Australian Aboriginal Astronomy: identification and assessment of museum and archival collections and registered sites.

Naomi Murray

26 May 2008

This report has been produced as part of the assessment for ARCH8508 Directed Study in Cultural Heritage Management graduate topic in the Department of Archaeology, Flinders University.
Executive Summary

This directed study has been produced to assist Brett Biddington of Cisco Systems with his proposition to create a repository of material associated with Australian Aboriginal astronomy. The directed study aimed at gaining an overview of the Aboriginal astronomy related material that is available in online museum and archive collection, which resulted in many forms of material being located. These included paintings, a paper screen print, bark paintings, and many dreaming story documents.

The study also required curators to be contacted directly if no online collection was available, however responses were not received by every person who was contacted.

The study also required the traditional owner groups of the material to be identified, which resulted in many traditional groups being identified from coastal areas of Australia. Gaps in collections were also to be identified, which was done by assessing the results of the online collections search, and using the information that was gained during a brief literature review that was also carried out. Many gaps were identified, including the entire state of Victoria and the Australia Capital Territory. Heritage registers were also searched to identify sites associated with astronomy, which returned a number of results.

The directed study was successful as all of the aims were fulfilled and the relevant information was found so an overview of Australian Aboriginal astronomy could be gained.
**Table of Contents**

Introduction.................................................................................................................4

Literature Review..........................................................................................................5

Methodology ..................................................................................................................8

Results..........................................................................................................................10

The results of research in the museum and archive collections, heritage registers and the gaps in collections ..........................................................10

The results of online museum and archival research.................................................10

The results of consultation with museum curators and enquiry centres ..............16

The results of the research into gaps that may exist in collections.......................17

The results from research into heritage registered sites associated with Aboriginal astronomy .........................................................................................19

Discussion/Analysis ....................................................................................................21

The discussion and analysis of the results of research in the museum and archive collections, heritage registers and the gaps in collections ..................21

The discussion and analysis of the results of research in the museum and archive collections ..................................................................................................21

The discussion and analysis of the results from research into gaps in collections .................................................................22

The discussion and analysis of the results from research into heritage registered sites associated with Aboriginal astronomy .........................................................23

Conclusions .................................................................................................................24

References and Information Sources .........................................................................27
Introduction

The aim of this directed study project is to identify and assess museum and archival collections, and registered sites that relate to Australian Aboriginal astronomy, in order to obtain an overview of the Aboriginal astronomy related material available, where it is stored, and any gaps that may exist in collections.

Cisco Systems is the industry partner connected to this directed study and they are a multinational corporation, who manufactures routers for the internet. Brett Biddington, the Space Team Leader ASIAPAC of Cisco Systems is currently investigating the possibility of establishing a repository of Indigenous knowledge about astronomy and the night sky as part of the ‘Square Kilometre Array’ radio telescope project. Australia has been selected as one of two possible sites for the SKA telescope, which is part of one of the largest science projects ever devised, and which will help answer many questions about the evolution of the universe (auska 2008).

This directed study is centred on the assessment of museum and archival collections primarily around Australia with the purpose being to identify any material that is related to Australian Aboriginal astronomy and astronomical traditions. The museums and archives were assessed for Australian Aboriginal astronomy material through the process of searching the online collections, or if no online collection was available to search, the museum curator or inquiry centre was contacted in order to gain information about any Aboriginal astronomy related material that they may have held in their collection.

The directed study also involved the process of identifying the traditional owner groups that the Australian Aboriginal astronomy material came from, and identifying
any gaps that exist in the museum and archive collections such as geographic areas that were not represented in existing museum and archive collections. National and state heritage registers were also searched to identify any registered heritage sites that were related to Australian Aboriginal astronomy. The directed study also involved producing a brief literature review as part of the research process, and this was conducted to allow a summary of the Aboriginal astronomy literature to be written, and the people who have studied Aboriginal astronomy to be identified.

I would like to acknowledge Brett Biddington, the Space Team Leader ASIAPAC of Cisco Systems for his advice and encouragement towards this directed study and Dr. Alice Gorman for her assistance and advice concerning the study plan.

**Literature Review**

There is a vast amount of literature available on the subject of Aboriginal astronomy and the Australian Aboriginal connection to the night sky. Many books have been written about Aboriginal astronomy and the AIATSIS catalogue ‘MURA’ contains many texts, such as Dianne Johnson’s (1998) monograph titled ‘Night skies of Aboriginal Australia, a noctuary’. However this text from AIATSIS along with many others was either located in Canberra or had restricted access, making them unavailable for this directed study (AIATSIS 2008). Despite this, many texts are freely available to the public in libraries and provide a detailed insight into the connection that Aboriginal Australians have with astronomy and the night sky.

