Noongar Aboriginal Culture: Astronomy
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The area of interest for this account is Noongar Country, South-Western Australia. The understandings presented have been recorded since early European settlement to the present day, for some Noongar Aboriginal people, but they did/do not necessarily apply to all Noongar groups. There are also a small number of quotations that relate to Aboriginal people in general and these are identified by place or people. They are included to indicate the scope of Aboriginal understanding of astronomy.

Socio-cultural knowing
The Aboriginal people of Australia have lived for well over 40 000 years on the Australian continent and their descendants still enjoy the wonderful spectacle of the Milky Way galaxy directly overhead. In that long period they built an astronomical knowledge system that they absorbed into their social, cultural and religious life. They passed this down in oral form from one generation to another as a living system of knowledge which they still cherish and enjoy. The astronomical knowledge system they constructed is different from that of modern-day physicists and astronomers. It is not based on the hypothetico-deductive system that physicists and astronomers use ... rather it is ... socio-cultural astronomy.


Ask a Noongar person what our identity means to us and invariably we will talk about the stories. The stories are part of the kaartdijin [knowledge] passed down from the Elders and moort (family). They tell of how to survive in the bush. They are campfire stories of the stars and the seasons.


Identifying time
Josie Boyle, located in Perth since age 15, Wongai elder, speaking of her mother (Eastern Goldfields)
Because every day, my mother couldn't read or write, so she had to tell the time by the birds, or the sun or the way everything was out in the land.

Venus
Teean benne kwejjiat Hoolat   Venus, daylight now coming

Venus is well-recognised in many cultures as the ‘Morning Star’ which heralds the dawn. ... It is a highly dependable marker indicating the return of daylight.
... In Noongar astro-mythology the stars and planets are commonly perceived as having familial and societal structures similar to those found among earthbound Noongar (Hassell 1936, 1975).
In Macintyre and Dobson (2017), http://anthropologyfromtheshed.com/project/light-time-traditional-noongar-culture/

The sun
English and Noongar languages both imply a sun moving over the earth, and many words designating time of day were derived from the word for sun (nanga). See vocabulary later in this section.

In cultural mythology Ngang-ga or Nanga is always watching the Noongar ‘from her high road’ as she travels from the east to west across the sky.

Macintyre and Dobson (2017) provide another insight into how Noongar people might have viewed the sun moving over the earth. They link the Noongar words for daylight (birytch, Moore, 1842) with the cone of a banksia (birytch, Moore 1842) which women carried smouldering to act as a firelighter, and the word for sun (Nganga, Moore, 1842) with Annegar (name given by some Noongar people to sun woman): “Every day from sunrise to sunset she can be seen walking across the sky carrying her burning fire stick. This is a lighted Banksia cone known as birytch ... As a descriptor birytch alludes to the light emanating from the burning Banksia cone carried by Nanga in the sky, or light-emanating Banksia cones carried by her earthly descendants who carried a smouldering Banksia cone when moving camp or travelling anywhere”.

Austin (1841 in Roth 1902) ... states: “Smaller epochs of time were reckoned by the moon (miki), ("big fellow” denoting “full” moon), and the sun (ang-a), according to the elevation of which the day was divided.
Macintyre and Dobson (2017) propose “the Noongar traditionally divided their day into at least nine inter-phasing temporal categories (or subcategories) corresponding to dawn, daybreak, sunrise, morning, noon, early afternoon, late afternoon, sunset and twilight”. Their analysis is based on a linguistic approach that links time of day to words for the position of the sun or things that might be happening eg day cooling down. Drawing on their analysis but referring to original sources, Noongar words that could be seen to fit the nine categories are presented in the table.


