3.6 (w) cm
Donated by E Stockton 1985
(ET93.1.14)

Hafted Kimberley point
north Western Australia
Brown glass, resin, ochre, wood,
58.0 (h/l) x 3.0 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.13)

Kimberley point
north Western Australia
Green bottle glass,
8.0 (h/l) x 2.4 (w) cm
Donated by E Stockton 1985
(ET2014.1)

Kimberley point
north Western Australia
Green bottle glass, resin,
10.5 (h/l) x 3.5 (w) cm
Donated by
J P & L T Ramsay 1993
(ET93.1.13)

Kimberley point (front and back)
Western Australia
Quartz, 3.1 (h/l) x 1.2 (w) cm
Donated by E Stockton 1985
(ET2014.4)

Kimberley point (front and back)
Western Australia
Quartz, 5.0 (h/l) x 2.0 (w) cm
Donated by E Stockton 1985
(ET2014.5)

Kimberley point (front and back)
Western Australia
Quartzite, resin, yellow and white pigment, 5.0 (h/l) x 2.5 (w) cm
Collected by A P Elkin
Transferred from University of Sydney Department of Anthropology 1965-1979
(ET83.96)

Kimberley point (front and back)
north western Australia
Quartz, 5.0 (h/l) x 2.3 (w) cm
Donated by E Stockton 1985
(ET85.5.6.3)

west coast arnhem land

Stretching inland from Kakadu National Park along into the Northern Territory coastline, the lush west coast of Arnhem Land has a tropical climate. The geography encompasses estuaries, lakes, rivers, mountain ranges and, to the south, the northern edges of the central Australian desert region. Seasonal cycles known by Aboriginal people in this region are entirely different to the European calendar, with a wet season (November until April) and a dry season (May until October). The diversity of landscape and climatic zones encountered in Arnhem Land is also reflected in the diversity of tools and implements shaped and crafted from natural resources. Regions represented in this exhibition include the items commonly found in the lands of the Jawoyn, Wardaman and Yolngu peoples.

One of the most conspicuous artefacts across this region, and as far south as central Australia, is the *Leilira* blade. The term Leilira is a central Australian Arrernte word, but the distribution of these macro blades stretches from the arid interior to the tropical Arnhem coastline and east into Queensland. A Leilira macro blade is a rectangular stone flake that is shaped by the striking of quartzite or silcrete stone, to find fault lines inside the stone in order to produce an aerodynamic blade with an ideal weight for use as a spear tip. They were also used un-hafted as knives; in some regions they have been described as being 30 cm long. Quartzite is very common in the Wardaman landscape where the Leilira in this exhibition were collected. The care and prestige associated with their ownership is demonstrated by the delicately feathered paperbark sheath. From central Australia across to south western Queensland the resin mounted Leilira blade is often hafted into a divided stick or attached with resin to a wooden handle for use in much the same way as a large kitchen knife is used today. When the blade is attached at a 90 degree angle to the handle it forms a handheld pick.

The makers of these highly valued tools were apprenticed from a young age by their elders, who taught them the protocols for acquiring the source material as well as the skills required for their production. As some observers describe, selection of the stone for Leilira production at quarries was time-consuming, with numerous potential blades being struck before an acceptable one was finally made. Different methods for shaping the blade are seen in the different types of edges present, and signify its origins as well as the purpose of its production.

Axes were used for a variety of purposes, including sometimes as a surface for painting. One well known Kuninjku master painter, Yirawala, painted on axes as well as bark and later canvas. When Pablo Picasso saw paintings by Yirawala in Paris in the early 1970s he wrote to him, "… this is what I have been trying to achieve all my life … I admire and envy your art".[8] ■

[8] Holmes, Sandra (1972). *Yirawala: Artist and Man*. Jacarandra Press, p 22

Spear
Katherine River,
Northern Territory
Bamboo, stone, resin, fibre cord,
white pigment, 253.0 (h/l) cm
Donated by Macleay Family
1865-1891 (ETH1603)

Blade
Karadjeri Tribe,
north west Australia
Quartzite, 11.9 (h/l) x 4.0 (w) cm
Transferred from Sydney
University Department of
Anthropology, 1965-1979
(ET83.33)