There are a few key people who have produced literature on the topic of ‘Australian Aboriginal astronomy’ such as Ragbir Bhathal and Graeme White (1991) who
produced ‘Under the Southern Cross, a brief history of astronomy in Australia’, which was one of the first books on the history of Australian astronomy. Raymond Haynes, Roslynn Haynes, David Malin and Richard McGee (1996) have also contributed to the Australian Aboriginal astronomy literature with their book titled ‘Explorers of the Southern Sky’, which contains a detailed explanation of how Aboriginal Australians use astronomy in their day to day lives and how it plays a vital part in their culture. Another person who has studied Aboriginal astronomy is Ray Norris (2008) who has produced a very detailed and informative website about Aboriginal astronomy, which details how Aboriginal Australians use astronomy, as well as outlines a number of Aboriginal traditions, sites and stories associated with Aboriginal astronomy, such as the Seven Sisters dreaming story. There are many websites, such as the Australian Government’s Department of the Environment, Water, Heritage and the Arts website for Parks and Reserves (2008), which provides information on archaeological sites in national parks and reserves around Australia, and their connection to Aboriginal astronomy, such as at Ubirr Rock and the Nourlangie and Nanguluwur art sites.

The information that is available makes it very clear that astronomy and the night sky are vital to the Aboriginal people of Australia and how they live their lives. Haynes et al (1996) summarised the Australian Aboriginal connection to astronomy and the night sky very well when they stated that their connection is “relational rather than mathematically-based, and it (is) concerned with similarity rather than with difference, with synthesis rather than analysis (and) with symbiosis rather than separation”. This interpretation of the connection between Aboriginal Australians and astronomy is widespread among the people who have studied Aboriginal astronomy, especially Bhathal and White (1991), who stated that the Aboriginal people of
Australia see themselves and their environment as connected to the sky and the stars rather than the sky being a separate foreign space. This was summarised well by Bhathal and White (1991:9) when they stated that “to understand their environment and their place in it, the Aboriginals made up stories to explain not only celestial phenomena, but also the creation of the world”. Bhathal and White (1991:9) go on to say that for the thousands of years that Aboriginal Australians have watched the stars in the sky, “they studied the night sky and the patterns made by the stars, (and) they studied the movements of the planets, made up stories about the stars and the planets, and passed these stories on to future generations of their people through art, song and dance”, of which some associated material is stored in museums and archives around Australia. The literature that is available has revealed that because Aboriginal Australians have lived a nomadic existence, they rely on the study of the stars and the night sky to navigate around their environment as well as to tell them when to search for seasonal foods (Bhathal and White 1991: 9; Norris 2008). The literature available has also revealed that Aboriginal Australians believe that astronomy and celestial phenomena shape their environment and the way they move around in their environment. Jennifer Westwood (2005:112-14) who has studied ‘mysterious places’ around the world states that Aboriginals believe that the Uluru (Ayers Rock) monolith was created by mythical beings from the sky, and that many sacred designs at the site were created by non-human beings. Studies at the Ubirr Rock site (Cremin 2007:362-3) have also revealed that the site, which included a large collection of rock art, is connected to the dreaming story of the Namarrgarn Sisters, who crawl down from the stars to warn children about the dangers of crocodiles who inhabit the Ubirr Rock area. This story about the star inhabitants encourages children to stay away from
certain parts of their environment and therefore, shapes the way they live their everyday life.

In summary, the main ideas that are presented in the Aboriginal astronomy literature are that Aboriginal Australians have a strong connection to astronomy and the night sky, and believe that their existence is connected to the sky and celestial phenomena. The literature also presents the idea that Aboriginal Australians believe that events that occur in the sky indicate when events should occur on earth, such as certain foods being ready to harvest. The literature also shows that Aboriginal Australians believe that mythical beings in the sky created the earth, shaped their environment and kept their people safe by discouraging them from visiting certain areas in the landscape. This knowledge is passed on through dreaming stories and art works, some of which are stored in museum and archive collections around Australia.

**Methodology**

The methodology involved in this directed study research comprised a number of different activities. The directed study required a brief literature review of Australian Aboriginal astronomy literature to be conducted, which involved searching library and journal catalogues for relevant literature. The literature was used to prepare a brief summary of the information that is available on Aboriginal astronomy, such as information about the Aboriginal beliefs about the night sky, as well as a summary of the main ideas and themes associated with Australia Aboriginal astronomy, and the people who have studied Aboriginal astronomy.
An analysis of online museum and archival collections, such as the AIATSIS MURA archive, libraries, national and state museums, science museums and planetarium was also carried out. This analysis was carried out to identify and locate any material related to Aboriginal astronomical traditions and knowledge, such as documents, artefacts, oral history recordings and various types of artworks. The collection analysis also allowed an overview of the Australian Aboriginal astronomy related material to be obtained, as well as where it is stored, who the traditional owners of the material are and any gaps that may exist in collections, such as specific geographic regions and Aboriginal groups that are not represented. This information is important when creating the collection policy for the repository proposed by Brett Biddington of Cisco Systems. The online collection and archive analysis and search were carried out by using phrases and terms like ‘Aboriginal astronomy’, ‘Aboriginal dreaming’, and ‘archaeoastronomy’ in the search fields that were available on the museum and archive websites. If there were no online collections available on the museum and archive websites, then consultation was facilitated by contacting the museum curators and relevant inquiry centres by email, to ask for any relevant information on Aboriginal astronomy material that they may have in their collections.

