Athenaeum Astronomy Association

THE NIGHT SKY IN APRIL 2020

I hope this podcast finds you well and surviving these difficult times and perhaps, despite everything, finding more time to view the skies.

On March 20th the Sun, on its journey north, crossed the equator. From now on, until the Autumn Equinox in September, the nights will be shorter than the days. The days will gradually lengthen until the Summer solstice in June, when the Sun will be so far north that it will not sink very far below the horizon. As a result, around mid-summer, the sky will not be fully dark even at midnight. Those of you that remembered to note the direction of sunset on March 20th will notice that already the Sun has moved to the right of this position.

Venus is very prominent in the evening sky at the moment, setting over 4 hours after the Sun. Its maximum distance from the Sun, as seen from the Earth, occurred on March 24th when it was 46 degrees away. This is known as the Greatest Eastern Elongation. Through a telescope the planet will display an approximately half illuminated disc, similar to the Moon at first quarter.
Over the next few weeks Venus will draw closer to the Sun and this will bring it closer to Earth. As a result, the disc of the planet will grow larger and will display an increasingly narrow crescent. These changes can be easily followed using well supported binoculars or a telescope and will continue throughout April and May.
On June 3rd Venus will have reached a point when it is in line with Earth and the Sun and will be too close to the Sun for us to observe. This point is known as the Inferior Conjunction. When Venus reaches a similar position on the far side of the Sun it is known as the Superior Conjunction.
For now Venus will continue on its orbit , becoming visible in the morning sky. It will rise before the Sun and will draw further and further away from it until it reaches Greatest Western Elongation on August 13th when it will be 46 degrees away.

Last month we looked at some of the features on the Moon. This month I promised to look at one of the common features - Craters. These features are easier to see and are at their most spectacular when the Sun is illuminating them at an oblique angle. It is therefore important to know the phase of the Moon in order to know which craters will be seen at their best. Here are the Moon phases for April.

The Moon will have reached first quarter on April 1st. It will be full on April 8th and will have reached third quarter on April 14th. It will be new on April 23rd and will have reached first quarter again on April 30th.

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For this month I have selected ten craters and have listed them from right to left across the Moon's face so as to follow the terminator across the Moon to first quarter. Can you find them all? The craters can be sampled at the time of their most favourable aspects. For this exercise it will be useful to have a map of the Moon to assist in crater identification.

Langranus and Petavius are two craters that lie close to the eastern limb of the Moon, on the edge of the Sea of Plenty otherwise known as the right-hand pincer of the Lobster. Langranus is 160 kilometres in diameter while Petavius is 177. In reality they are both roughly circular but they look oval as we view them on the spherical surface of the Moon. This makes the east west axis of these craters look foreshortened relative to the north south axis.

The next crater is Proclus. It is 28 kilometres in diameter and is to be found to the left of the Sea of Crises. It stands out brightly suggesting that it is relatively new. As a general rule craters are lighter in colour when they are relatively young as, over time, the newly excavated ground gradually darkens with weathering. Most of the craters on the Moon were made by impacts and Proclus is no exception. It looks as if the impactor came in at an angle. If you look carefully at the surface of the Sea of Crises you can see debris which was blasted across the Sea by the impact.

The left-hand pincer of the Lobster is the Sea of Nectar. Half way down the west side is an inlet, close to which is a trio of craters Theophilus, Cyrillus and Catherina. Catherina is 100 kilometres in diameter and is the oldest member of the group as evidenced by the degree of weathering. Cyrillus is 98 kilometres in diameter and is second eldest as it has been partially overlaid by the youngest, Theophilus which is 100 kilometres across. Theophilus and Cyrillus both have a feature that many medium sized Lunar craters have, namely mountains rising from the centre of the crater's floor. These central peaks appear to have been made as part of the process which created the craters. They may have been produced by the recoil in molten rock following the impact.

Another trio of craters become prominent around first quarter. Like Theophilus, Cyrillus and Catherina they run north to south. They are Ptolemaeus, Alphonsus and Arzachel. The largest, at 153 kilometres, is Ptolemaeus. This crater has been filled with larva as evidenced by its dark colour and lack of secondary craters. It only has one crater easily visible in its floor. There is no evidence of a central peak. The southern

edge of Ptolemaeus has been damaged by the northern rim of the younger Alphonsus. At 119 kilometres in diameter Alphonsus has larva flooding on its floor which has partially drowned the central peak. This suggests that the larva flooded the floor after the creation of the central peak which would have been made at the same time as the crater itself. Arzachel is 97 kilometres in diameter. It has a central peak and evidence of some larva flooding. It has a prominent crater in the solidified larva floor.

Prominent at first quarter is the magnificent crater Tycho. At only 85 kilometres in diameter it is one of the most prominent craters on the Moon. It is relatively young as evidenced by its light colour but its most spectacular feature is its debris field. Its impact has blown debris right across the Moon. The crater itself with its central peak, is best seen at first quarter. However, the debris field is more prominent near full Moon as the Sun illuminates the more reflective surface material.

That is all for this month. Your challenge is to find as many of the craters I have mentioned as you can. All features can be seen with steadily held binoculars or a small telescope on a tripod.