### Noongar words from Lyon, Moore and Grey as assigned to categories by Macintyre and Dobson (2017)

<table>
<thead>
<tr>
<th>Time of day</th>
<th>Noongar words</th>
</tr>
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<tbody>
<tr>
<td>dawn</td>
<td>nanga-warloo, the sun is returning (waraloo)</td>
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<tr>
<td></td>
<td>waullu, light; dawn; daylight; the morning twilight; the interval been light and darkness...</td>
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<tr>
<td></td>
<td>bena, dawn, the Milky Way</td>
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<td></td>
<td>wallo, the day, in contradiction to the night</td>
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<tr>
<td>daybreak</td>
<td>djidar, dawn of morning; daylight</td>
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<tr>
<td></td>
<td>jedar, morning dawn</td>
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<tr>
<td></td>
<td>jeeda, daylight</td>
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<tr>
<td>sunrise</td>
<td>nangar-moorerrejoon, to give light; to see. The expression seems to import the sun dispelling the darkness.</td>
</tr>
<tr>
<td></td>
<td>nanga-batta-nynow, the sun is risen—literally—enthroned (nynow).</td>
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<tr>
<td>morning</td>
<td>mirgaduk, morning</td>
</tr>
<tr>
<td>noon</td>
<td>malyarak, mid-day</td>
</tr>
<tr>
<td></td>
<td>malyaruk, mid-day</td>
</tr>
<tr>
<td>early afternoon</td>
<td>bidooroong, afternoon</td>
</tr>
<tr>
<td>late afternoon</td>
<td>garbala, late in the afternoon; the evening; towards sunset</td>
</tr>
<tr>
<td>sunset</td>
<td>gareembee, sun set</td>
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<tr>
<td></td>
<td>nanga-ngnardog, the sun is set</td>
</tr>
<tr>
<td></td>
<td>garrimbi, about sunset, sunset time of, evening</td>
</tr>
<tr>
<td></td>
<td>dtabbat, v. pres. part., dtabbatina; past tense, dtabbataga ... to set as the sun; to fall down</td>
</tr>
<tr>
<td>twilight</td>
<td>ngallanang, twilight evening</td>
</tr>
</tbody>
</table>


Other relevant vocabulary

beerat, day; malyarak, meridian; mirdak night  
Lyon (1833) [https://en.wikisource.org/wiki/The_Perth_Gazette_and_Western_Australian_Journal/Volume_1](https://en.wikisource.org/wiki/The_Perth_Gazette_and_Western_Australian_Journal/Volume_1)

biryat, daylight. The day as contradistinguished from night.  
bina, light, of the morning; night, kumbardang; myaradak; kattik.  

woolloolan, a period of the day, about 9 in the morning; biddoroook, biddorong, about 10 oclock  
beerai, or beerait, daylight, the day; manya, a period of the day, about 10a.m.  
tabburt, to fall, to set as the sun; katteek, night  
Grey (1840) [https://books.google.com.au/books/about/A_Vocabulary_of_the_Dialects_of_South_We.html?id=ue8UAAAAAYAAJ&redir_esc=y](https://books.google.com.au/books/about/A_Vocabulary_of_the_Dialects_of_South_We.html?id=ue8UAAAAAYAAJ&redir_esc=y)

The moon

Vocabulary (Moore, 1842)

**Moon**  
Miga, Miki, Mimak, Miak

**Moonlight**  
Mikang

**Moon waxing:**  
New moon, Werberang warri; First quarter, Marongorong; Half-moon, Bangal

Second quarter, Kabbul; Full moon, Gerradii Katti

**Moon waning:**  
Three quarters, Burno wandat; Half-moon, Jidik golang; Last quarter, Narrat

Fuller et al. (2014) report that: “Yolngu people [Northern Territory] explained the tides as the Moon filling and emptying as it passed through the ocean at the horizon... This evidence-based approach correctly predicted how the
Star patterns
As I got older, I heard more star stories; and I began to realise that as the world turns, the star patterns pass overhead all the time, too. I used to sit outside at night and watch them, because by looking at the stars you can actually tell what time of the year it is. There is a pattern that the different seasons follow. Nyungar people have a six season cycle that allows you to exactly what is in the sky and when. Each season lasts roughly eight weeks. Our lives used to be guided by the seasons in the old times.