The methodology for this directed study also included searching national and state heritage registers to locate heritage sites around Australia that were associated with Aboriginal astronomy. The heritage registers were searched by using phrases like ‘Aboriginal dreaming’, ‘the night sky’, ‘Aboriginal astronomy’ and ‘Aboriginal traditions and ceremony’ in the search fields. Many sites are not listed because of their association with Aboriginal astronomy, but for other types of significance, therefore, when searching for Aboriginal astronomy related sites there was a need to
be creative when entering search terms, instead of only typing ‘Aboriginal astronomy’.

**Results**
The results of research in the museum and archive collections, heritage registers and the gaps in collections.

The results of online museum and archival research.
The online museum and archive collections research produced a variety of results.
The online collections which can be seen in Table 1 were searched for material associated with Australian Aboriginal astronomy, and a number of the museums and archives that were searched produced a vast range of material, which can be seen in Table 2, Table 3 and Table 4. A number of museums and archives had an online collection with no relevant material as seen in Table 1; however some did not have online collections. This required their curators and inquiry centres to be contacted directly, which will be discussed later in the report.

**Table 1: Museums with online collections - with and without relevant material**

<table>
<thead>
<tr>
<th>Museum/archive with online collection</th>
<th>Material Located</th>
<th>Material not located</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Museum</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Powerhouse Museum</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Scienceworks</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>AIATSIS archive</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>The British Museum</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Western Australian Museum</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>The National Archives</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Questacon Planetarium</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Onkaparinga Libraries</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>State Library of South Australia</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Item</td>
<td>Collection</td>
<td>Traditional Owner</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>‘The two wise men and the seven sisters’ dreamtime story: a story about the shaping of the earth by two spirits from the Milky Way, and seven sisters, stars of the Milky Way, who were sent to beautify the earth. One young sister fell in love with the two spirit men; therefore all three had to remain on earth to be the earth’s parents.</td>
<td>Indigenous Australia Collection, Australian Museum</td>
<td>Wong-Gu-Tha people, Ooldea, SA.</td>
</tr>
<tr>
<td>‘Wanarrina’ bark painting: represents the Tiwi people’s story of Purukuparli, whose brother is transformed into the moon to repeat the cycle of life and death, and whose sister is given a piece of fire bark to carry across the sky during the day to give life to the earth.</td>
<td>Powerhouse Museum</td>
<td>Tiwi People, Melville Island, NT</td>
</tr>
<tr>
<td>‘Toonkoo and Ngaardi’ dreamtime story: the story of when Darama the great spirit made Toonkoo and Ngaardi. Darama was forced to hide Toonkoo away in the moon when he became mad at Darama for bending Toonkoo’s spear and turning it into a boomerang.</td>
<td>Indigenous Australia Collection, Australian Museum</td>
<td>Yuin-Monaro People, Southern NSW.</td>
</tr>
<tr>
<td>The Tagai: the story of the Tagai as a man standing in a canoe with his crew of 12 as they prepare for a long journey. Before they set off, the crew eat all the food and drink all the drink that they had planned to take. The Tagai then strings the crew together into groups of six and casts them into the sea, where their images become patterns in the sky. These patterns are the star constellations of Pleiades and Orion.</td>
<td>Australian Museum</td>
<td>Torres Strait Islanders</td>
</tr>
</tbody>
</table>
Table 3: Items located in museum collections and Archives (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Collection</th>
<th>Traditional Owner</th>
<th>Date of accession</th>
<th>Form of material</th>
<th>Comments/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘New Moon Full Moon’ paper screen print</td>
<td>Millennium Portfolio of Australian Aboriginal Artists, The British Museum</td>
<td>Marrinj Clan, Northern Territory</td>
<td>2002</td>
<td>Paper screen print</td>
<td>Made by Mick Kubarkku</td>
</tr>
<tr>
<td>‘Wuriunpranill, the Sun Woman’ story: the story of Wuriunpranill, who travels across the sky from east to west carrying her blazing torch from a stringy bark tree.</td>
