


March Skies over the Pinnacles

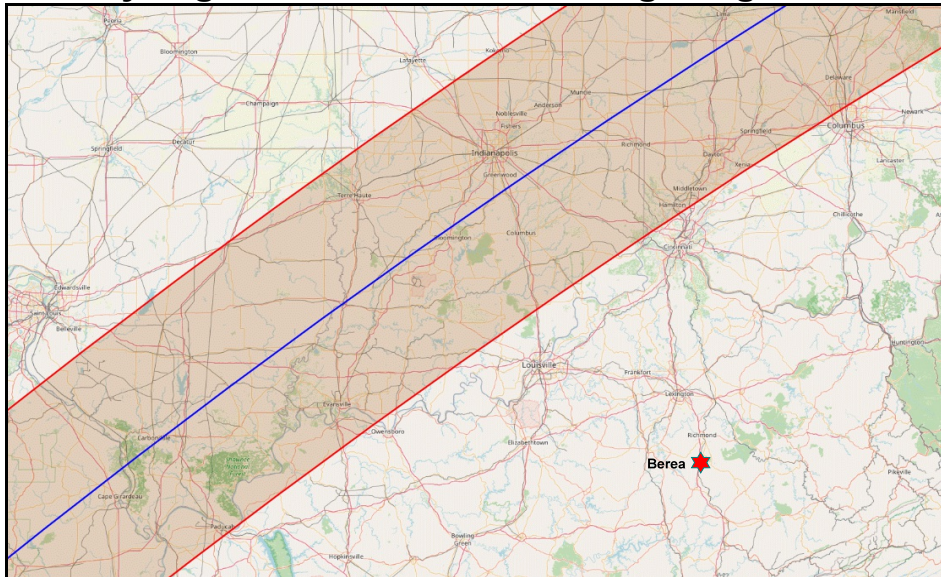
March 2024

by Jeff Hutton

March's Four Principal Phases of the Moon

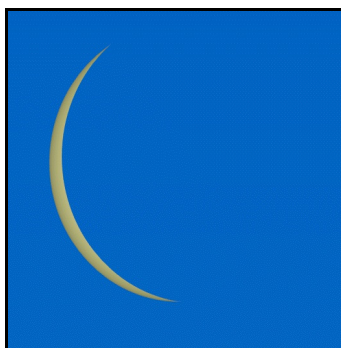
March 3	Last Quarter	
March 10	New Moon	
March 17	First Quarter	
March 25	Full Moon	

Totality is great, but Berea will still get a good show!



When we're talking about solar eclipses, the term, '**totality**' describes the short period of time when the Moon completely covers the face of the Sun. That's what astronomers call "the Big Show". The brilliant Earth-warming and eye-damaging surface of the sun is completely covered by the moon. This brightest part of the sun is called the **photosphere**. Totality can last from a few seconds to over 7 minutes. During **totality**, you can look straight at the Moon and see the wispy solar **corona**, looking like a crown all around the Moon. The **corona** is part of the outer atmosphere of the Sun.

The NASA map above shows the path the Moon's shadow will take on April 8. If you are in the shaded area at the right time, you will see a **totality**. Go to https://eclipse2024.org/eclipse_cities/statemap.html to use this interactive map.



At 3:08PM, April 8, in Berea, this is how the sun will appear. There is more than enough of the Sun's **photosphere** (the bright part) to permanently damage your sight if you look at it. The safest and most common way to enjoy this event is to look at the sun through a pair of approved sun viewing glasses. If you have a pair of these glasses which meet the **International Standards Organization (ISO) of 12312-2:2015 standard**, you're all set. If you have a pair left over from the 2017 eclipse, they may be OK. But I'd advise you to get a new pair from a reputable source. Check with the Madison County Library. The NASA Eclipse Ambassador program ordered them from a company called Rainbow Symphony Inc. But I don't endorse one approved brand over another.