Noel Nannup in Morgan et. al. (Eds.) (1951) https://books.google.com.au/books?id=3xZuHuxx_F4C&q=star#v=snippet&q=star&f=false

The titles of paintings of Noongar artist Shane Pickett (1957-2010) hint of associations between star patterns and seasons but I haven’t found written accounts of them other than ‘emu in the sky’ (see below). The painting tiles are: Hidden Amongst the Stars of Bunuroo Night Fall and the Bunuroo Star Path Playful Stars of the Milky Way Biraco Sky Titles from http://mossensongalleries.com.au/artist/shane-pickett/

Emu in the sky
The Emu in the sky is an aboriginal ‘constellation’ which is common to many groups across Australia. Unlike European constellations which are made from bright stars, the “Emu in the sky” is made of the dark clouds in the plane of our Milky Way galaxy, overlaying the background star fields. The emu is known in Noongar as weitj. The “Emu in the sky” is a male weitj which is guarding the eggs. After the rains in Makuru (June/July - Winter) the night skies are brilliantly clear and the “Emu in the sky” is very conspicuous and also the right way when seen from Australia. Here signals the time to go to collect the eggs (always leaving one). ... It can be difficult for people accustomed to European constellations to make out the "Emu in the sky", although once recognized it is difficult not to see it! As a guide for people who can only see the stars and not the clouds, the Southern Cross is like a crown. The weitj’s head is known to European astronomers as the Coalsack Nebula. The pointers, Alpha and Beta Centauri show where its neck is.

https://incubator.wikimedia.org/wiki/Wp/nys/Emu_in_the_sky

[IMAGE DOWNLOAD]
The Aboriginal “Emu in the sky”. In Western astronomy terms, the Southern Cross is on the right, and Scorpius on the left; the head of the emu is the Coalsack.

https://en.wikipedia.org/wiki/Australian_Aboriginal_astronomy

Navigation
Direction according to the sun
, …. simple ways the people had of lovely ways of describing the land, you know. Sunup and sundown. Now where do you live, you know, today? ...Sun down country, see, the sun sets here and the other mob, up there. Sun up, but I was really born in sun up country. It’s a wonderful way of linking everybody in the world, sun up and sun down. Josie Boyle, speaking of her Eastern Goldfields heritage in Goldsmith (2014) https://espace.curtin.edu.au/handle/20.500.11937/665

Then they placed the body carefully in the grave on its right side with the head to the South, the face directed to the East in which they seemed to be particular. When I remarked this, they said that the people to whom the deceased belonged always buried the bodies North and South, the face looking to the sunrise, but that others buried the bodies East and West, with the face looking to the midday sun.

Moore (1884) https://fremantlestuff.info/books/moore1884.html

Vocabulary

kakur the east; urdal the west; djerral north; buyal, kauning, minang, nurdi south

kangl the east; or, more properly, the spot of sun -rising, as it varies throughout the year. Moore (1842) https://books.google.com.au/books?id=1eBAAAAAAYAAJ&printsec=frontcover&dq=George+Fletcher+Moore&hl=en&ei=cY39TKLJEI30cf7SrMAG&sa=X&oi=book_result&ct=result&src=result

gungal, kakur, kangul the east; waardat the west; kuning the south-west; djerral, jeral the north


Direction according to the stars
Mum told me stories about the stars, which are very important to Aboriginal people. ... one story used to really fascinate me. It was a true story about how three young girls left New Norcia mission and followed the stars all the way back home.

Noel Nannup in Morgan et. al.(Eds.) (1951) vhttps://books.google.com.au/books?id=3xZuHuxx_F4C&q=star#v=snippet&q=star&f=false
George Grey’s Journal April 9, 1839, Searching for water.
We therefore continued our search ... It was now dark and we soon wandered from the path. Kaiber took a star for his guide and led us straight across the country
Grey (1841, Vol 2) http://gutenberg.net.au/ebooks/e00055.html

Do you see that star in the East? that's Diram, and that in the North East? that's Diram also—that in the East is Diram the woman, that in the North East is Diram the man. Do you see two little stars above the woman there? Those are her two children, she let them go astray; you see they are at some distance from her. Their uncle came and asked where were the children, and when she could not find them he was so angry that he drove a spear right through her body. You see it there sticking through her sides. That star on one side is the nose of the spear, and that on the other side is the tail of the spear.
Moore (1884) https://fremantlestuff.info/books/moore1884.html