Leilira blade
northern Australia
Quartzite, 15.0 (h/l) x 3.6 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.7)

Leilira blade in sheath
Deaf Adder Gorge, Kakadu
National Park, west Arnhem Land
Quartz blade, resin, feathers,
paper bark, European fabric strip,
24.5 (h/l) x 6.0 (w) x 2.0 (d) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.17)

Left to right:

Leilira blade
northern Australia (attributed)
Quartzite, traces of resin,
7.5 (h/l) x 5.5 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.5)

Leilira blade
northern Australia (attributed)
Quartzite, traces of resin,
13.0 (h/l) x 5.0 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.4)

Leilira blade
northern Australia (attributed)
Quartzite, traces of resin,
15.0 (h/l) x 3.6 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.7)

Leilira blade
northern Australia (attributed)
Quartzite, traces of resin,
16.0 (h/l) x 4.5 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.6)

Leilira blade
northern Australia (attributed)
Quartzite, traces of resin,
11.0 (h/l) x 5.0 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET91.15.3)

Kimberley point (front and back)
Palumpa, Northern Territory
Stone, 4.5 (h/l) x 2.0 (w) cm
Donated by E Stockton 1985
(ET85.5.6.2)

Wanji blade (front and back)
Northern Territory
Stone, resin,
18.1 (h/l) x 3.9 (w) cm
Donated by Macleay Family
1865-1891 (ETF51)

Wanji blade (front and back)
Northern Territory
Stone, resin,
19.5 (h/l) x 3.7 (w) cm
Donated by Macleay Family
1865-1891 (ETF44)

Hafted Wanji
north east Arnhem Land,
Northern Territory
Stone, wood, plaited cane bands,
40.5 (h/l) x 4.0 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1965-1979
(ET83.77)

Hafted Axe
Maker, Yirawala
Arnhem Land, Northern Territory
Stone, resin, string,
white clay, red pigment,
45.0 (h/l) x 14.0 (w) x 6.0 (d) cm
Donated by A P Elkin 1976
(ETH2044)

Hafted axe
Arnhem Land, Northern Territory
Stone, resin, rope, plant fibre, red ochre, 47.5 (h/l) x 20.2 (w) cm
Donated by A P Elkin 1976
(ETH2042)

central australia

Uluru defines the lands of the Pitjantjatjara and Yankunytjatjara peoples of central Australia. It has become the most recognised monumental natural stone feature of the Australian landscape. For thousands of generations, Aboriginal peoples, from many different language groups, gathered together at Uluru for the sharing of knowledge and ideas, and to conduct business such as that relating to stone tool manufacture.

The conspicuous geological features of the central Australian landscape are complemented by many sophisticated tool making techniques. Stone tools collected at Ltyentye Apurte (formally Santa Teresa mission, near the MacDonnell Ranges) are mostly types of quartzite, a material that is easily workable but also has a strong aesthetic appeal. The rich reds and glowing ambers of these selected artefacts reflect the unique geographic history of an area that is widely referred to as the red centre of Australia.

Apart from quartzite, various other types of stone reflect unique cultural applications by Arrente and neighbouring peoples. Whereas one group may use a large blade attached to the tip of a spear with resin and a kangaroo fibre twine, the neighbouring tribe might prefer to attach smaller stone flakes with resin to the side of the shaft; both are hunting the same type of animal. Spears used by the neighbouring groups of the Warlpiri and the Arrernte show a marked difference in the way that the stone is attached to the spear, and are examples of how different production techniques are associated with the learning of specific and unique traditional knowledge.

When the Arrente artist, Albert Namatjira, first adapted the dry multi-coloured pigments of watercolour paint, he also adapted his method of seeing and representing the landscape. Watercolour pigments share similar tactile properties with ochres used in rock art. Rather than represent the geological features and landmarks of the central Australian landscape through the style used for millennia and linked to sacred traditions, Namatjita used a figurative style. He and other central Aboriginal artists from this region became known as ‘the Hermannsburg School’, because of the novel techniques they employed to represent their Country, without contravening the spiritual and sacred designs that were previously worked in stone. The watercolour painters of the Hermannsberg demonstrate the versatility and adaptability of cultural heritage, moving from malleable stone-ground ochres into exotically sourced watercolours, embracing new materials and ways of seeing their Country. ■

