SONGLINES AND NAVIGATION IN WARDAMAN AND OTHER AUSTRALIAN ABORIGINAL CULTURES

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Abstract: We discuss the songlines and navigation of the Wardaman people, and place them in context by comparing them with corresponding practices in other Aboriginal Australian language groups, using previously-unpublished information and also information drawn from the literature. Songlines are effectively oral maps of the landscape, enabling the transmission of oral navigational skills in cultures that do not have a written language. In many cases, songlines on the Earth are mirrored by songlines in the sky, enabling the sky to be used as a navigational tool, both by using it as a compass and by using it as a mnemonic.

Notice to Aboriginal and Torres Strait Islander Readers: This paper contains the names of people who have passed away.

Keywords: ethnoastronomy, cultural astronomy, Aboriginal Australians, navigation, songlines.

1 INTRODUCTION

1.1 Aboriginal Australian Astronomy

It is now well established that many traditional Aboriginal cultures incorporate significant references to the sky and to astronomical phenomena (e.g. Cairns and Harney, 2004; Fuller et al., 2014a; Haynes, 1992; Johnson, 1998; Mountford, 1956, 1976; Norris and Hamacher, 2009, 2011; Norris and Norris, 2009; Stanbridge, 1857, 1861). For example, many different Aboriginal cultures across Australia refer to the ‘Emu in the Sky’ (Cairns and Harney, 2004; Fuller et al., 2014b; Massola, 1963; Norris and Norris, 2009), formed from the arrangement of dark clouds within the Milky Way. Equally important in many Aboriginal cultures across Australia are the Orion constellation, which usually symbolises a young man or group of young men, and the Pleiades (Seven Sisters) cluster, which usually symbolises a group of girls pursued by Orion. Star stories can also encapsulate ceremony, law and culture for transmission to the next generation (Harney and Norris, 2009).

This traditional knowledge extends well beyond mere symbolism, and many Aboriginal cultures contain evidence of a detailed understanding of the sky. For example, within traditional songs can be found explanations of tides, eclipses and the motion of the celestial bodies (Hamacher and Norris, 2012; Norris, 2007; Norris and Norris, 2009). Practical applications of this knowledge include the ability to predict tides, as well as navigation, time keeping and the maintenance of a calendar (Cairns and Harney, 2004; Clarke, 2009).

Evidence for these astronomical traditions is found not only in oral traditions, but also in art and artifacts. Some groups of stone arrangements are aligned to cardinal points with an accuracy attainable only by astronomical measurement (Hamacher et al., 2013). The Wurdi Youang stone ring in Victoria contains alignments to the position of the setting Sun at the equinox and the solstices (Norris et al., 2013). Statistical tests show that these alignments are unlikely to have arisen by chance, and instead the builders of this stone arrangement appear to have deliberately aligned the site to astronomically-significant positions.

Although evidence of astronomical knowledge has been found in many Aboriginal cultures, the best-documented example is undoubtedly that of the Wardaman people, largely because of co-author Harney’s enthusiasm to share his traditional knowledge with the wider world. In particular, the book Dark Sparklers (Cairns and Harney, 2004; henceforth DS) documents in exquisite detail the astronomical lore of the Wardaman people.

1.2 Directionality

The concept of cardinal directions is common amongst Aboriginal language groups in Australia (Hamacher et al., 2013, and references therein). The Warlpiri people in central Australia are especially prominent in this respect, as much of their culture is based on the four cardinal directions that correspond closely to the four cardinal points (north, south, east and west) of modern western culture (Laughren, 1978, 1992; Nash, 1980, Pawu-Kurlpurlurnu et al., 2008). In
the Warlpiri culture, north corresponds to ‘law’, south to ‘ceremony’, west to ‘language’ and east to ‘skin’. ‘Country’ lies at the intersection of these directions, at the centre of the compass—i.e. ‘here’ (Pawu-Kurlpurlurnu et al., 2008; also personal communication from Pawu-Kurlpurlurnu to Norris, 2008).

Cardinal directions are also important in Wardaman culture, and were created in the Dreaming by the Blue-tongued Lizard (DS: 60):

Blue-tongue Lungarra now he showing all these boomerang, calling out all the names: east, west, north, south, all these sort of type.