<td>Aboriginal Astronomy, Planetarium, Questacon National Science and Technology Centre</td>
<td>unknown</td>
<td>2008</td>
<td>Recorded dreaming story</td>
<td></td>
</tr>
<tr>
<td>‘A celestial calendar’ story: Marpeankurri, a clever woman who lived in the mallee forests of South Australia thousands of years ago, saved her people from starvation after she found wood ant larvae for everyone to eat. When she died, she became a star, which when seen, lets people know to search for wood ant larvae. She is the star now called ‘Arcturus’.</td>
<td>Aboriginal Astronomy, Planetarium, Questacon National Science and Technology Centre</td>
<td>Unknown (Mallee Country People)</td>
<td>2008</td>
<td>Recorded dreaming story</td>
<td></td>
</tr>
<tr>
<td>‘How the moon got into the sky’ story: people needed a light to brighten up the night sky. The people decided to make a giant shining boomerang, which when thrown really high by an elderly man, stayed up in the sky as the moon. The shape of the boomerang can be seen in the moon every month.</td>
<td>Aboriginal Astronomy, Planetarium, Questacon National Science and Technology Centre</td>
<td>Unknown (Cape York region )</td>
<td>2008</td>
<td>Recorded dreaming story</td>
<td></td>
</tr>
<tr>
<td>‘Venus- the morning star’ story: the story of Yaolngur, who set out for the home of the morning star, so he could find Barnimbir, the morning star and see if it was the same star as his own people had. When he saw that it was, he returned it to its guarder, Marlumbu, who released it into the sky where it hummed to signal the rising of the sun.</td>
<td>Aboriginal Astronomy, Planetarium, Questacon National Science and Technology Centre</td>
<td>Unknown (Northern Territory)</td>
<td>2008</td>
<td>Recorded dreaming story</td>
<td></td>
</tr>
</tbody>
</table>
Table 4: Items located in museum collections and Archives (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Collection</th>
<th>Traditional Owner</th>
<th>Date of Accession</th>
<th>Form of Material</th>
<th>Comments/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘The story of Alakitja’: a giant fish called Alakitja, who was speared by two brothers, who then lit their own campfires. The two campfires are the stars Delta Crucis and Gamma Crucis. The two brothers are the stars Alpha and Beta Crucis and the fish is the dark patch close by known as the coal sack. All these stars are part of the Southern Cross.</td>
<td>Aboriginal Astronomy, planetarium, Questacon National Science and Technology Centre</td>
<td>unknown</td>
<td>2008</td>
<td>Recorded dreaming story</td>
<td></td>
</tr>
<tr>
<td>‘Tjurtirangu’ painting: depicts the actions of the ancestral beings in the sky including making a rainbow, lightning and hailstones in the sky</td>
<td>‘WA Land and People’ collection, Western Australian Museum</td>
<td>Ngaanyatjarra people, near Perth, WA</td>
<td>1999</td>
<td>Painting</td>
<td>Painted by Stewart Davies of the Ngaanyatjarra people.</td>
</tr>
</tbody>
</table>
Despite some museums and archives not containing any relevant material, other museum collections were found to contain many different types of material that were associated with Australian Aboriginal astronomy. The material that was located in the online museum and archive collections included a number of different types of artwork. Canvas paintings, bark paintings and a paper screen print from the Northern Territory and Western Australia were located in museums in Australia and the United Kingdom. The Powerhouse Museum was found to contain two bark paintings from the Tiwi people on Melville Island in the Northern Territory, which are titled ‘Wanarringa’ and ‘Tapalinga’ (Powerhouse Museum 2008). These paintings, which can be seen in Table 2, are connected to Tiwi dreaming stories about the cycle of the moon in the sky and giving life to the earth (Powerhouse Museum 2008). The Western Australian Museum also contains a canvas painting in their ‘WA Land and People’ collection (Western Australian Museum 2008). The painting titled ‘Tjurtirangu’ comes from the Ngaanyatjarra people near Perth and it is a depiction of the actions that their ancestral beings in the sky make and shows a rainbow, lightning and hailstones in the sky (Western Australian Museum 2008). The British Museum also houses a paper screen print in their ‘Millennium Portfolio of Australian Aboriginal Artists’ (British Museum 2008). The paper screen print titled ‘New Moon, Full Moon’ was made by Mick Kubarku from the Marinj Clan in the Northern Territory and depicts how the Marinj Clan see the cycle of the moon in the sky (British Museum 2008). Although many traditional forms of painting were found, a painted emu egg, which can be seen in Table 2, was also located in the Powerhouse Museum collection and contains Darug sun and moon symbols (Powerhouse Museum 2008).