Distance/time interval
beedjar, sleep. This is the term by which they reckon both time and distance. Not so many days; but so many beedjars; that is so many sleeps, or nights; night being the proper time for sleep.
Lyon (1833, 13/4, p.59) https://en.wikisource.org/wiki/The_Perth_Gazette_and_Western_Australian_Journal/Volume_1

To-day I find that a great sensation has been created in the colony by rumours which have come to us, only through the natives, of a vessel that was wrecked nearly six months ago (30 days journey, as they described it) to the North of this—which is conjectured to be about Sharks Bay.
Moore (1884) https://fremantlestuff.info/books/moore1884.html

I persisted in my enquiries from the natives about the water to the East. They still say there is a sea in that direction, but far away " Moons plenty dead " is all the information I can get.
Moore (1884) https://fremantlestuff.info/books/moore1884.html

I learned through the means of Mr. Armstrong, who acts as a native interpreter, that the natives are all aware that this [land, Australia] is an island, and that the sea which Tomghin [an Aboriginal man] spoke of is the sea which bounds the north coast. I had no idea that their knowledge of geography had been so extensive and accurate
Moore (1884) https://fremantlestuff.info/books/moore1884.html

Songlines
Each songline has a story, a song, dance and art, sometimes multiples of them ... It will include the wind, the rain, water itself, the sky, clouds, the sun and the moon, the stars. All these things are crucial to us.

[In Noongar Country] Mulka’s Cave (north of Wave Rock), Wave Rock, Jilakin Rock, jitaraning Rock, Dumbleyung Lake and Puntapin Rock are all connected by an ancient Dreaming trail [songline] that reaches the coast at Augusta

I haven’t found details of how Noongar people referred to stars in navigating songlines, but provide two other examples: Josie Boyle speaking about Seven Sister’ songline sites in the Eastern Goldfields and the Noongar boundary
So these particular places are very special...I go quite often to them ... I go to the one in Coolgardie, because that’s easier going past there....[we] pay our respect that it deserves, because it’s a dancing site, see? So everything has a different story of the sites of what happened, when the seven sisters were here on earth, see, and that was a dancing site and it was like the celebration site of the end of the journey on the earth. And that was where the boundary line came for the Noongar people, and the Noongar people came from Coolgardie, back to Perth, see, so it was all danced, the Seven Sisters, and they made the boundaries as they went over the land, wonderful story really.
Josie Boyle speaking about her mother
She came from (Ooliar?), see, and they did lots of journeys across the Nullarbor, straight across the Nullarbor where the railway line is today, engineers they made a railway there now. That was the walking path of those people, my people, that walked from (Ombi?), long time ago, for ceremonies for star stories and star aligning stories, they all came across to these sites, where the sites were, see, that’s why they had to travel to those journeys and they did a lot of journeys across there. That's how we got walking paths...where they were going to their ceremonies, for the Guarnadagas and the singing songs of the alignment of everything, see, of the earth and the sky. Everybody coming together all singing the songs of the earth and sky songs, you know, dancing the Gurandura, and that's what she talked about all the time see, and see she drew these things in the sand.
Josie Boyle, talking about sites and star alignment
And then we have lots and lots of lakes that nobody goes to much today... sites relating to the seven sisters. Beautiful sites. I was only sitting down with my son of law who grew up out there, ... and I was talking to him about the distances between sites, ... There are about six that are out there still. I was asking him the other day, how much
distance is between Gindowee, and Niagra Falls, and Boorley Well, and another site out there, and there are six out there, and why are they are zigzagged, and he said, well, he looked at it that there were six out there specially because they were aligned to the stars, and that’s where they had their ceremonies, so that’s why these people along time ago came together, my people, the Wongai people and the Warburton people, they all came together... Grungada was that big thing that they were all meant to do it, and it was like a big dance, wasn’t it ... It was also for singing, alignment to the stars, and everybody before, well I was there, long long time ago, ... And these beautiful intact sites, limestone breakaway, that we call breakaway country, and all zigzagged and pointing to the stars, and the songs were all days singing, days and days of singing, of songs alignment to the stars.