Other language groups have cardinal directions that may vary from the modern western convention, although east and west are often associated with the rising and setting positions of the Sun, and the words for east and west are often based on the word for the Sun (Hamacher et al., 2013, and references therein). However, in some cases, the cardinal positions are loosely defined and may vary markedly from place to place (Breen, 1993).

Directionality is also important in the sleeping position, as described by Harney (DS: 61):

We gotta sleep east, not downhill. We can sleep crossway, but we’re not allowed to sleep towards the Sun going down. Sleep down the bottom, it’s bad luck for you because you’re against the Sun. If you sleep on the eastern way and going that away, that’s fine. Facing west, you gotta change your bed. Head up on the east when you sleep ... each person where they die, in our Law, we always face them to their country. Graveyard always face to their country, they can look straight to their country.

Burials in other traditional Aboriginal cultures were often aligned to cardinal directions. For example, the deceased in New South Wales (henceforth NSW) were buried facing east, in a sitting position (Dunbar, 1943; Mathews, 1904: 274).

In contrast to the east-west alignments of burials, initiation sites in NSW were often aligned roughly north-south. In a study of bora (initiation) sites in NSW, Fuller et al. (2013) found that bora sites have a statistically significant preferred orientation to the south and south-west, which is consistent with circumstantial evidence that bora grounds are aligned with the position of the Milky Way in the night sky in August, which is roughly vertical in the evening sky to the south-southwest. This connection between bora sites and the Milky Way was subsequently confirmed in ethnographic studies by Fuller et al. (2014b), who found that the head and body of the ‘Emu in the Sky’ correspond to the small and large bora rings respectively on the ground.

![Map showing some of the places and the locations of language groups discussed in the text (adapted from a map licensed under the Creative Commons Attribution-Share Alike 3.0).](image-url)
1.3 Wardaman Astronomy

The land of the Wardaman people is about 200 km southwest of Katherine in the Northern Territory (see Figure 1). We are fortunate that co-author Harney grew up and was educated and initiated at a time when the Wardaman people still followed a largely traditional lifestyle (see Figures 2 and 3). The language and culture of the Wardaman people has a particularly strong astronomical component, and are well documented in DS. The three major creation figures (Froglady Earthmother and her two husbands, Rainbow and Sky Boss) are all signified by dark clouds in the Milky Way, and stars and nebulae document other figures and other events. The Southern Cross is particularly important, and its orientation defines the Wardaman calendar and marks the cycle of dreaming stories throughout the year.

In the words of Harney (2009):

In the country the landscape, the walking and dark on foot all around the country in the long grass, spearing, hunting, gathering with our Mum and all this but each night where we were going to travel back to the camp otherwise you don’t get lost and all the only tell was about a star. How to travel? Follow the star along … While we were growing up. We only lay on our back and talk about the stars. We talk about emus and kangaroos, the whole and the stars, the turkeys and the willy wagtail, the whole lot, everything up in the star we named them all with Aboriginal names. Any way we talked about a lot of that … but we didn’t have a watch in those days. We always followed the star for the watch … Emu, Crocodile, Cat Fish, Eagle Hawk, and all in the sky in one of the stars. The stars and the Milky Way have been moving all around. If you lay on your back in the middle of the night you can see the stars all blinking. They’re all talking.

1.4 This Paper

Aboriginal songlines and navigation are not well documented, and the primary goal of this paper is to summarise the available information, including some previously-unpublished information. This paper is doubtless incomplete, and hopefully will be supplemented or superseded by more detailed studies.
This paper focuses on the songlines and navigation of the Wardaman people, for which the best documentation is available, while making comparisons with corresponding practices in other Aboriginal Australian language groups. This paper departs from conventional scholarly practice because one of the authors (Harney) is the senior Wardaman Elder with a great reserve of traditional knowledge, much of which has not yet been documented. It is therefore appropriate to include quotes from Harney in his own words. One aim of this paper is to document some of this traditional knowledge. Where possible, we do so by using the verbatim transcripts of Harney’s verbal descriptions, accompanied by a reference with dates and other details. No attempt has been made to reword these descriptions. This is to retain the original flavour and avoid unintentional misinterpretation.