Along with the artwork located, a number of dreaming stories were also located during the online museum collection search. The Australian Museum contains three dreaming stories connected to Aboriginal astronomy (Australian Museum 2008). One dreaming story that had
been recorded and stored in the museum is a story from the Torres Strait Islander people of Australia titled ‘The Tagai’ (Australian Museum 2008). The story of ‘The Tagai’, which is in Table 2, is about the Tagai spirit as a man on a boat, who as a result of having a disobedient boat crew, has to string the crew together into groups of six and cast them into the sea where their images become patterns in the sky, specifically the constellations of Pleiades and Orion (Australian Museum 2008). The Australian Museum’s ‘Indigenous Australia’ collection contains a dreaming story recording from the Wong-Gu-Tha people from Ooldea in South Australia, which is called the ‘Two wise men and the seven sisters’ (Australian Museum 2008). The story about Aboriginal astronomy is centred on the shaping of the earth by two spirits and seven sisters who are stars that reside in the Milky Way (Australian Museum 2008). The Australian Museum also contains the ‘Toonkoo and Ngaardi’ dreaming story, seen in Table 2, which is from the Yuin-Monaro people in southern New South Wales and is about Darama the great spirit who made Toonkoo and Ngaardi, and then was forced to hide Toonkoo away in the moon when he became mad at Darama for turning his spear into a boomerang (Australian Museum 2008).

The Questacon Planetarium ‘Aboriginal Astronomy’ collection at the Questacon National Science and Technology Centre contains a number of dreaming stories that have been collected from various Aboriginal groups around Australia (Questacon Planetarium 2008). The story of ‘Wuriunpranilli’ who travels across the sky carrying her blazing torch from a stringy bark tree was recorded from an unknown traditional owner group, however, the ‘Celestial Calendar’ story of a woman who saved her people and became the star ‘Arcturus’ when she died, which can be seen in Table 3, is from the Mallee Country people in South Australia (Questacon Planetarium 2008). The story of ‘how the moon got into the sky’, from Aboriginal groups in the Cape York region in Queensland was also recorded and stored in the Questacon Planetarium (2008). The Northern Territory based ‘Venus-the morning star’ story
of Yaolngur, who set out to find Barnimbir the morning star, is also recorded and stored at the Questacon Planetarium, along with the ‘story of Alakitja’, a giant fish who was speared and became part of the Southern Cross constellation (Questacon Planetarium 2008).

The results of consultation with museum curators and enquiry centres

As mentioned earlier, although some museums and archives had online collections that either contained material associated with Aboriginal astronomy, or contained no relevant material, some museums did not have an online collection and needed to be contacted directly, which can be seen in Table 5. This consultation revealed that despite the fact that astronomy is vital to the Aboriginal culture (Bhathal and White 1991), some museums and archives did not contain any material related to Australian Aboriginal astronomy, while a response was not received by other museums and archives, making it hard to determine whether relevant material was present in the collections.

<table>
<thead>
<tr>
<th>Museum/archive with no online collection</th>
<th>Contacted</th>
<th>Responded to by</th>
<th>Outcome of enquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Australian Museum</td>
<td>Dr. Keryn Walshe</td>
<td>Dr. Keryn Walshe and Tara Dodd, Curators of Indigenous Australia collection</td>
<td>There is no relevant material at the museum but that there is plenty of literature that has been published</td>
</tr>
<tr>
<td>Queensland Museum</td>
<td>Inquiry centre on website</td>
<td>Trish Barnard, Curator of Indigenous Studies</td>
<td>There are a number of bark paintings from Arnhem land that incorporate astronomy into their designs</td>
</tr>
<tr>
<td>Museum and Art Gallery of the Northern Territory</td>
<td>Inquiry centre on website</td>
<td>No response</td>
<td>No outcome</td>
</tr>
<tr>
<td>Tasmanian Museum and Art Gallery</td>
<td>Inquiry centre on website</td>
<td>No response</td>
<td>No outcome</td>
</tr>
</tbody>
</table>
Consultation with the South Australian Museum, which involved email correspondence with Dr. Keryn Walshe and Tara Dodd, curators of the ‘Indigenous Australian’ collection, revealed that there is no material relating to Australian Aboriginal astronomy at the SA Museum (Walshe 2008; Dodd 2008). Despite this, they did provide information on where to search for Australian Aboriginal astronomy related literature, such as in the AIATSIS catalogue (Walshe 2008; Dodd 2008). Trish Barnard (2008) from the Queensland Museum responded to a request for information through their inquiry centre and revealed that the museum does contain a number of bark paintings from Arnhem Land that incorporate Aboriginal astronomy into their design. Despite these responses, the Museum and Art Gallery of the Northern Territory, and the Tasmanian Museum and Art Gallery did not respond to a request for information regarding material associated with Aboriginal astronomy.