Knife
Ltyentye Apurte,
Northern Territory
Quartzite, resin, Kangaroo sinew,
14.2 (h/l) x 5.6 (w) cm
Donated by E Stockton 1985
(ET2014.59)

south east australia

The stone material from Victoria in the Macleay presents interesting challenges for modern Aboriginal communities as the tools exist in a limbo between historical evidence and research material. Their loose provenance – 'Victoria' collected by 'George Horne' – and the lack of documentation regarding how and where they were acquired presents issues for allocating specific purpose. Even aspects of their use are contentious: flakes can be the off-shoot of stone tool manufacture, yet they can also be stone modified to be used as scrapers.[9] It is interesting Horne collected only these knives, scrapers, flakes and waste assemblages from his home state of Victoria but made extensive ethnological collections in Central Australia.

Stone was not always worked into tools; often particular forms of stone were kept as a personal belonging for use in ceremonial, memorial or ritualistic events. One unworked stone in the Macleay (ET89.2.2) has a unique and natural patterning. The highly polished patina is possibly evidence of staining through regular handling in the past. The donor Frank Johnston recalled finding the stone near the state public school grounds in Preston, Victoria when he was a child. He took it to Melbourne Museum curator Baldwin Spencer who speculated the possibility of its having been 'in the possession of a tribal medicine man for many years'.[10]

There is a tension between the way that many non-indigenous people projected particular meanings onto Aboriginal artefacts and the realities of Indigenous peoples' lives. Particularly by the early 1900s, Aboriginal people were commonly classified as 'primitive' or 'savage', with the same pejorative term given to their cultural objects. This kind of bias also underpins the historical classifications of the Aboriginal stone tool tradition and highlights the importance of consultative work with Aboriginal communities for a better understanding of their artefacts that is grounded in a culturally appropriate authorship and ownership of Aboriginal history.

[9] Flenniken, J. Jeffrey, and J. Peter White (1985), 'Australian flaked stone tools: a technological perspective'. *Records of the Australian Museum* 36 (3) pp 131–151

[10] Macleay Museum documentation files, 1989

Unworked stone
Preston, Victoria
Agate, 6 (h/l) x 6 (w) cm
Donated by Francis H Johnston,
1989 (ET89.2.2)

western nsw

Stone tool types found in central Australia, far western New South Wales and the east coast of Australia show western NSW as an inter-zone of stone tool styles. Many of the technological advances found in central Australia and on the east coast show this as an area where knowledge of stone tool manufacture was transmitted across vast distances, taught through demonstration and maintained through gift and trade.

Regions represented here include Lake Cargelligo, Bourke, Hill End and Goonery Bore. These tools were collected in the late 1970s in north west NSW by Eugene Stockton who concluded that there had been denser occupation on clay-pans and dune blowouts. Stockton noted: 'Large artefacts which were highlighted in private collections but poorly represented on the ground included edge-ground axes, cylcons, uniface and biface choppers, hammerstones'.[11] This observation shows how the intense interest of collectors had depleted much of the surface evidence of occupation in these regions. In some cases, the sites where collectors had taken out large stone tools were subsequently zoned as having 'no cultural significance', and given mining leases or broadly allocated for pastoral industries. Today this kind of random collection is illegal.

The dry and sparse landscape of the western plains of NSW is intermingled with fresh water sources and borders the edges of the great forests of the south west. Stone tools and wooden artefacts from north west NSW are recognisably different to those from other regions of Australia. An important aspect of the landscape, as many Aboriginal people see it, is the way that stone and wood is sourced from the land. A boomerang is not randomly shaped with a stone axe from just any piece of wood – the shape is encouraged through tree management, or identified in the natural bend of a tree branch. Depending on where it is seen, it may need to be acquired through consultation with the owners and manufactured with protocols that ensure its reproducibility and ecological viability. Consultations among community members are an important way modern communities continue to engage with Indigenous heritage and knowledge in contemporary contexts. An example of the use of museum collections for translating object histories into contemporary knowledge through performance and song is the 2013 project, *The Spirit of Things – Sound of Objects*. This performance project was initiated by Gamilaraay performers from the NSW band The Stiff Gins. Here the focus was on museum objects as points of contact between them and the original makers and uses of the objects. The Stiff Gins produced a series of new stories and songs in their Gamilaraay language from those they saw embedded in the objects on museum shelves; a counterpoint to the objects' existing museological classification. ■