We recognise that the many different Aboriginal language groups have different practices and cultures, and by describing the practices of different cultures in this paper we recognise the risk of imposing a ‘one size fits all’ stereotype to all these cultures. That is not our intention. Instead, this paper should be regarded as a sample of the available information on the navigational practices of Aboriginal Australians.

2 SONGLINES

The English word ‘songline’ was coined by Chatwin (1987), but the concept is ancient and embedded in traditional Aboriginal cultures. They are often referred to as ‘Dreaming Tracks’, and can also be called ‘strings’ (Clarke, 2003: 19) in the sense that they connect different people and sacred sites. According to Harney (2009):

Between the star and the landscape and the rock painting and all that, they’re more or less connected together around the country.

Mulvaney and Kamminga (1999: 95) argue that they also represent the trading routes that criss-cross Australia. Gammage (2011: 24) says:

A songline or storyline is the path or corridor along which a creator ancestor moved to bring country into being. It is also the way of the ancestor’s totem, the geographical expression of their songs, dances and paintings animating its country, and ecological proof of the unity of things.

According to Wositsky and Harney (1999: 301):

Songlines are epic creation songs passed to present generations by a line of singers continuous since the dreamtime. These songs, or song-cycles, have various names according to which language group they belong to, and tell the story of the creation of the land, provide maps for the country, and hand down law as decreed by the creation heroes of the

Figure 3: A previously-unpublished photograph of Bill Yidumduma Harney’s family in 1929 (photograph courtesy B.Y. Harney).
dreamtime. Some songlines describe a path crossing the entire Australian continent.

As well as marking routes on the ground, songlines were also paths in the sky, several examples of which are described in detail in DS. Harney (2009, personal communication to Norris) described how the songlines on Earth were mirrored by the songlines in the sky, so that knowledge of the sky formed a mnemonic for tracing a route on Earth. This mirroring was created when the Creator Spirits moved to the sky (DS: 99):

One day it was all different, when they come down and make up the Creation line songs, because they travelling. When everything become still. They all split up, land, become all the stars ...

For example, one songline starts at Yirrkala in Arnhem Land, where the Yolngu believe Barnumbiri (Venus) crossed the coast as she brought the first humans to Australia from the east (Allen, 1975; Norris and Norris, 2009). Her song, contained within the Yolngu Morning Star ceremony, describes her path across the land, including the location of mountains, waterholes, landmarks and boundaries. The song therefore constitutes an oral map, enabling the traveller to navigate across the land while finding food and water. It is said by Yolngu Elders at Yirrkala that the same song is recognisable in a number of different languages along the path from east to west, crossing the entire ‘top end’ of Australia. The song changes along the route, being longer and more ‘sing-song’ in the east, and shorter, and broken into short sharp segments, in the west (personal communication by Elders at Yirrkala to Norris, 2007).

Many other songlines are known across Australia (e.g. Kerwin, 2010). Fuller et al. (2014c) report several songlines known to the Euaahlayi people, including the eaglehawk songline that extends from Heavitree Gap at Alice Springs to Byron Bay on the East Coast, connecting the Arrernte people with the Euaahlayi people, and also connecting the stars Achernar, Canopus and Sirius. The Euaahlayi people also know the Black Snake/Bogong Moth songline connecting Normanton on the Gulf of Carpentaria with the Snowy Mountains near Canberra, which also follows the Milky Way.

Another example is the two songlines that are said by Darug Elders to extend west from Sydney, through Sackville, and then roughly follow the paths of the Great Western Highway and the Bells Line of Road respectively, until they join again at Little Hartley (personal communication by Des Dyer and Gordon Workman of the Darug Tribal Aboriginal Corporation to Norris, 2007). Supporting evidence includes the Darug rock engravings found close to the path of the Great Western Highway through the Blue Mountains.

The creation of the songlines is described by Harney and Lee (2010: 11):

They put all them together, then with that, they made all the Songlines, right across the country. And that Creation Song now, we still got it today. Nothing been changed, we still got that old one. Original one. Because we gotta have that for all this rock painting, all the different sites, and rock.