The results of the research into gaps that may exist in collections

The research into gaps that may exist in collections involved assessing online museum and archive collections to identify the traditional owner groups and geographical regions that the Australian Aboriginal astronomy material originated from, which can be seen in Tables 2, 3 and 4. The traditional owner groups and regions that were identified in the museum and archive collections were then used to identify the groups and regions that were not represented in the museum and archive collections and these can be seen in Table 6. The literature review also helped to identify gaps in collections, as the study that has been done helped to identify Aboriginal groups, knowledge and sites that are connected to Aboriginal astronomy that are not currently represented in the museum and archive collections. These gaps can also be seen in Table 6.
Table 6. Gaps in collections identified by the online collections research and literature review

<table>
<thead>
<tr>
<th>Gap in Collection</th>
<th>State/Territory</th>
<th>Connection to Astronomy</th>
<th>Gap Identified by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gagudji people</td>
<td>NT</td>
<td>Story of the Namarrgarn sisters</td>
<td>Cremin (2007)</td>
</tr>
<tr>
<td>Ubirr Rock</td>
<td>NT</td>
<td>Site of Namarrgarn story</td>
<td>Cremin (2007)</td>
</tr>
<tr>
<td>Kuwema People</td>
<td>-</td>
<td>Knowledge that rise of Orion indicates time to harvest food sources</td>
<td>Norris (2008)</td>
</tr>
<tr>
<td>Ngaut Ngaut site</td>
<td>SA</td>
<td>Engravings of sun/moon</td>
<td>Norris (2008)</td>
</tr>
<tr>
<td>Nganguraku People</td>
<td>SA</td>
<td>Traditional owners of Ngaut Ngaut site</td>
<td>Norris (2008)</td>
</tr>
<tr>
<td>Wurdi Youang site</td>
<td>VIC</td>
<td>Stone arrangement indicating position of the sun at equinoxes and solstices</td>
<td>Norris (2008)</td>
</tr>
<tr>
<td>Wathaurung people</td>
<td>VIC</td>
<td>Traditional owners of Wurdi Youang site</td>
<td>Norris (2008)</td>
</tr>
<tr>
<td>All of Victoria</td>
<td>VIC</td>
<td>Not known as yet</td>
<td>No evidence of Victoria in online collections</td>
</tr>
<tr>
<td>All of Tasmania</td>
<td>TAS</td>
<td>Not known as yet</td>
<td>No evidence of Tasmania in online collections</td>
</tr>
<tr>
<td>All of Australian Capital Territory</td>
<td>ACT</td>
<td>Not known as yet</td>
<td>No evidence of ACT in online collections</td>
</tr>
</tbody>
</table>

The online museum and archive collection search identified material that was confirmed as originating from the Wong-Gu-Tha people near Ooldea in South Australia, the Tiwi people on Melville Island in the Northern Territory, the Yuin-Monaro people in southern New South Wales, the Marinj Clan in the Northern Territory, the Ngaanyatjarra people in Western Australia, the people in the Cape York region in Queensland and the Mallee Country people in South Australia. This means that many other regions and groups remain unrepresented at the present time and these can be seen in Table 6. Overall, there is a very large number of
Aboriginal groups and geographic areas that are unrepresented in existing collections and these can be seen as the unshaded areas in Norman Tindale’s map of Aboriginal tribal boundaries, which is included below as Map 1 (Tindale 1974).

Map 1. Collection gaps presented as unshaded areas on Norman Tindale’s Aboriginal Tribal Boundaries Map

Norman Tindale (1974)

The results from research into heritage registered sites associated with Aboriginal astronomy

The search for sites associated with Aboriginal astronomy in Australian heritage registers returned a few results, which can be seen in Table 7. The Australian Heritage Database (2008) was searched as it contained data lists of all registered sites in all Australian states and territories. The search of all the registers revealed that the Nourlangie/Nanguluwur site is connected to Aboriginal astronomy because of the Namondjok story and artwork, and is in the Register of the National Estate and the Commonwealth Heritage List (Australian Heritage Database: 7/04/001/0006 2008).
The site was registered in 1980 and contains more than 100 rock paintings of sacred beings that reside in the sky (Australian Heritage Database: 7/04/001/0006 2008). The Brewarrina Fish Traps in NSW were also found to be connected to astronomy as they were believed to be made by the Great Spirit Baiame who lives in the sky (Australian Heritage Database: S90/03938 2008). The site is also a meeting place for the Ngemba people and is on the NSW Heritage Register (Australian Heritage Database: S90/03938 2008).

The NSW Heritage Register (Australian Heritage Database 1220016 2008) also contains the Byrock Rock Holes area which is believed to be made by Baiame and is at the centre of a creation story. The Koonibba area near Ceduna is on the Register of the National Estate and is a women’s place associated with the Seven Sisters astronomy dreaming story (Australian Heritage Database: 3/05/212/0008 2008). All of the state heritage registers were searched, however the results, seen below, were difficult to locate as they were not always listed because of their connection to astronomy, which will be discussed later.