In Euahlayi country [north-central New South Wales and south-central Queensland], the winter months of May, June, and July would be used for planning the travel to ceremonies during the summer months, starting as early as September. The people planning to travel would already know where they had been invited, as the messengers would have arrived with the invitations. A part of the early winter activities would be the travel plan, and at this time, young people (and perhaps women) would be taught [by initiated men] how to travel using the songlines or Dreaming tracks described by the star maps. The knowledge holder would use a clear night at the right time of the year and point out the directions for travel, using the patterns of stars in the star map in the sky [patterns of stars taken to represent routes of travel on land] to guide the intended traveller from place to place on the ground using the stars as what we now call “waypoints” in terrestrial navigation. To the Aboriginal person, these waypoints could be a bend in a river, a waterhole, a marked tree, or a stone arrangement. Eventually the star map would lead to the destination, which would be the ceremonial ground.

An example, based on mid-May in the late evening, would be a star map leading to Carnarvon Gorge in QLD, which is a known ceremonial centre. This is a trip of over 600km. Looking at the southeast sky, the winter camp in Euahlayi country where the planners are located is represented as an area in the constellation Sagittarius bounded by the stars Epsilon Sagittarii, Beta Sagittarii, W Sagittarii, Delta Sagittarii, and the star cluster M7. This area would have also incorporated Kamilaroi and Murrawarri peoples. The star map to Carnarvon Gorge would proceed from the winter camp to the stars Gamma Scorpii (representing Dirranbandi, QLD), Kappa Scorpii (St. George, QLD), Theta Scorpii (Surat, QLD), Eta Scorpii (Roma, QLD), and Zeta Scorpii (Carnarvon Gorge). This is represented in Fig 2.

The same travel is represented on the ground by red lines in Fig 4. The actual ground routes are only loosely similar in direction to the star maps because the star maps do not represent a navigation aid in terms of direction and distance, but just a memory aid to the waypoints. In September, when the travel might commence, the same stars can be seen (higher in the sky and to the southwest), but they have rotated to the point where they would be difficult to use as a navigation aid.


[IMAGE DOWNLOAD]
Fig 2 Goodooga to Carnarvon Gorge star map (image courtesy of Starry Night Education)

[IMAGE DOWNLOAD]
Fig 4 ground travel routes to Carnarvon Gorge and Bunya Mts. (Image Google Earth)

Creation Narratives

Noongar creation stories can vary from region to region but they are part of the connection between all living things.
Noongar Elder, Ralph Winmar at https://www.noongarculture.org.au/spirituality/

First sunrise

In the Noongar Dreaming, or Nyitting as it is known, the sky was once so close to the ground that trees and other tall plants could not grow. Therefore, the Noongar had to crawl when they moved around the country, and all the birds had to walk everywhere, instead of being able to fly around. The birds were tired of having to walk everywhere, so they decided to work together and they started gathering lots of sticks and branches. These clever birds would use the sticks to hold up the sky so they could fly about; but the sticks looked like they would break under the heavy strain. Nevertheless, the magpies were wise, so they placed some long sticks in their beaks and pushed it up until the sky eventually sprang up far above their heads, revealing the sun and in turn creating the first sunrise. Each dawn the ‘Koorlbardi’, or magpie, sings its beautiful song to remind the descendants of this world of its importance in the creation of the first sunrise.

Constellations

Southern Cross
It was my Dad’s brother, Uncle Thomas, who taught me about the Nyungar side of things … he liked to point to the sky and to what he called ‘the star pot’, which he referred to as *comal*, the possum’s skin pegged out with the tail still attached. *Comal* is the possum shape in the sky that the stars make. There are many shapes in the sky that we know to look for. For example, the Southern Cross and the stars around it are really the head of a kangaroo. You can see the ears and the teeth, you can see the kangaroos back coming down and the tail going off.

Noel Nannup in Morgan et. al.(Eds.) (1951) [https://books.google.com.au/books?id=3x2z9uHuux F4C&pg=starv=snippet&q=star&f=false]

The Noongar believe the Southern Cross to be a group of women who once lived near the sea. In the Dreaming they speak of these women being camped near a forest some distance away from the local river. The Elders had realised that water was running low and therefore they sent four women to retrieve some water from the river in some bark cups. However, the Elders had warned them not to go near the sacred waterhole, which was forbidden to women. Nevertheless, the women became curious and ventured down to the sacred waterhole and filled their cups. Happy with their journey they then began to circle around the waterhole.