Such long distance paths were important because of the important trading routes (e.g. Gammage, 2011; Kerwin, 2010, and references therein) traversing Australia for the trading and exchange of goods, such as the export of ochre from Wardaman country. Lee and Harney (2009) explain that

Red and yellow from this area are considered very powerful and were traded for long distances for use in ceremonies.

A journey, sometimes taking months, would have several functions, including attending ceremonies, as well as trading. The trading itself might include the trading of intellectual property, such as songs and dances, as well as material objects.

Later, many of these ancient trade routes, which were often based on songlines, laid the basis for some of the current networks of highways across Australia (Wositsky and Harney, 1999: 14):

They showed him the way right through from Willeroo to Victoria River Downs Station. My grandfather used to go in the lead, and blaze the trees all the way, following the old Aboriginal walking pad, and old Bill would come along behind him making the road. They call it the Victoria Highway now, but it was never the Victoria Highway at all — it was just the original Aboriginal walking trail right through Arnhem Land and Katherine Gorge and past Willeroo, right down to Western Australia. They used that walking trail to trade their boomerangs and spears and many different ochres and when they did the trade they had ceremonial meetings. That had been a walking trail for a hell of a long time ... all the way from Cape York right through Borroloola and straight across the country. They hit Roper River and followed the Roper River all the way past Mataranka and they came right past Willeroo.

3 NAVIGATION

Tindale (1974: 75) was aware of ancient Aboriginal tracks across large parts of Australia, but considered that their use was mainly for travelling short distances. However he noted of the trading routes (Tindale, 1974: 81) that
the great distances covered and also the
difficulties encountered, considering the pre-
carious line of communication across formid-
able dry areas, are striking.

It is curious that there is almost no discus-
sion of the navigational practices of Aboriginal
people by those who studied their culture ex-
tensively during the last century, such as Elkin,
the Berndts and Mountford. With hindsight,
many of the songs and stories that they des-
cribe involve a route on Earth, or in the sky,
followed by creator-spirits, but were not discus-
sed at the time in terms of navigation. For ex-
ample, Elkin (1938: 304) appears to have heard
at least one songline without noting its signifi-
cance:

... each ... sings all night its cycle of the
hero’s experiences as he journeyed from the
north coast south and then back again north
... a headman sitting nearby commented that
the Ngurlmak, according to the text, was now
in that country, then in another place, and so
on, ever coming nearer until at last it was just
where we were making the recording.

Mountford (1976: 50) discussed the exten-
sive trading networks without asking how
people navigated these vast distances, and
discussed Aboriginal astronomy without asking
if the stars were used for navigation. He ap-
parently encountered song-line descriptions, but
did not remark on their navigational significan-
ces. For example, he recounts (Mountford, 1976:
462):

The series of twelve drawings ... indicate that
the route of Orion and the Pleiades extends
from the Warburton range in Western Aus-
tralia through the Rawlison, Petermann,
Mann, and Musgrave ranges, reaching Glen
Helen, in the country of the Western Aranda.
At some point between the Petermann and
Mann mythical route, the name of the man of
Orion was changed from Jula to Nirunja ...

It is unclear whether this lack of discussion re-
lects the assumptions and interests of the
anthropologists at the time, or because this
knowledge was regarded by the Aboriginal
participants as secret. Nevertheless, the avail-
able evidence (e.g. Kerwin, 2010) shows unam-
biguously that the ability to navigate long dis-
ances was widespread.

Amongst the Wardaman people in northern
Australia, most travelling was done at night,
when the air was cool and the stars were
visible as guides. Furthermore, there was a
belief that distances were smaller at night (DS:
65):

The old people, the old man walking during
the day saying the distance get far away from
you. Walk in the night in the darkness, the
distance shrinking up. Somehow it’s shrink-
ing up! The Earth’s pulling away from you

pretty fast! Shrinking up, that’s what they told
us. But ... during the daytime, the Earth’s still
standing still. Aborigine call it in a word, the
Shame – he shamed to move.

Elsewhere in Australia, night-time travel was
less common. Maegraith (1932) and Lewis
(1976) found that Central Desert people did not
use the stars for navigation, and did not travel
at night, and Fuller et al. (2014c) found that
Euahlayi people did not travel at night.