<table>
<thead>
<tr>
<th>Registered Site</th>
<th>Connection to astronomy</th>
<th>Register/list</th>
<th>File no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nourlangie/Nanguluwur Rock NT</td>
<td>Namondjok Story and artwork</td>
<td>Register of the National Estate</td>
<td>7/04/001/0006</td>
</tr>
<tr>
<td>Brewarrina Fish Traps</td>
<td>Made by Baiame in the sky and is a meeting place for the Ngemba People</td>
<td>NSW Heritage Register</td>
<td>S90/03938,</td>
</tr>
<tr>
<td>Byrock Rock Holes Area</td>
<td>Made by Baiame in the sky, is connected to creation story and is an important water supply for the Ngeuma People</td>
<td>NSW heritage Register</td>
<td>1220016</td>
</tr>
<tr>
<td>Koonibba Area SA</td>
<td>Women’s place associated with the Seven Sisters story</td>
<td>Register of the National Estate</td>
<td>3/05/212/0008</td>
</tr>
</tbody>
</table>
**Discussion/Analysis**

The discussion and analysis of the results of research in the museum and archive collections, heritage registers and the gaps in collections.

The discussion and analysis of the results of research in the museum and archive collections

The results of the research in the museum and archive collections showed that there is a limited amount of material associated with Aboriginal astronomy in the collections. This is an interesting result as one would expect more material to be present in the collections because of the vital role that astronomy plays in the Aboriginal culture (Bhathal and White 1991; Norris 2008; Haynes et al 1996). The results showed that the material was originally from traditional owner groups on the coastal areas of Australia and this could be because the coastal Aboriginal groups have stronger art practices and produce more art work and dreaming stories. However, this result could also be explained by the idea that coastal groups could have been given more opportunities to produce art and stories and have them stored and recorded in collections, than inland groups in more remote and isolated locations.

The numerous forms of astronomy related artwork that was located indicates that Aboriginal astronomy is likely to be part of many cultural practices, as it is presented in different ways and in different forms. This shows that Aboriginal astronomy does not have to be presented in a specific way and is free to be presented in varying forms and in whatever way Aboriginal people would like to present it in their art and culture.

The results of the online collection research also included a number of Aboriginal astronomy dreaming stories. It can be interpreted that Aboriginal astronomy stories are important to everyone in the community, as stories are passed down from generation to generation (Bhathal and White 19910), and the number of stories produced and stored is much higher
than other forms of material in the collections. This indicates that producing dreaming stories and passing the knowledge down to younger generations is an important process for Aboriginal Australians.

The results of the research also showed a lack of artefacts, oral histories and objects in the existing collections. This could be because they simply do not exist, however, because the Aboriginal culture involves a vast material culture (Cremin 2007), a more likely explanation for the lack of material could be that Aboriginal groups around Australia have not had the chance to have their astronomy related objects, oral histories and artefacts recorded and stored. This could be especially so with oral histories as recording them could involve a very long process. This result shows that there is definitely a need for a national repository of Indigenous knowledge about astronomy and the night sky, as it would give all Aboriginal groups the chance to have their astronomical knowledge, traditions and material culture stored and recorded in a safe keeping place.

The research also showed that a number of collections did not contain any material related to Australian Aboriginal astronomy. This could be because Aboriginal groups and museums have not been given the opportunity to participate in consultation with each other. This shows that a national repository is needed as it would allow many more groups to be represented and have their material recorded and stored, no matter which region or traditional group they came from or which opportunities they had or had not been given.

**The discussion and analysis of the results from research into gaps in collections**

The results from the research into gaps in collections showed that there are a large number of gaps in existing collections around Australia. The results showed that there was material in the collections that was confirmed as originating from seven traditional owner groups and
regions, which leaves many groups and regions unrepresented in existing collections, which you can see in Map 1. The results showed that there are many sites, groups and regions that have been identified as being associated with Aboriginal astronomy, but do not appear in any existing collections, which can be seen in Table 6. This could be because people have studied the groups, regions and sites and identified their connection to astronomy, but the groups have not had the chance to have their culture recorded in museums, or perhaps do not want to record it in fear of it being made available to everyone. This shows again that there is a need for a national repository of Indigenous astronomical knowledge, as it would allow many of the existing gaps to be filled in, while meeting the needs of the traditional owners and keeping their material safe and secured.

**The discussion and analysis of the results from research into heritage registered sites associated with Aboriginal astronomy**

The results of the research into the heritage registered sites associated with Aboriginal astronomy were very interesting, as they showed a small number of registered sites associated with astronomy, despite the fact that astronomy is important to every Aboriginal group around Australia (Bhathal and White 1991; Norris 2008). The sites that were located were not always listed for their association with astronomy, such as with the Byrock Rock Hole area, and were consequently difficult to locate. This indicates that there may be many more sites connected to astronomy that could not be identified for this study because they are not listed as being associated with astronomy. This shows that there is a need for a comprehensive study to be conducted to assess whether any more sites are astronomy related, as the registers are currently hard to navigate and find results when searching for astronomy related sites, which are bound to be numerous due to the strong Aboriginal connection to astronomy.
Conclusions

This directed study was focused on assessing online museum and archive collections for Australian Aboriginal astronomy material, identifying the traditional owners of the material, identifying gaps in the existing collections and locating any heritage registered sites that are connected to Aboriginal astronomy, all of which this study accomplished.