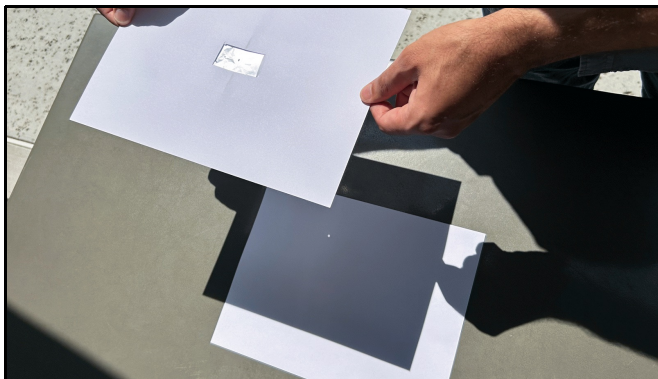
If you are lucky enough to get in the stripe of land in the map above to witness totality, congratulations! But you must practice the same eye safety I write about above during the times the sun isn't totally, and I mean **TOTALLY** covered by the Moon. I took the images below during the 2017 total solar eclipse from Hopkinsville, Kentucky.



The best way to know when it is safe to look at the eclipse is either by checking the exact time of totality for your location and when the world around you suddenly goes dark!

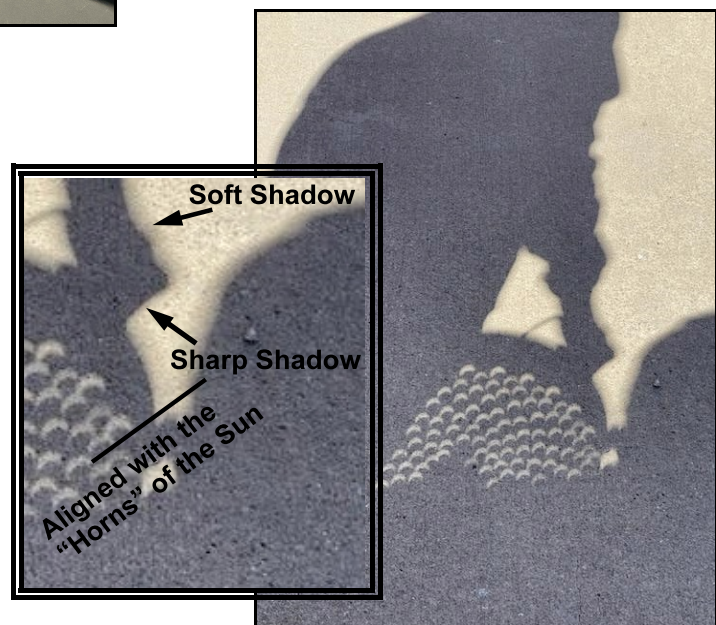
The left image from the 2017 total solar eclipse shows the Sun as it is about to be covered by the Moon. They call this **First Diamond Ring**. It can be photographed BUT NOT LOOKED AT without your approved eye protection. The middle image shows the Moon completely covering the Sun. The halo seen around the Moon is called the **Corona**, and it's only as bright as the full Moon at night. Take your protective glasses off and enjoy the view! The right-hand image is called **Second Diamond Ring**. As soon as you notice a slight brightening on the Moon's western side near the end of totality PUT YOUR PROTECTIVE GLASSES BACK ON, NOW!

Another safe way to view the sun is by projecting an image of the sun onto a flat, white surface. The tried and true method to do this is by using a pinhole projector.



In this NASA image a pinhole through a bit of foil taped to a piece of cardboard, used as a sun shade, makes a tiny image of the Sun.

Or have a bit of fun and use a kitchen colander to make lots of little solar images. This picture was courtesy of Dr. Smith T. Powell. Notice the double shadow at right to left from vertical surfaces and a sharper shadow from surfaces that run left and right.