Consequently, the men wondered why the young women were taking so long and ventured out to search for them. The men arrived at the river and the women were nowhere to be seen. They then left and heard the chattering of the women coming from the vicinity of the sacred waterhole. Angered the men charged down after the women, which in turn ran out of fear when they saw the men coming. As the women ran as quick as they could a strong wind came along and swept them up into the sky. Clustered together in the sky – the angry men hurled their spears at them. In order not to be struck, the four women spread out into the familiar pattern that we now know as the Southern Cross. The women were so frightened that they dare not come back to Earth for fear of being speared and remain in the sky as the four brightest stars of the Southern Cross.


Danakat, The Pleiades
The Pleiades is one of the most recognizable groups of stars in the northern sky. While to the naked eye this feature appears as seven bright stars, the Pleiades is actually a young open cluster about 100 million years old, containing 100 or more member stars


[IMAGE DOWNLOAD]
[https://en.wikipedia.org/wiki/Pleiades]

Danakat [Seven Sisters, The Pleiades] is the tragic story of how seven sisters lost their lives while searching for their father. The story tells of a family’s love and devotion to each other and how they stayed together for eternity.


A Noongar moral lesson that displays the connectedness between Noongar wer jerda [and birds], told by Noongar Whadjuk elders, is the lesson of the seven sisters whose names were Kooba (Red Robin), Djidi Djidi (Willy Wagtail), Djilaboort (Mudlark), Kadjinak (Fantail), Djakal-Ngakal (Galah), Wetj (Emu) wer Walalitj (Wedge Tailed Eagle). In this lesson, the seven girls were sent out in search of their father, who had not returned from his walkabout for some time. Due to several factors such as summer’s drought and venturing far beyond their region of knowledge, the seven sisters lay down to rest never to wake again and their kaanya (spirits) were said to drift into the Yirrayakarn (heavens).

In the moonlight, the seven sisters’ spirits can be seen in the night sky as Danakat and, in the light of day, the daughters return to boodjar [country] and to their ngarra ngk [earth mother] in the form of beautiful jerda [birds]. The Whadjuk moral is to always take care of boodjar [country] and its natural inhabitants as the kaanya [spirits] of Noongar ancestors and family are still amongst boodjar.

Walley et al. (2013) at [https://incubator.wikimedia.org/wiki/Wp/nys/Danakat (Pleiades)]

Whadjuk Nyoongar acknowledges *Dwerda Weeardinup* [Cantonment Hill] as being one of the seven hills of Fremantle which is associated with the dreaming story about the Seven Sisters. The Seven Sisters dreaming is one of the widest ranging song lines in Australia and extends from the Central Desert to the West coast of Australia, passing through many different language groups. A Whadjuk Nyoongar Elder identified Cantonment Hill and Clontarf Hill as being the only two of the seven hills left, noting that the rest have "all been destroyed, flattened out". However, other Whadjuk Nyoongar informants say the Dreaming Hills are still there despite the geography changing - ruined by the mining of limestone in the early days. The spiritual essence of the landscape is still culturally strong and meaningful and still connects us to our Dreaming stories.

Bibbee-Goor-Ee, Milky Way

In Dreaming stories of the Noongar, there once lived a giant woman known as the ‘Charrnock woman’, often described as a giant evil spirit. This woman travelled from camp fire to camp fire, collecting spirit children, known as koolongurs. Moreover, the ‘Charrnock woman’ had long white hair and was much taller than the highest Karri (Eucalyptus diversicolor) and Jarrah (Eucalyptus marginata) trees. This giant woman used her hair as a type of net in order to keep and accumulate the spirit children in. However, this was forbidden, and the spirit ancestors tried to stop this woman from what she was doing, but they were unable to get close enough to her. Therefore, they decided to change themselves into a flock of Koolbhardies (maggpies) in order to get closer to her. They figured this way they could fly up and rescue the spirit children from her long white hair.