In conclusion it is very clear that astronomy plays a very important role in the Aboriginal culture of Australia (Bhathal and White 1991; Norris 2008). This directed study revealed that astronomy shaped the way Aboriginal people moved around their environment and lived their lives, and also revealed that Aboriginal Australians believe that many events that occur on earth are represented by constellation in the night sky (Haynes et al 1996; Bhathal and White 1991). This is seen in the dreaming story documents that were located during the online museum and archive collections, which describe how the earth was made and how the people on earth are connected to the beings and constellations in the sky. The material that was located also included various types of art works including a paper screen print, bark paintings and a painted emu egg that were all associated with Aboriginal astronomy. The study revealed that there is a lack of oral histories and artefacts in the collections and this could be because the process of collecting this material could be a much longer and more difficult process, as mentioned earlier in the report. This directed study achieved the first aim of the project which was to assess the collections and locate Aboriginal astronomy associated material. The study also revealed the traditional owner groups that the material belonged to, which then revealed that the astronomy associated material primarily came from coastal areas around Australia. This, along with the literature review that was conducted earlier in the study, allowed the conclusion to be made that there are many Aboriginal traditional owner groups, Aboriginal sites and geographic regions around the rest of Australia that remain
unrepresented in existing collections, and are therefore the many gaps that exist in the museum and archive collections around Australia, which can be seen in Map 1.

The gaps that were identified by the online museum and archive collection search include the whole state of Tasmania and the Australian Capital Territory, and although consultation was facilitated through an inquiry centre to ask the Tasmanian Museum and Art Gallery for any information associated with Australian Aboriginal astronomy, no response was received which makes it difficult to establish the presence of astronomy related material in their collection. The many gaps that were identified in Table 6 and Map 1 show that there is a need for a national repository of Indigenous astronomical knowledge as it would give all Aboriginal groups the chance to have their astronomy related material culture, traditions and knowledge stored and recorded in a safe and secure environment if they choose, an opportunity which may not have been given to a lot of remote, isolated Aboriginal groups.

Another reason for a lack of material in collections could simply be that the material does not exist, and although this is unlikely as mentioned during the report, a national repository could encourage Aboriginal groups to participate more in cultural practices, like producing art and recording their oral histories, as it would provide a safe keeping place for their cultural material to be recorded and stored.

The directed study also aimed at identifying heritage registered sites that are associated with Aboriginal astronomy, which was done successfully for four different sites. The Australian Heritage Database (2008) was searched to identify the sites, which were discussed in detail earlier in the study, and this search revealed that the sites, despite being associated with astronomy, were not always listed because of this associated with the night sky. The conclusion has been made that there are probably many more astronomy associated sites
registered around Australia that were unable to be identified for this study because they were registered for other types of significance rather than their astronomical significance.

The directed study has fulfilled all of the aims that were set out in the beginning of the report. The study identified Aboriginal astronomy material in online collections and if no collections were available, the relevant people were contacted to try and gain the information that was needed to help obtain an overview of the material. The traditional owners of the material were identified, along with any gaps that existed in the current collections, which also helped to obtain an overview of the material. Heritage registered sites associated with astronomy were also identified where possible, which was the final aim of the directed study.

At the completion of this directed study, the recommendation is put forward that future research be conducted on assessing sites for Aboriginal astronomical significance. This would allow a more comprehensive view of the astronomy related sites to be gained, as many Aboriginal sites are listed for other types of significance, even though they are connected to astronomy, and some do not have their Aboriginal significance recorded in detail. This future study would assist the proposed repository even further, as it would continue on from this directed study by focusing on providing a more complete view of the significant places around Australia that are connected to Aboriginal astronomy.
References and Information Sources


URL: www.environment.gov.au/heritage/ahdb/index

URL: www.dreamtime.net.au


Johnson, D. 1998. *Night skies of Aboriginal Australia, a noctuary*. Oceania Monograph 47, University of Sydney


URL: www.atnf.csiro.au/research/AboriginalAstronomy/

URL: www.onkaparingacity/lib

URL: www.powerhousemuseum.com/collection/database

URL: www.qm.qld.gov.au/


URL: http://www.britishmuseum.org/

URL: www.samuseum.sa.gov.au

URL: http://www.museum.wa.gov.au

Personal Communications


Dodd, T. elec. comm. 9 April 2008

Walshe, K. elec. comm. 9 May 2008