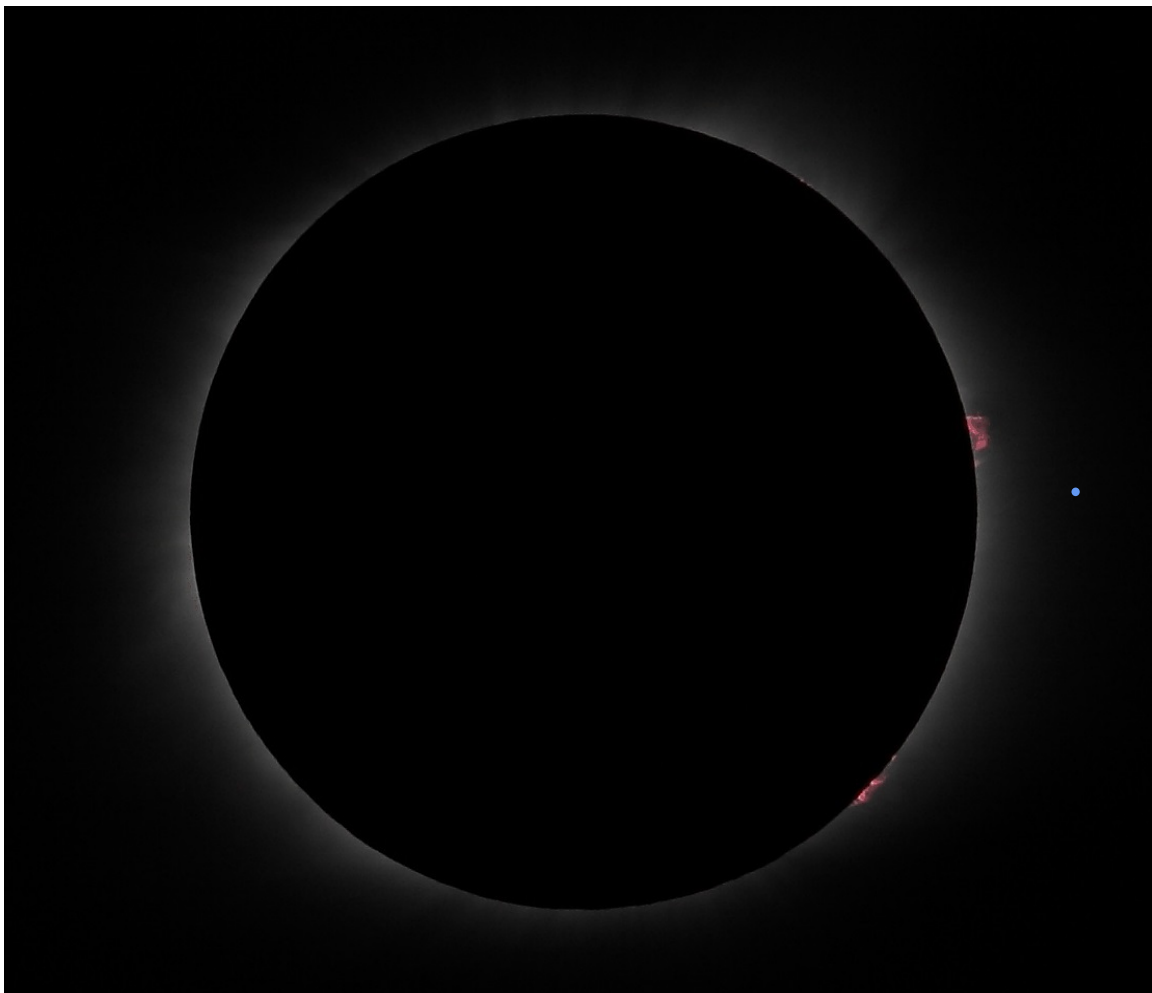


On Saturday, March 30 at 2PM, at the Forestry Center at Indian Fort, I'll offer you a slightly improved way to safely experience the solar eclipse from Berea. It's an improvement on the pinhole projector that uses easy to get lenses to project an bigger image of the Sun that makes it easier to follow the progress of the Moon across the face of the Sun easy to see.



Above is a mockup of a solar projector I made from wood and some inexpensive lenses (less than \$10) from an online retailer called Surplus Shed. Here's the web address <https://www.surplussshed.com/> The two lenses I used are on the site's front page. The bright round disc seen at the lower right is an image of the sun as seen through my window.