Consequently, a great battle in the sky ensued, with many of the spirit children falling from the sky, and as they struck the Earth turning to stone. These stones are called Bwia-ee-Koolungur-Nyinna, basically meaning the ‘place where the young babies fell’. The ‘Charrnock woman’ eventually fled the Koolbhardies by leaping even higher from the top of Wave Rock, which is located some 300km south east of Perth. To this day, the misty band of the Milky Way is described as the long hair of the woman, with the stars being the spirit children caught up within her hair.


Djoondalup/Point Walter: The dreaming trail on the southern side of the [Swan] river is the women’s trail and the dreaming trail on the north side is the men’s trail and the sand bar, which stretches out from the point more than halfway across from the south bank of the river to the north, is the connection between these two trails. The sandbar is a strand of hair the Charrnock Woman, a tall white-haired spirit woman from the time of creation whose hair became the milky way. When the Charrnock Woman passed Blackwall Reach she left a strand of hair, to become the long strand of white sand extending out from the point, or else it floated down from the milky way. The cliffs at Blackwall Reach are one of her footprints.

This was the same spirit women spoken of throughout South West WA who collected spirit children and carried them in her hair, creating big rocks and stones across the land whenever spirit children fell and hit the ground until eventually Kartakitch (Wave Rock ~350km east of Perth) was created. She stepped onto Wave Rock and was launched up into the Milky Way where the spirit children she was still carrying in her long white hair scattered to become individual stars you can see in the night sky.


Lake Joondalup: Back in the dreamtime there was a tall spirit man and a tall spirit woman called Charnok People. The Charnok woman had long white hair down to her back. ..... If you go to Lake Joondalup during a full moon, it is said that you can see her long white hair reflecting from the stars above. So this place is called Joondalup (place of the long white hair.) The lake is often referred to as the water that glistens.


Noel Nannup, Noongar elder, describes how "the Milky Way and the Megilion Clouds are The Seven Sisters Dreaming; it runs a long way down from the Pilbara region. The Great Spirit Woman Channark collected spirit children bwoi y kulonggo and put them into her hair ..."


Hyades Star Cluster, Orion’s Belt

[IMAGE DOWNLOAD]

Hyades Star cluster has a compact and distinctive shape of the letter V. The bright star Aldebaran is part of the V.

http://earthsky.org/favorite-star-patterns/v-shaped-hyades-star-cluster-easy-to-find

Near the banks of the Swan River, at Claisebrook there is a mosaic representation of a Bibbulmun dreaming story. A plaque alongside starts with a version of the Charrnock woman Dreaming and continues: As Woor-Jall-Luk [Charrnock woman] was hurled into the sky by jumping on Gnadie-Darange-E-Noo (Wave Rock) and made our Bibbee-Goor-Ee (Milky Way), a great many children fell out of her hair and fell back to mother earth. They made the first Bwia-Ée-Koolungah-Nyinna [the stone where the little babies fell] place which we know as Hippo’s Yawn*. The five stars, (Hyades Star Cluster) represents her Kallep [country, home, fire], they are like an upside down ‘V’ and located half way between the three Women Elders (Orion’s Belt) and the Pleiades Star Cluster (Seven Sisters). The star Aldebaran on the bottom right side of the Hyades Group is her camp fire and it is always burning brightly. ... (The story continues with the creation of first people in the Bibbulmun nation.)

*Hippos Yawn is a rock near Bate’s Cave. Bates Cave is north of Wave Rock and is also known as Mulka’s Cave. Mulka or Mulchin-Jal-Lak was the Charrnock woman ’s man to whom, in the Claisebrook account, she fed children.

Comets/Meteors/Shooting stars
The Carers of Everything (Nannup, 2003), a long narrative of creation, references the ‘Spirit Woman’ [Charnock Woman] and spirit children. … She made this beautiful orange glowing fire, and she called it Munda and then she started to gather the children around her fire, once she had gathered the right amount she said to weitch, now I am going to send them back to earth. They have won the right to be the carers of everything. I know that we have all been outside on the dark night and seen a shooting star streak across the sky, I have heard some people say make a wish, when we see this we always say by-ee coolunger nyina, which means little spirit children returning to earth. When they reach earth they are nothing more than a little stone, some are a bit bigger than others, and some don’t make it at all. The spirit children return to earth all the time, with a known pattern of large showers about every thirty three years, that is when we believe that our spiritual energy is at its strongest. …. Goldsmith (2014) identifies a connection between meteorites and the spirit children returning to earth.