[11] Stockton, E.D. Pipeline survey of Aboriginal relics in north western New South Wales and South western Queensland. *Australian Archaeology*, No.7 (1977), pp 7-18

Boomerang
Australia
wood, 73.2 (h/l) x 12.9 (w) cm
Transferred from Sydney
Teachers College collection 2013
(ET2013.4)

Boomerang
Australia
wood, 75.5 (h/l) x 17.5 (w) cm
Transferred from Sydney
Teachers College collection 2013
(ET2013.5)

Pebble (front and back)
Bourke, New South Wales
Stone, 4.7 (h/l) x 4.2 (w) cm
Unknown source,
Acquired before 1964
(ETF117)

Grindstone
Bourke, New South Wales
Stone, 5.5 (h/l) cm
Unknown source,
Acquired before 1964 (ETF232)

Axe
Bourke, New South Wales
Stone, 13.4 (h/w) 8.5 (l) cm
Unknown source,
Acquired before 1964 (ETF295)

Unidentified stone tool
Hill End, New South Wales
Stone, ground to shape,
blackened on one side,
26.3 (h/l) x 9.1 (w) cm
Donated by R P Solal (ET85.28)

Hammer stone
Bourke, New South Wales
Stone, 16.5 (h/l) x 9.0 (w) cm
Unknown source,
Acquired before 1964 (ETF217)

Hammer stone
Bourke, New South Wales
Stone, 10.7 (h/l) x 5.0 (w) cm
Unknown source,
Acquired before 1964 (ETF151)

Axe
Bourke, New South Wales
Stone, 13.8 (h/l) x 6.4 (w) cm
Unknown source,
Acquired before 1964, (ETF202)

greater sydney

The Aboriginal peoples of the south east coast of Australia enjoyed a fruitful and bountiful landscape with estuaries, valleys and mountains. Early colonists likened Sydney to their own estates, with planned parklands for hunting, and rivers and safe harbours for fishing. In the greater Sydney region from the Hawkesbury River in the north, to the Blue Mountains in the west and up to the edge of the Illawarra escarpment in the south, there are known to have been at least 22 Aboriginal clans, each with variations of a shared language. Rock paintings and archaeological deposits are interspersed among hundreds of rock shelters naturally formed through the sandstone. The Aboriginal peoples of greater Sydney created enormous open air galleries and religious places through their carving into the coastal sandstone. Today, thousands of rock engravings can be seen in Sydney's national parks. Midden deposits along the beaches and river banks show where Aboriginal people gathered to eat and are often found in locations where modern Sydney residents gather today.

Stone tools of the Sydney region include microliths – small blades with multiple functional uses. For archaeologists, microliths are useful in helping to determine the age of the site through comparison of different forms, production styles, materials and shapes found in different layers or strata. Archaeological work can be useful for modern Aboriginal communities seeking to understand aspects of their life prior to colonial displacement, such as evidence of why and when people moved into new locations; which tool fashioning techniques they took with them and which they discarded; and how entirely new forms of tools developed. The stone tools and micro blades in *Written in stone*, from Springwood, Era and Garie Beaches, Quibray Bay, Castlereagh and Ropes Creek, Bondi, Manly and the Hawkesbury River, are tiny fragments of evidence of thousands of years of occupation that lie beneath the surface of one of the most heavily urbanised parts of the country. Modern Sydney is surrounded by three national parks. Indigenous sites officers with the NSW National Parks and Wildlife service, preserve thousands of sites of cultural significance, including those relating to stone tool locations, quarries and tool making sites. As drastically transformed as the Sydney landscape has been over the past 200 years of urbanisation, it is still possible, through following the borders of the language regions of greater Sydney, to see a circular and seasonal pathway, where members of specific language groups interacted with each other and shared histories and knowledges. The interpretive potential and reclamation of Sydney's Aboriginal past, through language revitalisation and knowledges about the use of natural resources in the Sydney region, is one of the great cultural revitalisations in Australia.

