



AUGUST OBSERVING NEWS

Our recent trip to France had some interesting astronomical aspects. After a few days in Nice, we boarded our river ship in Arles and within yards of where we docked there was a plaque commemorating Van Gogh's painting: *Starry Night* over the Rhone. Unlike the better known *Starry Night*, instead of swirls of color, the Big Dipper is prominently painted in the sky. Of course, Larry quickly realized the view across the river was in the wrong direction for the Big Dipper. Nonetheless, we acquired a jigsaw puzzle, print, and t-shirt featuring the painting! We also saw the house of French astronomer Honore Flaugergues (1755–1835) during a walk through the town of Viviers. Flaugergues discovered the Great Comet of 1811.

NIGHT SKY VIEWING:

Note: Observing times given refer to the time on your planisphere, so add an hour if you are on Daylight Saving Time. Times for events such as meteor showers are usually given in *local time*, so you will not need to add an hour if viewing information is given in local time.

Face north at 9:00 p.m. (planisphere time, or “Arizona Time”). The head of Draco is high above the North Star (Polaris). The bowl of the Little Dipper is under the curve of Draco's body, with the Dipper's handle leading to Polaris. Cepheus is to the right (east) of Polaris, with Cassiopeia just below Cepheus. The Big Dipper is west of Polaris. The Summer Triangle (Altair, Deneb, Vega) is high in the sky, just east of the zenith (the point directly overhead).

Next, face east. Remember the story of King Cepheus and Queen Cassiopeia? Pegasus can be seen in the east, with Princess Andromeda trailing below the flying horse. Perseus rises just before midnight at the beginning of the month. August is the month for the Perseid meteor shower (more information below), so be sure to know where Perseus is if you plan to observe the Perseids!

Face south to see Scorpius and Sagittarius. They are nearly due south early in the month, with the Milky Way running through both constellations. Scorpius begins setting at about 11:00 p.m. just after mid-month. Early in August, Virgo (with its bright star Spica) is in the southwest at 9:00. Aquarius is just rising in the east at the same time, but has no particularly bright stars.

Finally, face west. Spica, mentioned above, is in the southwest and Arcturus is also moving toward the western horizon. Spica will be set by 9:00 p.m. around August 21, and Arcturus will set at about 11:00 p.m. on that date.

PLANETS AND MOON:

August 12 will be a busy time for observers. In addition to the meteor shower in the pre-dawn hours, the evening of August 12 provides another opportunity.

At dusk (about 30 minutes after sunset) on the nights of August 9 to August 12, look west/southwest to see the waxing crescent Moon. On the first night, the Moon will be near the horizon and just below Venus. On the second and third nights at the same time, the Moon will appear higher in the sky, moving toward Spica. By the night of August 12, the fuller crescent will be between Spica and Saturn (see below for more details).

Do you remember how magnitude designations work? The brighter the star, the smaller the magnitude number. Sirius is the brightest star in our night sky at magnitude -1.46 . High magnitude numbers mean an object is faint; negative numbers mean an object is bright.

As the sky begins to darken on August 12 (about 45 minutes after sunset), look to the southwest. The crescent Moon is just below Saturn and just above and a bit to the left of Spica. Saturn and Spica are both first magnitude ($+0.6$ and $+1.04$, respectively), that is to say, very bright objects. Venus, even brighter at magnitude -3.9 , is to the west (right) of these three objects. The brightest star in Scorpius (Antares, $+0.96$) is to the south (left) of Saturn. Bright Arcturus (-0.04) is higher in the sky, forming the top point of a triangle with Spica and Venus as the base.

TELESCOPE VIEWING:

The Moon becomes a good evening object by about August 11 (very thin crescent). Saturn and Venus are in the southwest in the early evening, and Jupiter, Mars, and Mercury are early morning objects. Venus sets about 90 minutes after the Sun. Saturn sets close to midnight (DST) at the beginning of August, and about 2-1/2 hours after sunset by the end of the month.

