

# Shower averages 50 meteors per hour

By Raymond E. Bullock  
special writer

**T**HREE PLANETS and two bright stars stretch across the evening sky and an excellent mid-month meteor shower highlight August skies.

The days of summer continue to shorten in August. On the 1st, sunrise is at 6:24 a.m. with sunset at 8:52 p.m., giving us 14 hours and 28 minutes of sunshine. On the 31st these times are 6:56 a.m. and 8:09 p.m., a decrease of 1 hour and 16 minutes.

A panorama of planets and stars is visible stretching across the evening sky all month. Look in the west about 45 minutes after sunset to see brilliant Venus, the "evening star" planet. To the left of Venus, in the southwest, is the star Spica, in Virgo. Watch throughout the month as Venus passes Spica, in the south in Saturn, below it and to the east (left) is Antares, the orange-red "heart" of Scorpius the scorpion. The name Antares means "rival of Mars" because Antares and Mars are very similar in brightness and color. You can verify this easily yourself because completing our panorama, in the east, is Mars, the red planet itself!

ON THE MORNING of the 3rd the waning crescent moon is approaching the stars Castor and Pollux, in Gemini. Look in the east northeast about 45 minutes before sunrise and use binoculars to try and spot Mercury. Mercury will be about 12 degrees directly below the moon, but only 2 degrees above the horizon. On the morning of the 4th the moon will be below Pollux, which is below Castor. Mercury will be about 8 degrees to the right of the moon.

New moon is on the 5th. The moon is between Earth and sun and is not visible. Stargazers who have been keeping careful track of Saturn's position amongst the stars for the past few months have noticed the planet drifting slowly westward through the constellation of Scorpius. On the 7th Saturn is stationary as it begins to resume its eastward motion once again. Saturn is not actually changing its orbit. Westward motion, called retrograde (backward) motion, is an optical illusion caused as the faster moving earth passes Saturn, making Saturn appear to move backward. This illusion lasts only a few months before Saturn again appears to move eastward through the constellations. The change is very slow at first and becomes more noticeable later in the year.

LOOK WEST on the evening of the 8th to see the waxing crescent moon approaching Venus. On the following evening the moon has passed Venus and is closing on Spica. On the evening of the 10th the moon is just a few degrees west (right) of Spica.

Look for Mercury again on the morning of the 11th, about 45 minutes before sunrise. It is at its maximum elongation (greatest apparent angle) from the sun. Mercury never gets very far from the sun and even now, at its present maximum, it's only 19 degrees away. To help find Mercury, locate the stars Castor and Pollux in the east northeast. Draw a straight line down from Castor, through Pollux and on toward the horizon. Mercury will be on that line, about 7 degrees above the horizon and binoculars will help you spot it.

Mars, like Saturn, has been drifting westward through the stars for the past few months and for the same reason. On the 12th Mars is stationary as it begins to resume its eastward motion through the constellation of Sagittarius.

ONE OF THE year's best meteor showers reaches its peak on the morning of the 12th. The Perseid meteor shower is named for the constellation Perseus from which the meteors appear to radiate, although they can appear in any part of the sky. Meteors are also called "falling stars" or "shooting stars" but they are not stars at all. Meteors are particles of dust, rock and metal, which fall out of the sky. On any clear night a patient observer can see a few meteors but meteor showers are more impressive.

Meteor showers are caused when the orbit of the earth enters a stream of debris that is following its own or-

bit around the sun. It's believed that the debris may be the remains of a comet that disintegrated long ago yet the dust continues to follow the same path. When the earth enters the stream many more meteors than usual are seen as the debris plunges into our atmosphere and burns up. In the case of the Perseid meteor shower, an average of 50 meteors per hour can be expected. The meteors are best between 2 a.m. and sunrise. With luck you may also witness a fireball; a large meteor that takes many seconds to burn up and leaves a glowing trail behind, or perhaps a bolide; a bright meteor that explodes. A telescope or binoculars are not needed. Just go outside, lean

back in a lawn chair and be patient.

**WHAT IS ESPECIALLY** nice about this year's Perseid shower is the moon will not be a problem. When the moon is up its scattered light makes the fainter meteors very difficult to see. First quarter moon is on the 12th and it will have set when the meteors are at their best.

When the moon is up the moon on the evening of the 13th. To the east (left) of the moon is Antares. On the evening of the 15th the moon is approaching Mars and on the 16th has passed the red planet. The daily motion of the moon is very obvious when it passes a bright star or planet.

## skywatch

Full moon is on the 19th. The moon rises in the east as the sun sets in the west and is visible all night. Later this evening look for a bright "star" to the east (left) of the moon. This is actually the planet Jupiter. Is Venus still visible in the west? If so, along with Mars and Saturn, you now can see 4 planets in the sky at once!

IF YOU LOOK at Venus through a telescope on the evening of the 24th

you may be surprised to see it looks like the first quarter moon. This is because planets do not make their own light; they reflect the light of the sun. Venus will be passing between the earth and the sun later this year and its lighted side is visible from the earth and the other side is dark. If you don't have a telescope try using binoculars but you'll have to hold them very steady. What do you think Venus will look like next month?

The moon is approaching the Pleiades star cluster on the morning of the 26th. The Pleiades marks the shoulder of Taurus the bull and is a beautiful sight through the binoculars.

Also on the 27th, in the evening sky, Venus reaches its maximum elongation (greatest apparent distance), about 46 degrees east (left) of the sun. Although we are seeing less and less of Venus' lighted side it is now at its brightest because it is being drawing closer to Earth. On the evening of the 30th Venus is only one-half degree from Spica. It's easy to tell which is which because Venus is so much brighter than Spica. An excellent aid for learning constellations and keeping up to date with the sky is the monthly "Sky Calendar." Subscriptions are available from Abrams Planetarium, Michigan State University, East Lansing 48824.



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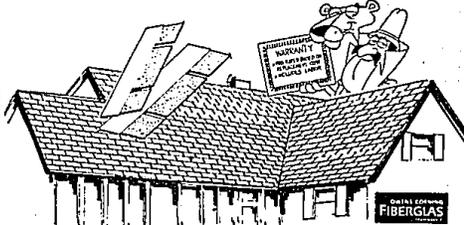
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