Binnar. A meteor, described by the natives as a star of fire; seldom visible, but when seen considered by them as an omen of death. A remarkably large and bright meteor was observed a few years ago traversing a large space in the heavens from east to west. Its progress was accompanied by a loud crackling sound, like the combined discharge of musketry. Moore (1842).

Julagoling, planet Venus. When I was last in the bush in search of the natives, the stars were shining brightly at night. " What star is that ? " I said to Deenat, pointing to Venus. " Oh, that is Julagoling," was the answer, " What is it—a man, or a woman, or what?" I enquired. "Oh, very pretty young woman," was the reply. "Where is her husband?" I said. "She has no husband; she has had some children, but she always kills them ; she is very powerful in magic. Ah, there she goes off to the West, now to practice her enchantments upon us. Moore (1842) https://books.google.com.au/books?id=1e8UAAAAAYAAJ&printsec=frontcover&dq=George+Fletcher+Moore&hl=en&ei=cY39TKLJEI30cf75rMAG&sa=X&o=book_result&ct=result#v=onepage&q&f=false

Moon
In the York area [Balladong Country] there are two significant caves which are Noongar sites of art and rituals. Dale’s Cave contains hand stencilling and a circular motif painted in ochre, which is a pigment made from different soils. https://www.noongarculture.org.au/northam/

Dale’s Cave, located north east of Perth on the Avon River, was called the Moon Cavern by the Perth Aborigines because, people said, the moon once entered there to rest while on her journey across the sky. She leant against the wall of the cave, and left the impression of her hand, which has survived even to this day. Armstrong (1836) in Tilbrook (1983) http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=8068&context=ecuworks

Legend has it that in the Dreamtime the moon was a man on the earth and some warriors chased him into this cave. He got tired of being confined there so he put his hand on the cave wall and using that leverage he burst out, making the jagged hole in the roof and escaped into the sky where he roams around still.

Depictions of the cosmos
... the review of almost 6000 online artworks from nineteen Western Australian online galleries shows that about 2% of Western Australian Aboriginal art contains readily identifiable astronomical themes, and of those (n=119) the main themes are Seven Sisters/Pleiades (76%), meteorite craters (6%) and the moon (6%). Table with full breakdown of survey is in:

Seven Sisters painting by Josie Boyle https://healthinfonet.ecu.edu.au/about/art-gallery/
Seven sisters painting by Josie Boyle https://aodknowledgecentre.ecu.edu.au/learn/health-impacts/preventing-maternal-smoking/
From the skies sculpture at Perth Airport by Penelope Forlano, Orion and Pleiades http://forlanodesign.com/public-art.html
Cosmology Gallery painting at the Gravity Centre, Gingin by Toogarr Morrison http://rebeccaisabroad.blogspot.com/2012/08/tim-tams-and-other-less-important-things.html
Bibbullum Cosmology painting at Horizon Planetarium, Perth by Toogarr Morrison.
Seven Sisters Songline painting by Josephine Mick showing a branch to Kalgoorlie, National Museum Australia http://www.nma.gov.au/exhibitions/songlines/highlights
Other vocabulary
Bwolluk  the name of a star
Godoitch  one of the constellations
Goodjyte  the sky; the firmament
Godoitch  one of the constellations
Djingun  a star; one of Woordytch’s wives
Boolgoot  a star; one of Woordytch’s wives
https://books.google.com.au/books/about/A_Vocabulary_of_the_Dialects_of_South_We.html?id=ue8UAAAAYAAJ&redir_esc=y
Bulgut  a star; the wife of Tdadum.
Wurdoitch  the name of a star, supposed to have been a native.
Jindang  the name of a star  Moore (1842).
https://books.google.com.au/books?id=1e8UAAAAYAAJ&printsec=frontcover&dq=George+Fletcher+Moore&hl=en&ei=cY39TKLJEI30cf7SsMAG&sa=X&ved=0ahUKEwj6w4O-3ePSAhVZLOAHWbYEAJcQ6AEIMDAE#v=onepage&q&f=false

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http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=8068&context=ecuworks
