ASTROFILES

Auburn Astronomical Society Newsletter

September 2020

Newsletter Editor — John Wingard — jwin1048@gmail.com

Moon Phases

September 23 — First Quarter

October 1 — Full Moon

October 9 — Last Quarter

October 16 — New Moon

October 23 — First Quarter

October 31 — Full Moon

November 8 — Last Quarter

November 15 — New Moon

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Latest News and Events

As we head into the last quarter of 2020 we still find ourselves dealing with the COVID pandemic. Although some things are slowly beginning to return to some sense of normalcy, many others are still on hold. Unfortunately, our club activities are still halted for the near future. Hopefully 2021 will be a better year for all. Personally, I am looking forward to the generally clearer skies of fall and winter and a break from the oppressive heat and humidity from summer. Fortunately, astronomy is a hobby that can still be enjoyed without the need for social interaction with others, so I encourage everyone to get your binoculars or scopes out and enjoy the wonders of the night sky until we can get back together socially.

As far as the planets go, the month of October is going to be all about Mars. It reaches opposition early in the month and will be well placed for viewing all night. Some are saying that this opposition may offer the best views of the planet until 2033, so don't let this opportunity go by! Just so you know, the photo below was not captured by any of us, but instead is a recent Hubble capture. Please refer to the NASA Night Sky Notes article in this issue for more information on how to find Mars in the night sky and some links to additional information about the planet that has captured our imagination ever since Percival Lowell first thought he observed "canals" on the planet back in the early 1900's!

Here are a few recent images from our AAS members. The top photo below is a beautiful capture of M31, the Andromeda Galaxy, by Jay Hall. At about 2.5 million light-years distant, M31 is the closest major galaxy to our own Milky Way galaxy. Due to it's size and brightness, it is an easy target in the night sky.

The two images below are recent captures of Jupiter and Saturn by John Wingard. These were captured with his 3.5" Questar scope. Both of these planets are still well placed for viewing in the low Southern sky.

This article is distributed by NAA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit night-sky.jpl.nasa.gov to find local clubs, events, and more!