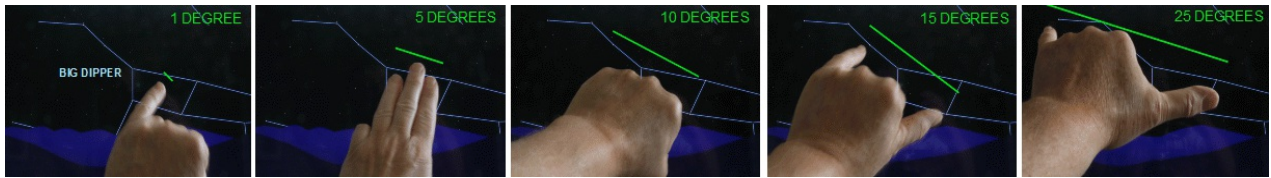
In case you don't want to try making this solar projector, I will have 14 of these projectors available for free during my presentation on March 30. Thanks to the Berea College Forestry Department for paying for the materials and to Kelly Mehler, Berea College Woodcraft and Joann Bates for the wood!



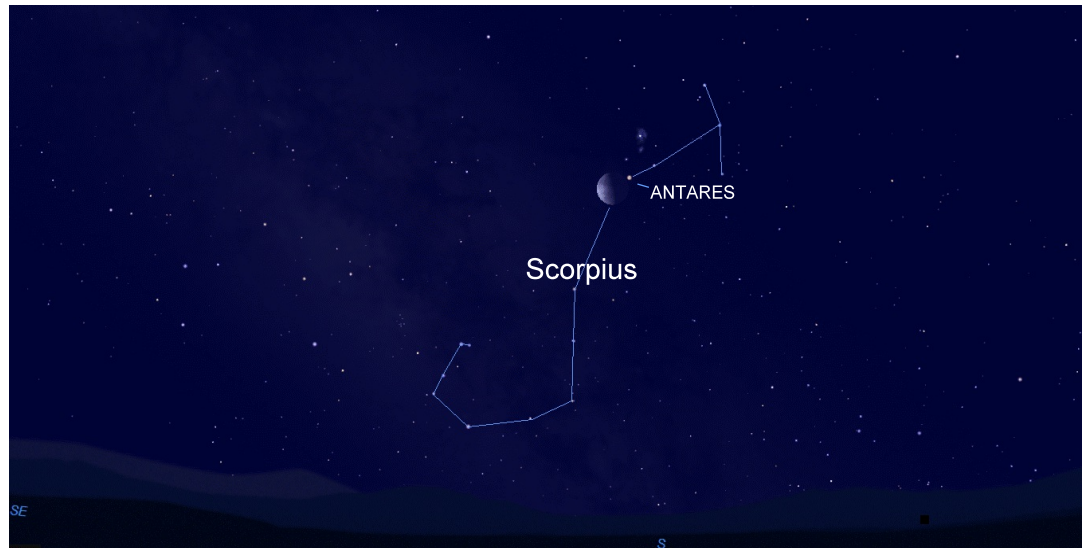
Above, is one of my favorite pictures from the August 2017 solar eclipse. It's a short exposure that shows just a little of the Sun's Corona but shows 2 big solar prominences. The little blue dot on the right shows the size comparison with the Earth.

Attractions in March

When you hold your hand all the way out and hold three fingers out, like the scout's salute in panel 2, your fingers create an **angular distance** of 5 degrees, about the width of the bowl of the Big Dipper. When I talk about the angular distance between, say, the Moon and a star or planet, I'll say that they are separated by a certain number of degrees. Sky and Telescope magazine is my source for most of the following information.