In 2010 Bangarra produced *Artefact*, a dance performance choreographed by Frances Rings. *Artefact* explored contemporary indigenous responses to items such as grindstones held by museums and new ways of expressing the gestural act of their use through the medium of dance and performance ■

Axe
Ropes Creek, Sydney,
New South Wales
Stone, 11 (h/l) x 5.4 (w) cm
Donated by Macleay Family
1865-1891 (ETF133)

Axe
Ropes Creek, Sydney,
New South Wales
Stone, 11.7 (h/l) x 7.3 (w) cm
Donated by Macleay Family
1865-1891 (ETF129)

Axe
Ropes Creek, Sydney,
New South Wales
Stone, 10.8 (h/l) x 5.4 (w) cm
Donated by Macleay Family
1865-1891 (ETF149)

Warreen is one of the oldest known Aboriginal occupation sites in Tasmania – it was occupied around 35 000 years ago.[12] Ancient rock engravings, etched into the surface of the stone, are found across several sites in the rugged north west of the island. The linguistic links, between the nine distinct language groups of Tasmania and mainland language groups in south west Victoria, are evidence of longstanding connection. Archaeologists have been keen to study the challenges faced by Tasmanian Aboriginals during what is called the late pleistocene, the time period of human occupation of Australia before the last great ice age (15 000 years before present). The gradual change from the pre to the post-ice age is marked by the massive ecological shift resulting in the separation of the Tasmanian Aboriginal people from mainland Aboriginal communities. This story echoes the ancient climatic shifts that disconnected the mainland Aboriginal population from the migration paths of early humans 60 000 years ago.

The Tasmanian Aboriginal stone tool kit differed from mainland Aboriginal Australia in that they did not use edge ground axes or hafted stone tools, but rather developed a specialised range of items adapted to the climate and resources of their Country. Edge ground axes or hafted stone tools are seen in the southern parts of Australia after Tasmania became separated from the mainland. Tasmanian stone tools are predominantly made from chert, crystal quartz, quartzite, and spongolite. Spongolite is one of the more intriguing source materials for stone tools, in that it is formed by ancient beds of sea sponges that concretise into a specific geological formation of stone, especially malleable for working into sharp edges. It is readily available in the north west part of the island, but is also found in occupation sites across many other areas, indicating that it had a currency and value as a trade item. Red ochre, made from rich hematite sources, was abundant at Toolumbunner (the Gog Range ochre mine) and was used in ceremonies such as mortuary practices, the decoration of ritual objects, rock and body painting and as a currency for exchange.

In 2010, stone tool artefacts found along the Jordan River levee at the Brighton road works site, near Hobart, were shown to be between 28 000 and 40 000 years old. They are evidence of an extraordinary journey of peoples in the deep past era to one of the most southerly regions of the planet. It is impossible to predict what types of incredible discoveries are yet to be uncovered, but it is possible to atone for the past through a more accurate and ethically engaged dialogue about the way history will be written in the future. ■

[12] Sagona, Antonio (ed. 1994). *Bruising the red earth, Ochre mining and ritual in Aboriginal Tasmania,* Melbourne University Press

Assorted flakes
various locations, Tasmania
Spongolite, chert,
various dimensions
Transferred from University
of Sydney Department of
Anthropology 1960-1964
(ETH1935)

epilogue

This exhibition encourages the understanding and historical appreciation of Aboriginal knowledges of geology, spatiality, cultural identity, as well as the diverse ways Aboriginal people worked with stone as a medium of cultural expression. The tools in this exhibition are drawn from the collections of geologists, archaeologists and museum collectors. Although their presence as museum objects and historic collections aids our understanding of the history of the first peoples of Australia, such collecting destroyed useful information about occupation and the circulation of Aboriginal people into and across Australia.

From the late 1960s, Aboriginal people have had increasing authority of their history and culture. Contemporary museum practice and policies, in relation to the acquisition of Aboriginal cultural materials, have significantly changed as a result of a more inclusive national practice from the date of the 1967 referendum onwards. Items in this exhibition were acquired prior to the implementation of state and federal government acts relating to the collection or sale of items of significant, tangible cultural heritage to Aboriginal communities. Today, these acts prohibit the private collection of artefacts from national parks and sites of cultural heritage. Before this, amateur and professional collectors amassed large quantities of stone tools from various sites for both private and institutional collections.

