

Hi this is Steve Nerlich from Cheap Astronomy www.cheapastro.com and this is *Indigenous Australian Astronomy*.

I don't have a drop of Indigenous Australian blood in me and am far from sure that I really have all the details right, but this is such a good story that here goes. I'll just note that my pronunciation of Aboriginal names is about as good as my pronunciation of Russian names. I apologise now for all that follows.

Homo sapiens left Africa around 60,000 years ago and are thought to have populated Australia from as early as 40,000 years ago. At around 1788, when the British began colonizing the east coast of Australia there were around 300-600 groups of Indigenous Australians speaking distinct dialects, with their own sacred sites, songs and stories. The total population was at least 300,000 and may have been up to 1 million.

The ancient heritage of Indigenous Australians has led some to suggest they were the world's first astronomers. Whether or not that is true, they certainly saw many things in the night sky invisible to their northern hemisphere contemporaries.

Most Sydney bushwalkers will be familiar with a rock carving in Kuringai National Park, sometimes called Elvina, which depicts the stretched out image of an emu, being a large flightless bird up to two metres in height that is native to Australia. Emu eggs are huge and one egg easily contains the equivalent of a dozen chicken eggs – and emus are known to lay around a dozen such eggs in one clutch. Wouldn't it be great if you knew when to expect the emus were going to lay such a culinary bonanza. Emu laying season in New South Wales is around May to June – and just about then the Milky Way is at its most majestic position in the southern hemisphere skies, almost directly overhead, stretching from horizon to horizon.

The Southern Cross overlies the Milky Way and adjacent to the star Beta Crucis is the Coal Sack – a dark gas cloud made obvious by the bright surrounding nebulosity of the Milky Way. The is the head of the emu in the sky. The neck, body and tail feathers are then shaped by other dark gas clouds all along the Milky Way until you reach the constellation Scorpius, which is, for want of a better phrase, at the emu's bum, with the emu's legs trailing off past the constellation Sagittarius. When you see that whole emu up there in the sky, it's May and June and time to go egg hunting.

And, being the Southern hemisphere, the Milky Way isn't the only galaxy we see. The local, and somewhat isolated, people of the Flinders Ranges lived in two distinct communities. There were very strict marriage laws requiring individuals to only marry into the other community which ensured a degree of genetic diversity in their respective groups.

To keep this law, each clan's dream time elder the *Vutha Warlka* – remained forever in the sky, watching their every move – and the people seemed well aware these two astronomical objects persisted through night and day revolving eternally around and around the Southern Celestial Pole. We European settlers call the *Vutha Warlka*, the Small and Large Magellenic Clouds.

The Kurna people of the Adelaide plains region of South Australia thought of the Milky Way as a long river curving through the celestial plains. Reeds would grow around the river and a group of young women, the 'Mankamankarrana' (what we call the Pleiades), proceed slowly along the river banks, collecting roots and vegetables through Australia's summer months.

Several Indigenous Australian peoples, quite coincidentally like other ancient people of the northern hemisphere, called the Pleiades the seven sisters – who were often chased by the Moon – and who'd go into hiding when Moon is full, since this open star cluster does become more difficult to see on a moonlit night.

The Boorong people of north west Victoria maintain that *Mityan*, the Moon, is represented by the spotted quoll – which has full moon, half moon and crescent moon shapes on its fur coat. The spotted quoll is a rare carnivorous marsupial native to eastern mainland Australia, just a bit smaller than the largest carnivorous marsupial, the Tasmanian Devil.

The story goes that Mityan was cast out after trying to entice someone else's wife to run away with him and he has been wandering ever since – only eating and filling his belly once a month and then becoming progressively thinner through the rest of the lunar cycle. The spotted quoll is a nocturnal hunter, and perhaps hunts most effectively during a full moon, managing to fill its belly on those nights more than others – or so the story goes.

Indigenous Australians also looked at Orion's Belt in a different way. Firstly, in Australia, it's upside down so the whole belt and dagger idea doesn't work and most of us European immigrants call it the Saucepan. But the Yolngu people of the Northern Territory saw the line of three stars as three brothers sitting in a canoe, with its bow at Rigel and its stern at Betelgeuse.

The three brothers were engaged in a bad thing. Being members of the Nulkal, the clan of the King Fish, one thing they were really, really not allowed to do was eat a King Fish, or more definitively a yellow tail kingfish – or as we are wont to re-title things in Australia – a Kingie. But, as these stories so often go, the 3 brothers went on and speared a Kingie – which is now represented by the dagger of Orion, or the handle of the Saucepan. An angry Sun-Woman, Walu, raised a water spout to lift the brothers forever up in the sky – as a reminder to all that followed not to break the law.

Some of the few 18th century Europeans who took an interest in Aboriginal people often noted how children would often sit together in groups counting almost invisible stars and naming their colours. Dr Fred Hollows, a famous Australian ophthalmologist who spent many years in the outback doing intraocular lens replacement surgery on Indigenous people affected by cataracts, is cited as commenting on the remarkable clarity of the eyesight of people unaffected by disease.

An example of their legendary visual acuity involves the *Delphinus* constellation, which is in the Northern sky and hence only visible in Australia for parts of the year. Indigenous Australians living around the Murray River described the star *Gamma Delphinus* as golden and yellow white – and allegedly the same colour as the Murray Cod. In fact, Gamma Delphinus is a double star, an orange sub-giant and a yellow-white dwarf companion.

The Murray Cod, a large freshwater fish, often exceeding 1 metre in length, would like other fish often rise to the surface to feed during a full moon. Indigenous Australians frequently caught them by lighting fires on their canoes which attracted the fish to the surface. However, traditional indigenous Australian culture is also renowned for adopting a caretaker-ship for the land. The brief appearance of the *Delphinus* constellation in the sky in September and October coincides with the spawning season for the Murray cod. When *Delphinus* was in the sky, the people would not fish for Murray Cod, to ensure the fish had time to breed.

Thanks for listening. This is Steve Nerlich from Cheap Astronomy www.cheapastro.com. Cheap Astronomy offers an educational website where money can't buy you love, but it can buy you a cheap telescope. No ads, no profit, just good science. Bye.