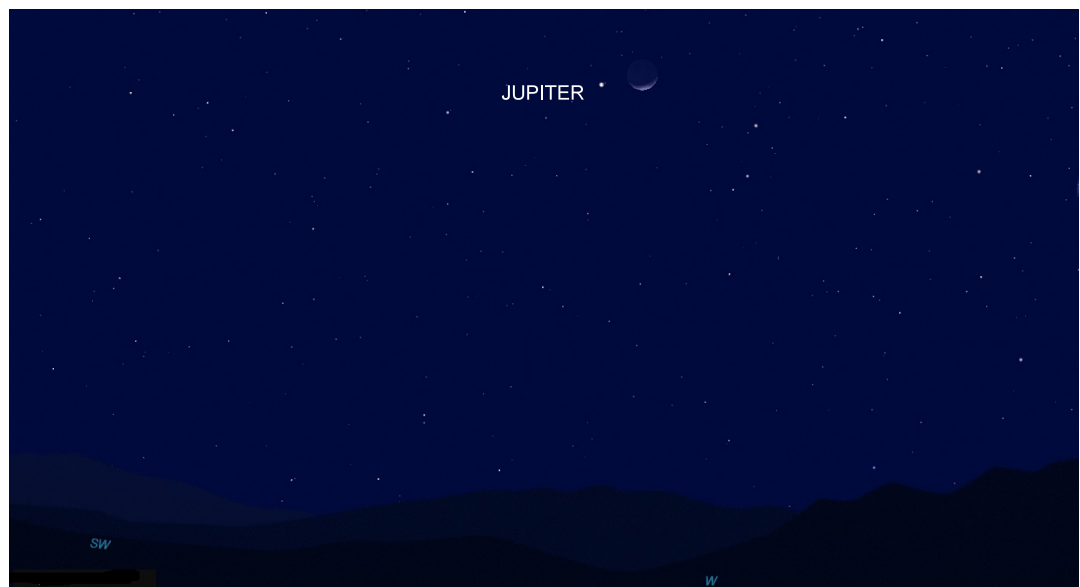
March 7 If you're up before the Sun rises, look south and check out the last quarter Moon just kissing the red star, Antares at the heart of the scorpion.



March 7 Would you like to join members of Union Church for a trip to see totality during the eclipse of the Sun on April 8? We'll meet in the second floor classroom in the education wing of the church this evening at 7PM.

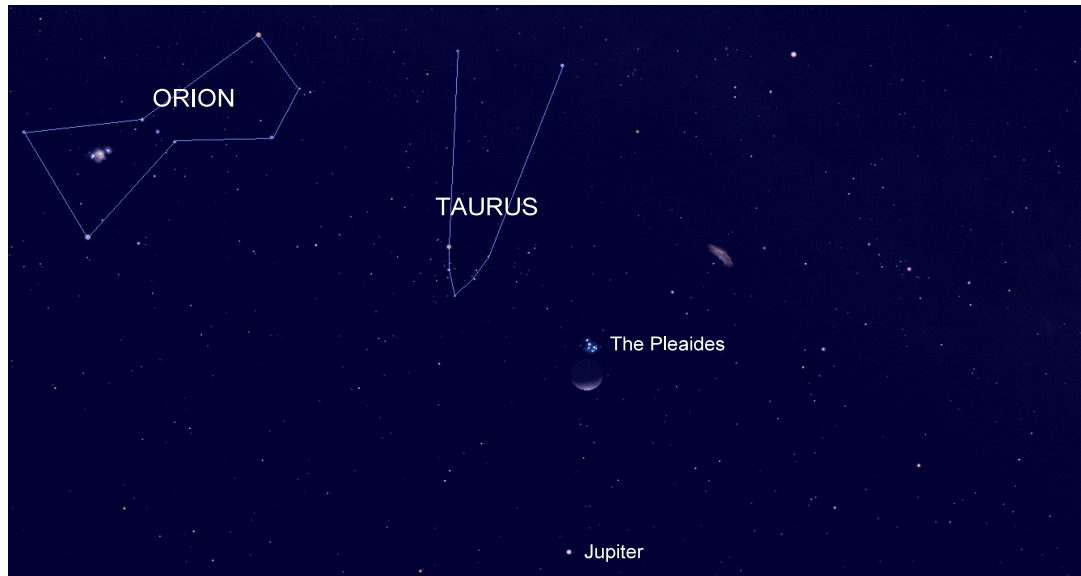
March 10 Daylight Savings time (or Government Nuisance Time) begins. Sorry, evening stargazers!

