Total solar eclipse to take place in April

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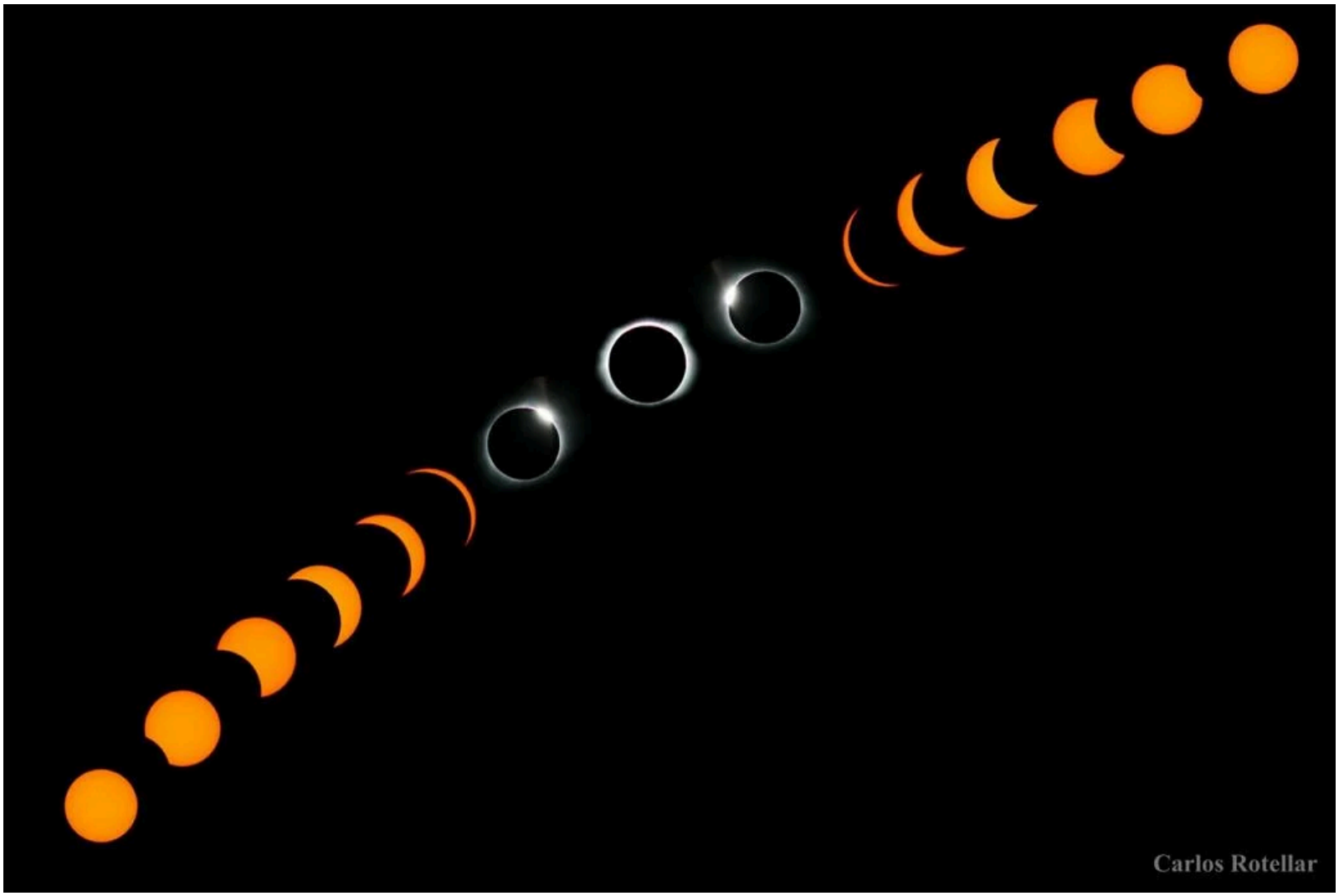

A timelapse photo of the total solar eclipse that took place in 2017 in Bowling Green.

Martina Fee photo

On April 8, there will be a total solar eclipse. One of best places to watch it in Kentucky will be Henderson County. It will start at 12:45 and end at 12:50 with the maximum eclipse occurring at 2:03 p.m. and will last two minutes and 15 seconds. In Bowling Green, we will see a partial solar eclipse in which 96.6% of sun will be blocked by the moon.

In the picture we show the 2017 total solar eclipse taken in Bowling Green. We can see the progression of the eclipse as the moon passes between the sun and the Earth. Before the total eclipse, the moon almost blocks the sun except for a small bright area. That is what we call the diamond ring (image courtesy of Mrs. Martina Fee).

When we look at the sky, the moon and the sun seem to be of the same size, yet we know the sun is much bigger than the moon. The moon lies at 239,000 miles from Earth, while the sun lies at 93 million miles from Earth. The sun is 400 times bigger than the moon, but is 400 times farther away from Earth, and that is why the moon can eclipse the sun.

However, total solar eclipses will not be around forever. The Apollo missions installed reflective panels on the moon. Researches have been firing laser beams at these mirrors measuring how long it takes the reflected beams to return to Earth, and then calculating the distance between the moon and the Earth. The moon is drifting away at a rate of 1.5 inches per year. As the moon moves farther away it will appear smaller in the sky and in about 600 million years it will not be able to completely block the sun, ending the total solar eclipses.

The relationship between the Earth and the moon affects our oceans, climate and the length of our days. The moon's gravitational pull affects the speed of the Earth rotation, and as the moon moves away, it slows the Earth down making the days longer. Two and a half billion years ago the moon was 37,000 miles closer to Earth, which shortened the days to 18 hours. It is estimated that it takes 3.3 million years to add a minute to our days, and in 100 million years from now the days will be about 38 minutes longer than today. 70 million years ago, when the dinosaurs roamed the Earth, the days were 23.5 hours long and the year lasted 372 days.

In 50 billion years the moon and the Earth would be tidally locked and Earth would almost cease to rotate.

However, we do not have to worry about this event, because as we discussed previously in last May article featuring the Helix Nebula; in a billion years the sun will run out of hydrogen, becoming a red giant and obliterating both the Earth and the moon.

– Dr. Carlos Rotellar is a Bowling Green nephrologist who has had an interest in astrophotography and has been taking images of the universe from his driveway for several years. Website: Skyastrophotos.com.