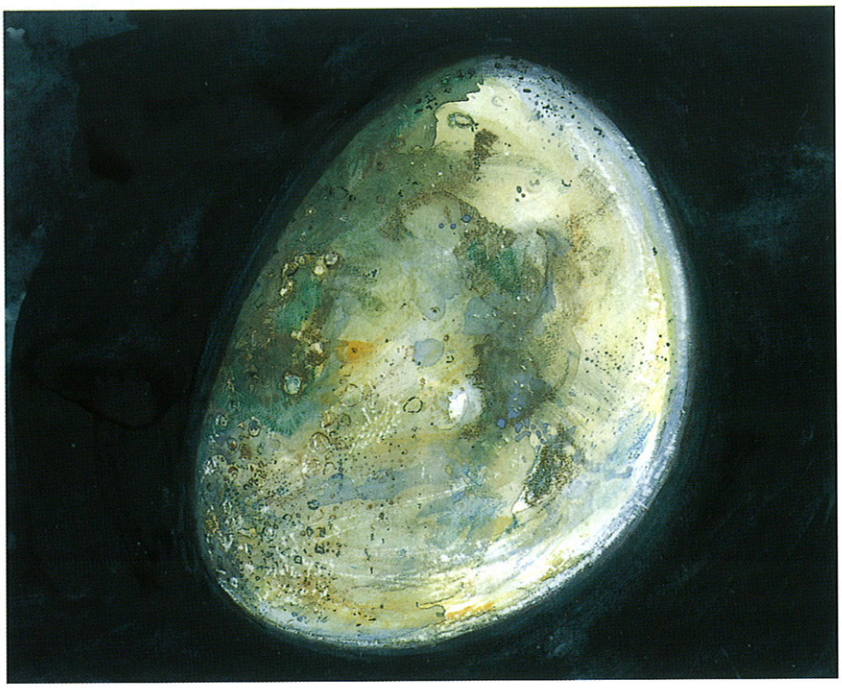
urban antics by John Hunter

Fly me to the moon



The moon may not be your average choice as one of the major things to observe in your backyard, but it is definitely the biggest and most re-occurring.

Found in all backyards from Tuart Hill to Timbuktu and from Wembley Downs to Wyoming, the Earth's moon has a major effect on many of the planet's animal and plant species.

A big statement, but I'm sure even the smallest troglodyte is affected at times by Earth–moon gravity and tide, while surface dwellers may become psychologically involved with a full moon or an eclipse. One thing is for sure, since humans first looked to the heavens and muttered "What is that?", the moon has been the catalyst for songs, poems, prose, courtship and war.

The moon is the closest astronomical object to Earth. With the Earth it forms almost a double planet as no planet that we know of has a satellite which is as large in comparison to the size of its planet.

Four times smaller in diameter than the Earth, our moon was probably formed shortly after the rest of our solar system about four and a half billion years ago. The big question is how it formed.

Was it the 'escape' theory where the Earth and moon were one single body and that the sun's gravity caused a bulge on one side of a fast-spinning Earth where the bulge broke away to become the moon? Or was it that the moon and Earth were formed at the same time and in the same region and made from huge whirlpools of gas and dust that were left over when the sun was formed? Or was it the capture theory where the moon was once a planet that was caught in the Earth's gravity to become a natural satellite?

Two scientists, Hartman and Davis, suggest the leading modern hypothesis is the 'collision theory', which proposes that a large body from space smashed into the Earth and knocked a mass of solid material from Earth's mantle. This material orbited the Earth and eventually united into a single mass to form the moon.

The collision theory is probably more acceptable in that the Earth has a large iron core but the moon does not. This is because Earth's iron had already drained into the core by the time the giant impact happened. Therefore, the debris blown out of both Earth and the impactor came from their iron-depleted, rocky mantles. The iron core of the impactor melted on impact and merged with the iron core of Earth. To further back this theory, the moon has exactly the same oxygen isotope composition as Earth, whereas Mars' rocks and meteorites from other parts of the solar system have different compositions.

Compared with the Earth, the moon has changed little over billions of years. There is no air, wind or water. During the day the sky is black and the stars are visible. At night the desolate rocky surface is extremely cold and the temperature is lower than any place on Earth. During the day, the temperature of the rocks is slightly higher than that of boiling water.

However, the moon is a beauty to behold at any of its stages of light and shade. Earth dwellers admire its eerie presence and respect its lofty place from our cosy spaceship.

Let's hope the human race for dominance and economic growth on our planet doesn't eventually turn our beautiful landscape into another moon.

DID YOU KNOW?

- The diameter of the moon is about 3,475 kilometres—about the distance across Australia from Perth to just beyond Sydney.
- In its elliptical-shaped orbit around Earth, the moon travels at about 3,700 kilometres per hour in its 2.3-million-kilometre journey and passes as close as 356,399 kilometres to us.
- The moon is occasionally referred to by its Latin name *lunar* and an adjectival prefix *seleno* from the Greek deity Selene.

Cover illustration by Pat Dundas
This striking species of mulla mulla, known only by its scientific name, *Ptilotus arthrolasius*, occurs from the Murchison north to the Kimberley. It is a compact, perennial species which grows from 20 to 75 centimetres high. The flowers are white, pink, red and purple in colour and appear from April to October. It grows in red sand, sandplains and on sand dunes. It is one of many species of mulla mulla, a genus that comes in a huge variety of stunning designs.

Back cover photo by Marie Lochman
Kennedy Range National Park.

Features