EARLY MORNING VIEWING:

On August 3 (about 45 minutes before sunrise), look to the east to see the waning crescent Moon. To the left of the Moon, you will see Jupiter, with Mars just below Jupiter and Mercury between Mars and the horizon. To the left (between Mars and Mercury relative to the horizon), you will see Castor and Pollux (Gemini, part of the Winter Hexagon). To the right of the Moon, you will see from left to right: Betelgeuse, Orion's Belt, and Rigel. Higher in the sky, and approximately above Betelgeuse, you can find Aldebaran (Taurus). Even a bit higher, and almost directly above Mercury, you can find Capella (Auriga). This is a wonderful way to see most of the Winter Hexagon in the summer (not to mention three planets!).

By August 4 (at the same time), the thinning crescent will be below Mars and above and to the right of Mercury. By August 5, the now very thin crescent will be right on the horizon, almost directly below Mercury.

PERSEID METEOR SHOWER:

The Perseid Meteor Shower will peak at 3:00 p.m. (EDT) on August 12, which allows viewing opportunities the mornings of August 12 and August 13. *Astronomy* magazine recommends a start time of 11:00 p.m. to midnight local time on August 11 for this event, with the pre-dawn hours of August 12 the best viewing time.

The waxing crescent Moon will have set much earlier, so moonlight will not be a problem. The Perseids are bright and move fast, so if you are in a dark spot you may see as many as 60-80 meteors per hour from the U.S. There should be almost as many per hour in the pre-dawn hours of August 13 as the pre-dawn hours of August 12. The meteors will come from the direction of the constellation Perseus (east at 11:00 p.m., high in the sky at 4:00 a.m.) This shower is tied to Comet 109P/Swift-Tuttle and can be seen every August.

PREPARING FOR COMET ISON:

As I mentioned in the last Newsletter, Comet ISON is now hidden by the Sun and will not be visible again until late August or early September. So, we may have some more information about ISON for our next Newsletter.

FEATURED CONSTELLATION FOR AUGUST:

In our last Newsletter we did three (!) constellations, so now we are back to the normal one: Sagittarius, the Archer. Sagittarius is actually a centaur, half man and half horse. Sagittarius is also known as the more familiar asterism, the teapot. The brightest stars in Sagittarius are Kaus Australis (southern bow, magnitude +1.85), Nunki (2.05; we do not always use the “+” sign), and Ascella (2.59). Ascella is a binary star system that is now about 88 ly from us. It used to be much brighter. It is moving away from the Solar System at about 22 km/s and it is estimated that 1 to 1.4 million years ago, it was only about 7.5 ly (with a uncertainty of about 2 ly) from us! I think that this would have made it brighter than Sirius.

One other star of note is the bright blue Pistol Star, a hypergiant star. This star, surrounded by about 10 solar masses of dust (the Pistol Nebula) that it is estimated to have ejected about 5,000 years ago, was discovered in the infrared by the Hubble Space Telescope. It is about 100 times as massive as the Sun and is about 1.5 million times as luminous as the Sun!

Sagittarius is also home to the Galactic Center and many nebulae.