From a modern perspective, the removal of stone tool artefacts from their original locations is not encouraged or advisable. Foremost, the respect for Aboriginal culture is an ethical movement, recognising the importance of the modern communities' wishes with regards to the maintenance of sites of cultural significance, as well as respect to the peoples who left them there hundreds, or thousands of years ago. Leaving things in place is also a gesture which doesn't perpetuate past practices of conscious destruction of evidence of Aboriginal occupation. From a scientific viewpoint, the removal of stone tool artefacts from the places they are found means the loss of valuable information. The most scientifically valid method of determining the age of a stone artefact is through the observation of the strata from where it was found. Firestick farming and residue from campfires, common practice for Aboriginal peoples in many areas of Australia, leave trace evidence for the carbon dating of charcoal, a crucial element in determining scientific evidence of occupation. The terrain, associated sites, and other materials found in and around the site, are all vital data for archaeological analysis.

Whether settler or Aboriginal, the evidence of stone tool artefacts, used for tens of thousands of years across the vast Australian landscape, cause us to contemplate not just the deep past but also the future of our own culture: how will we represent this period of life in Australia in 1 000 years time? What artefacts will remain of our present day and age, for future generations to understand us? ■

Spear tip
Derby, Western Australia
Stone, 11.5 (h/l) x 4 (w) cm
Donated by Macleay Family
1865-1891 (ETF168)

Inside cover:
Axe (detail)
Tiwi Islands, Northern Territory
Stone, resin, red, yellow
and white pigment,
16.4 (h/l) x 10.0 (w) cm
Transferred from University
of Sydney Department of
Anthropology 1960-1964
(ETH1792)

Cover:
Axe
Bourke, New South Wales
Stone, 13.4 (h/w) 8.5 (l) cm
Unknown source,
Acquired before 1964 (ETF295)

Acknowledgements

This exhibition and catalogue is dedicated to the unknown artists, craftspeople and makers whose countless hours of manufacture, expertise and workmanship this exhibition represents. I would like to acknowledge the encouragement of Sydney University Museums director David Ellis, and the collegiate environment of the Macleay Museum in developing this catalogue. My thanks to Jude Philp, Rebecca Conway, Jan Brazier, Tony Gill, and Robert Blackburn and Luke Parker especially.

The work of collector and archaeologist Eugene Stockton gave initial inspiration for me to look more deeply into the significance of stone tool collections. Colleagues from the University of Sydney assisted me in understanding the academic context and the challenges of presenting these historical materials, thank you to Jennifer Barrett, Peter Hiscock and Peter White. Stephen Goddard created the exhibition design and catalogue production so vital to the telling of these histories in a museum context.

Around 600 objects from the Macleay Museum's collection were exhibited in *Written in stone*. Logistically this couldn't have happened without the collections management team: thanks to Maree Clutterbuck, Alayne Alvis and Rachael Lawrence for the behind the scenes work in making the sheer volume of artefacts selected easier to work with. Craig Barker helped to develop education and public programs associated with the exhibition and volunteers Karen Alexander, Jane Chapman, Ane Van de Walt and Kayla Ann Lochner all gave much appreciated contributions to the development of information represented in the exhibition.

Personally, I would like to thank my mum Lesley Poll and the Watego family for providing me with the grounding in culture that has inspired and encouraged my work in the arts over many years. The ongoing support, encouragement and patience of Jane Chapman and Madeline Poll will always be deeply cherished.

Matt Poll
Assistant Curator, Indigenous heritage collections
and repatriation project officer
Macleay Museum, University of Sydney

THE UNIVERSITY OF SYDNEY

Published by Macleay Museum,
University of Sydney

Published in association
with the exhibition *Written in stone*
Macleay Museum, University of Sydney
17 August 2015 – 1 December 2016

National Library of Australia
Cataloguing-in-Publication entry
Creator: Poll, Matt, author.
Title: Written in stone / Matt Poll.
ISBN: 9781742103600 (paperback)
Subjects: Stone implements--Australia.
Aboriginal Australians--Antiquities.
Aboriginal Australians--Implements.
Other Creators/Contributors:
Macleay Museum, issuing body.
Dewey Number: 305.89915