Where possible, and for long-distance navi-
gation, a songline would be followed (DS: 63):

Not just songline trail, walking trail, trade
routes. You sing a song, then you follow your
song, in that track you go along singing the
song, like a blazed mark.

Traditional Aboriginal Elders (such as Har-
ney) have an intimate knowledge of the night
sky, far better than that of most modern-day
Western astronomers (such as Norris), and can
name many stars in any given patch of sky, and
explain their role in the Dreaming stories.
Mountford (1976: 449) considered that

... many Aborigines of the desert are aware of
every star in their firmament, down to at least
the fourth magnitude, and most, if not all, of
those stars would have myths associated with
them.

These Aboriginal Elders also understood how
the whole pattern rotated over their heads from
east to west during the night, and how it shifted
over the course of a year (DS: 61):

Each time you look at the stars it’s in a
different inch by half an inch, or quarter of an
inch by quarter of an inch, or whatever.
That’s where the old Aborigines, all the
Elders, see that travelling. Then later on it’s
over there earlier in the year.

For shorter journeys, or when a songline was
not available, the direction of the Moon or
patterns of the stars were used for navigation
(DS: 63):

You judge how far it is to Wileroo, you say
about 3km, you aim for that 3 km in your
mind. That’s all! You’ve got to go cross
ways? That’s Emu Foot tells you, he’s south.
If you want to go southwest, you go on the
right hand side of the emu ...

Navigating by the stars is still considered by
Harney (2009) to be preferable to following the
modern road:

You know road might be going to the water a
bit, road might be going out of the waterhole
and you like to get perished too that’s what
he’s about. But the star the mainly the one
really guide you straight to the waterhole and
all this.

The path of the planets in the sky, the eclip-
tic, had special significance (DS: 65):

The Dreaming Track in the sky! Planets mak-
ing the pathway! Travelling routes, a pathway you could call it, like a highway! Travelling pathway joins to all different areas, to base place, to camping place, to ceremony place, where the trade routes come in; all this sort of things. The Dreaming Track in the sky, the planets come straight across … walking trail becomes a pad, then becomes a wagon road, two wheel tracks, then become a highway. That’s how they started off, four of them.

While star maps do exist in Aboriginal paintings and possibly in rock engravings, no Aboriginal star maps intended for navigation have been recorded. Instead, all the knowledge is committed to memory in the form of songlines, which may therefore be regarded as ‘oral maps’. In a culture with no written language, but with a strong tradition of memorising oral knowledge, this is probably the optimum way of recording and transmitting navigational information.

4 CONCLUDING REMARKS

We have presented new information, and also material drawn from the literature, to show that:

(1) Songlines are effectively oral maps of the landscape, enabling the transmission of oral navigational skills in cultures that do not have a written language;
(2) Songlines extend for large distances across Australia, and are often identical to the trading routes, and were presumably used for navigating these trading routes;
(3) Some modern Australian highways follow the paths of Aboriginal songlines;
(4) In many cases, songlines on the Earth are mirrored by songlines in the sky; and
(5) The sky is used as a navigational tool, both by using it as a compass, and by using it as a mnemonic to remember the songlines on the ground.

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6 REFERENCES


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Professor Ray Norris is an astrophysicist with CSIRO Astronomy & Space Science and an Adjunct Professor at Warawara - Department of Indigenous Studies at Macquarie University, both in Sydney, Australia. He has published about 300 peer-reviewed papers, including 15 on Aboriginal Astronomy, and written the book Emu Dreaming: An Introduction to Australian Aboriginal Astronomy.

Bill Yidumduma Harney is an Elder and the last fully initiated Senior Custodian of the Wardaman people near Katherine, NT, Australia. He is an esteemed artist, master storyteller, and musician. Well known as an advocate and ambassador for Aboriginal Australians, Yidumduma was raised and educated in the traditional ceremonies by Jumorji, a senior Wardaman lawman and his Aboriginal stepfather. He is of the Yubulyawan clan, speaks seven languages, and co-authored the book Dark Sparklers (2003) about Wardaman astronomy with Hugh Cairns.