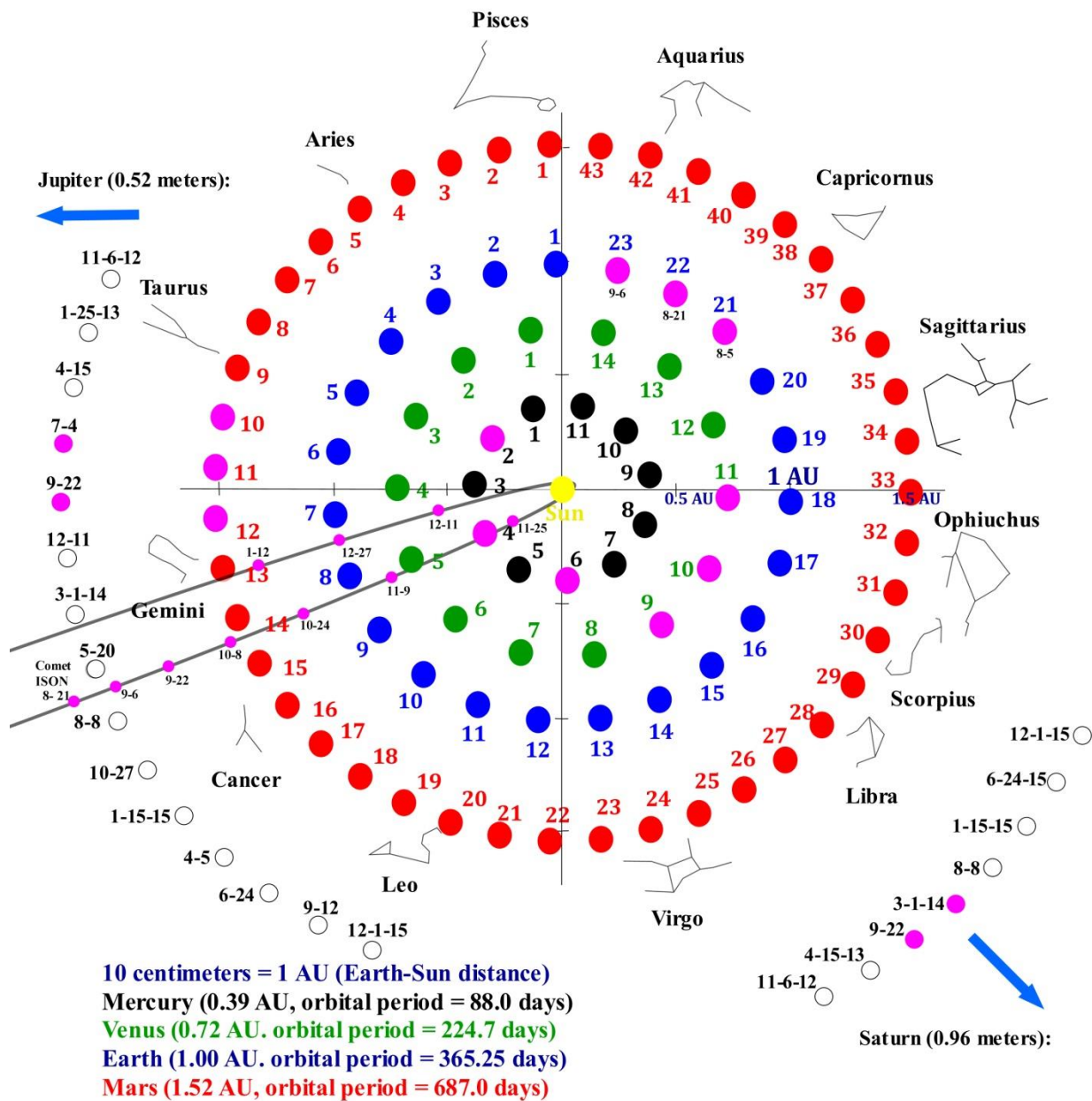
As usual, there are a night version and a white version for printing. The images show the sky on August 15 at 10:00 pm Daylight Saving Time (9:00 Arizona time), looking south. These images were generated using *Starry Night*. Since summer zodiacal constellations are low in the sky (the Sun is low in the sky when it goes through them in the winter), there is no need to have a “fisheye” view in order to see the constellation and the horizon.

From about August 10 until mid-September, the Sun is in Leo, the Lion. An image of the sky looking south at noon DST (11:00 am in Arizona) is attached. Leo is an evening constellation starting in early February. As usual, this is a fisheye view so that you can see the southern horizon.

CONNECTING WITH THE HUMAN ORRERY:

Below is a copy of the Table Top Orrery. We have again placed on the orrery the approximate path, as projected on the plane of the orrery, of Comet ISON. You can see why we are not able to observe ISON at this time, with it being on the far side of the Sun. You can use this as a reference for ISON in preparation for its close approach to the Sun in November and its reappearance in December (we hope).

Tabletop Orrery: Mercury to Saturn



girl scouts
science, technology
engineering, math

