"There is no easy way from the earth to the stars"- Seneca

The first time I saw the StarLink satellite pass overhead, I was in regional Victoria with my friends.

We'd just finished dinner at a Thai restaurant before we stepped outside to head to our cars. The sky was full of stars and we pointed out familiar constellations to each other.

From behind the treeline, a long chain of bright lights rose up and arched towards us. We stood and watched, uneased by the way it crossed the sky and cut the stars in half. It was futuristic and strange.

On the drive home, I wondered how the night sky had gone from a place of wonder and wayfinding, to a commercial industry run by the world's wealthiest.

How did we get here?

My brother, using his telescope in the backyard. Photo credit: Joanna Beard, 2024.

Humans have always gazed into the night sky.

It has been a source of solace, wonder, navigation, religion and cultural significance since humanity began.

To understand the earliest human interactions with the night sky, we need to understand the way First Nations cultures related to it.

Indigenous Australians are thought to be the world's first astronomers, with their interactions and observations of the starry sky far preceding those of the Babylonians and Greeks.

Constellations feature heavily in Indigenous dreaming stories and songlines, such as the stories of the Emu in the Sky and the Seven Sisters.

In some Australian Indigenous cultures, the night sky is used as a calendar which aligns with the availability of food sources and animal migration.

Similarly, in ancient Polynesian culture, "wayfinders" would use constellations and other natural cues to navigate across the Pacific Ocean 3000 years ago.

Though not the first astronomers, Babylonians were supposedly the first to record and measure the exact movements of constellations and planets in the 7th century BC.

In 1543, the Polish astronomer Nicolaus Copernicus proposed heliocentrism, the theory that the planets revolve around the Sun, not the Earth.

Centuries after these discoveries, the human space age began.

A post stamp of the 1969 moon landing. Photo: Adobe Stock.

In 1969, human endeavour was propelled to new heights when Neil Armstrong became the first human to land on the moon.

Cees Bil, Professor of Aerospace Engineering and Aviation at RMIT, remembered watching it as a child.

“I was eight or nine and glued to the television,” Professor Bil said in an interview with *The Swanston Gazette.*

“It just amazed me. And I still live to this day [thinking] what they did at that time was remarkable,” he said.

Professor Bil said this was the time in history when the commercialisation of space first became possible.

“The 60’s were the first steps,” he said.

“First, getting humans in space and eventually going to the moon. That was the most visible first step into commercialisation.”

Wikipedia defines space commercialisation as “the provision of goods or services of commercial value by using equipment sent into Earth orbit or outer space.”

The past decade has seen private companies take the lead in space exploration and commercial undertakings.

In 2019, American aerospace company, SpaceX, launched StarLink, the world's biggest satellite constellation used to provide high speed internet across the globe.

Putting technologies, such as satellites, in space does provide some very practical benefits back on Earth.

“Weather observation [is done by commercial satellites] which tells people when a storm or hurricane is coming, so they can prepare,” Professor Bil said.

“[They can also be used] for flooding and crop yields, they can see if a field or crop is flourishing or diseased.”

“And communication of course, that’s the first thing we did. Television and telecommunication. [When we pick up our] phone to call someone, that’s all satellite.”

So, is there an issue with this commercialisation?

The World Economic Forum has predicted the space industry will be worth $1.8 trillion by 2035, as “satellite and rocket enabled technologies become increasingly prevalent.”

As more satellites and rockets enter into orbit, the chance of collision between them is growing, which can have significant impacts. There’s also the issue of space junk.

“It’s very busy up there," Professor Cees Bil said.

“All of these satellites are going up, so you have to plan it so they don’t hit each other. It’s called space traffic management, it’s actually a science now.”

“Occasionally we have satellites colliding. Sometimes a defence missile hits one, which scatters a lot of debris which is really dangerous. Even a small speck could penetrate a structure,” he said.

Increased satellite traffic is also having a detrimental effect on First Nations relationships with the night sky.

The Emu in the Sky constellation is significant in Indigenous cultures. Photo: Adobe Stock.

In a 2022 article for the Australian National University, Karlie Noon, a Gamilaroi woman and astronomer, said dark skies could be “pushed to extinction” by the modern space industry.

“The modern-day space race has led to thousands of satellites being scattered through Earth’s outer orbits,” Ms Noon wrote.

“Desecrating the sky impacts Indigenous sovereignty…in the same ways desecrating the land has removed First Peoples from their countries, cultures and ways of life.”

But it’s not just satellites, light pollution is a growing issue and it’s making dark skies harder to find.

Bill Stent is a demonstrator and telescope specialist with the Astronomical Society of Victoria (ASV), an organisation which educates the public on the night sky.

Mr Stent said while more people are becoming interested in stargazing, the conditions for doing so are worsening.

“Light pollution is one of the biggest threats to astronomy,” Mr Stent said in an interview with *The Swanston Gazette.*

“It effectively erases the more subtle things in the sky, and you can hardly see the Milky Way from the suburbs any longer.”

“This might be an irritation for a hobby astronomer like me, but it's a major tragedy for many First Australians who have a much more intimate cultural connection to the sky,” he said.

Mr Stent said satellites are also a problem.

“The number of satellites you see after sunset or before sunrise has increased noticeably in the last few years, and it's only going to increase even more,” he said.

“When I'm observing visually it's always a surprise when a satellite dives through the field of view.”

Despite an increase in satellites and light pollution, ASV membership has boomed in the last few years.

“We've always been fascinated by the night sky, it's just part of being human,” Mr Stent said.

“There are intensely practical reasons to look at the night sky - in the past it was pretty much the only way of finding your way across a sea.”

“But in these days of mobile phones and Google Maps, most people look up at the sky and just feel insignificant,” he said.

“You can't look up at night, particularly on a clear moonless night, and not feel a sense of awe.”

Our night sky is more precious than ever.

In 2019, StarLink submitted an application to send 30,000 more satellites into orbit in the coming decades.

We need to ask ourselves, does the benefit of commercialising space outweigh the harm?

Does it outweigh the impact upon First Nations practices?

Does it outweigh putting visible, human fingerprints across the night sky?

The Outer Space Treaty of 1966 states that no one nation or person can “own” any part of space, meaning it belongs to us all equally or it belongs to none of us at all.

So when did we, as humans, consent to this happening?