March 13 This evening, check out the close pairing of the Moon and Jupiter above the western horizon.



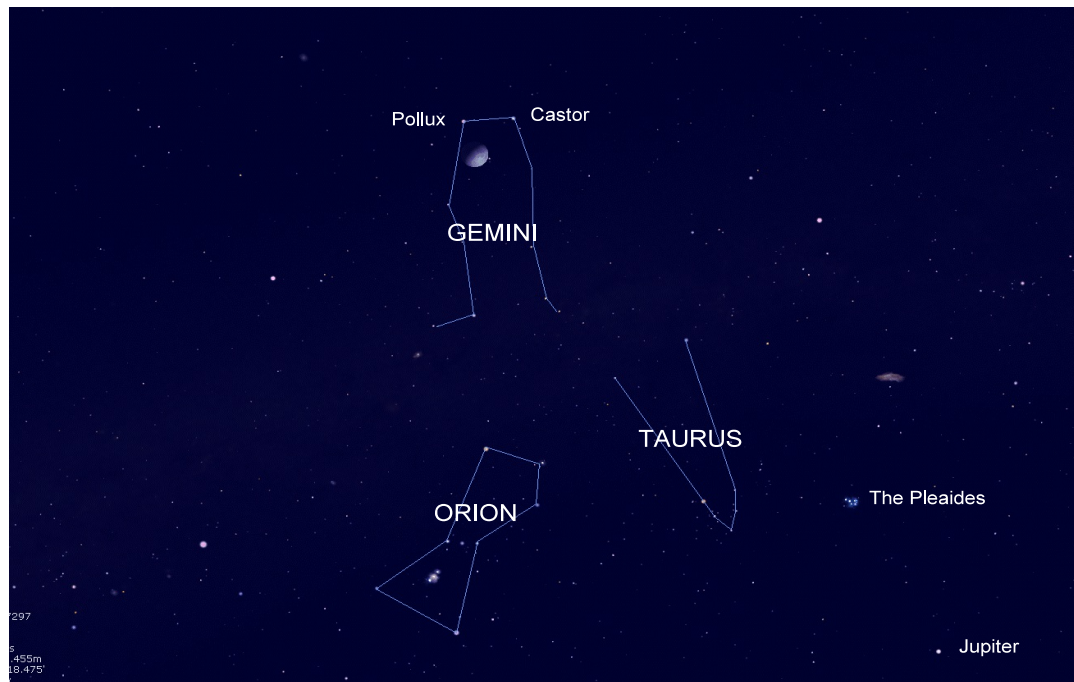
March 14

Binocular Alert! Check out the cool grouping of the Moon and the pretty star cluster called the Pleiades just above. That's Jupiter, below.



March 18

Now see that the Moon's orbit has taken it into the constellation of Gemini.



March 21

We will hold our second meeting for those who are planning to join members of Union Church for the trip to see the total solar eclipse on April 8. We'll meet in the second floor classroom in the education wing of the church this evening at 7PM.

March 22

Tonight we'll gather for a star party at the Forestry Center at Indian Fort. I'll begin with a brief update about plans to view the total solar eclipse, followed by viewing the night sky with telescopes, weather permitting.

March 25

Lunar eclipse early this morning just as the sky is brightening before sunrise. The moon just skirts the outer shadow of the Earth so you might not notice any change of the Moon's brightness. Lunar eclipses (full Moon) often occur close to solar eclipses (new Moon).

March 30

At 2PM, I'll hold a workshop at the Forestry Center for folks who want to enjoy the April 8 solar eclipse from Berea. We'll be giving away portable solar projectors to the first 14 participants. You'll learn how to point your projector and focus it on the Sun - in safety!

Questions or comments? Want to join the Pinnacles Astronomy Club or learn how to join our eclipse expedition? Feel free to contact me at sawandtelescope@gmail.com.