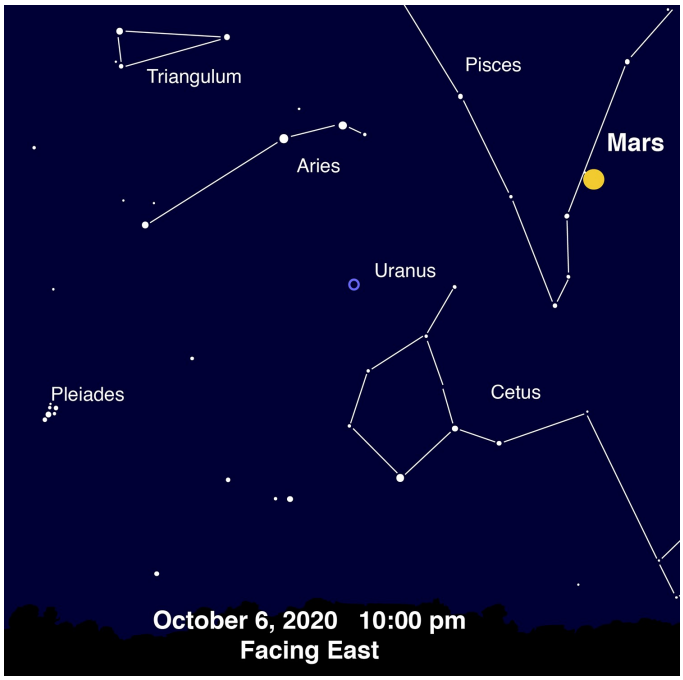
Observe the Skies Near Mars

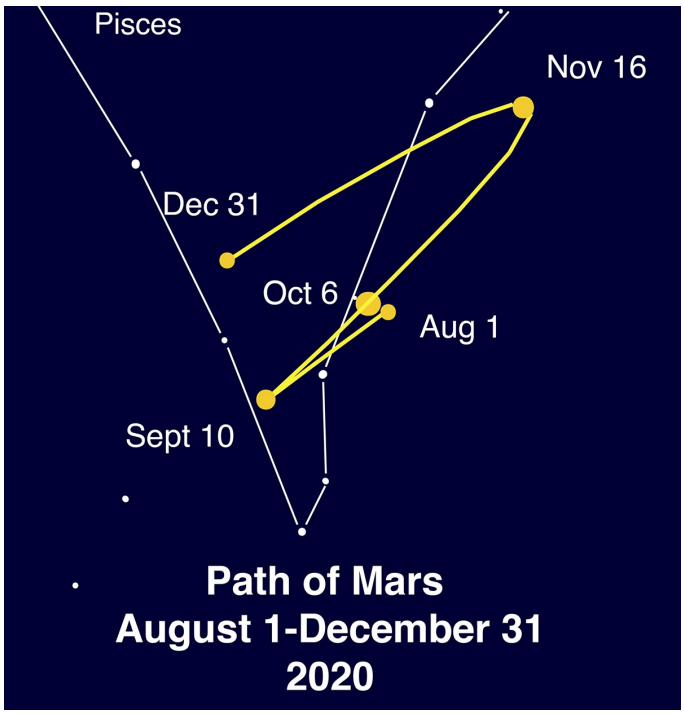
David Prosper

October is a banner month for Mars observers! October 6 marks the day Mars and Earth are at closest approach, a once-every-26-months event. A week later, on October 13, Mars is at opposition and up all night. Mars is very bright this month, and astronomers are eager to image and directly observe details on its disc; however, don't forget to look at the space around the planet, too! By doing so, you can observe the remarkable retrograde motion of Mars and find a few nearby objects that you may otherwise overlook.

Since ancient times, Mars stood out to observers for its dramatic behavior. Usually a noticeable but not overly bright object, its wandering path along the stars showed it to be a planet instead of a fixed star. Every couple of years, this red planet would considerably flare up in brightness, for brief times becoming the brightest planet in the sky before dimming back down. At these times, Mars would also appear to slow down its eastward motion, stop, then reverse and head westward against the stars for a few weeks, before again stopping and resuming its normal eastward movement. This change in the planet's movement is called "apparent retrograde motion." While all of the planets will appear to undergo retrograde motion when observed from Earth, Mars's retrograde appearances may be most dramatic. Mars retrograde motion in 2020 begins on September 10, and ends on November 16. You can observe its motion with your eyes, and it makes for a fun observing project! You can sketch the background stars and plot Mars as you observe it night after night, or set up a photographic series to track this motion. Does the planet move at the same rate night after night, or is it variable? As you observe its motion, note how Mars's brightness changes over time. When does Mars appear at its most brilliant?

NASA has tons of great Mars-related resources! Want to know more about apparent retrograde motion? NASA has an explainer at: bit.ly/marsretromotion. Find great observing tips in JPl's "What's Up?" videos: bit.ly/jplwhatsup. Check out detailed views with NASA's HiRISE satellite, returning stunning closeups of the Martian surface since 2006: hirise.lpl.arizona.edu. NASA's Curiosity Rover will be joined in a few months by the Perseverance Rover, launched in late July to take advantage of the close approach of Mars and Earth, a launch window that opens two years: nasa.gov/perseverance. Calculate the ideal launch window yourself with this handy guide: bit.ly/marslaunchwindow. The Night Sky Network's Exploring Our Solar System handout invites you to chart the positions of the planets in the Solar System, and NSN coordinator Jerelyn Ramirez recently contributed an update featuring Mars opposition! You can download both versions at bit.ly/exploresolarsystem. Young astronomers can find many Mars resources and activities on NASA's Space Place: bit.ly/spaceplacemars. Here's to clear skies and good seeing for Mars's best appearance until 2033!

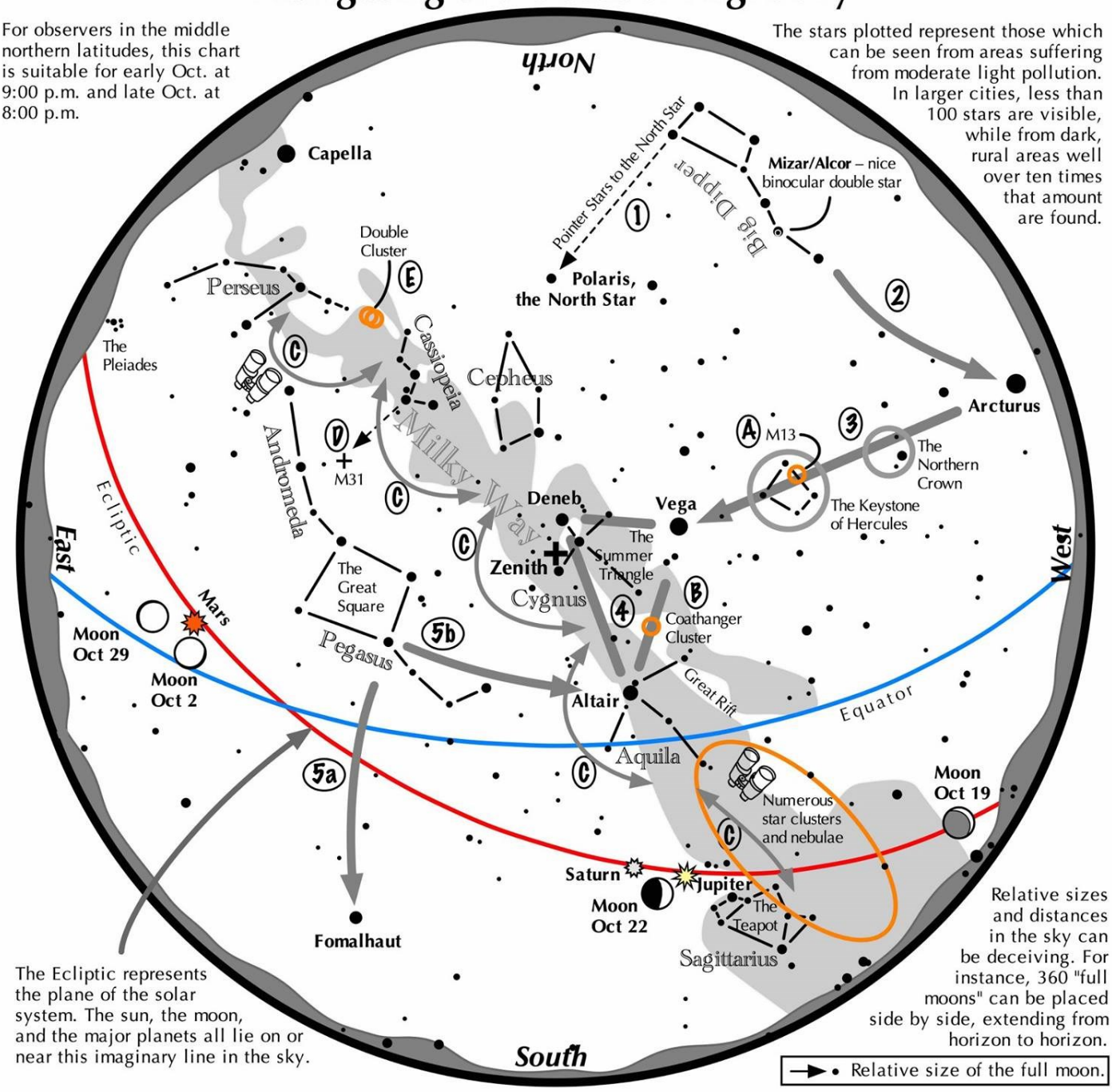




(left) If you are paying this much attention to Mars, you're likely curious about the skies surrounding it! Find Mars in the constellation Pisces, with constellations Aries, Triangulum, and Cetus nearby. Aries may be the only one of these dimmer patterns readily visible from light-polluted areas. The Pleiades rises shortly after Mars. Dim Uranus is found close by, in Aries. If you are observing Mars up close, use the same eyepiece to check out Uranus's tiny blue-green disc. If you are uncertain whether you spotted Uranus, you didn't see it! Unlike stars, Uranus doesn't resolve to a point at high magnifications.

(right) The path of Mars during the last five months of 2020. Notice the retrograde motion from September 10 to November 16, with prime Mars observing time found in between. October 6 is the day of closest approach of Earth and Mars, "just" 38.6 million miles apart. Images created with help from Stellarium: stellarium.org

Navigating the October Night Sky



Navigating the October night sky: Simply start with what you know or with what you can easily find.

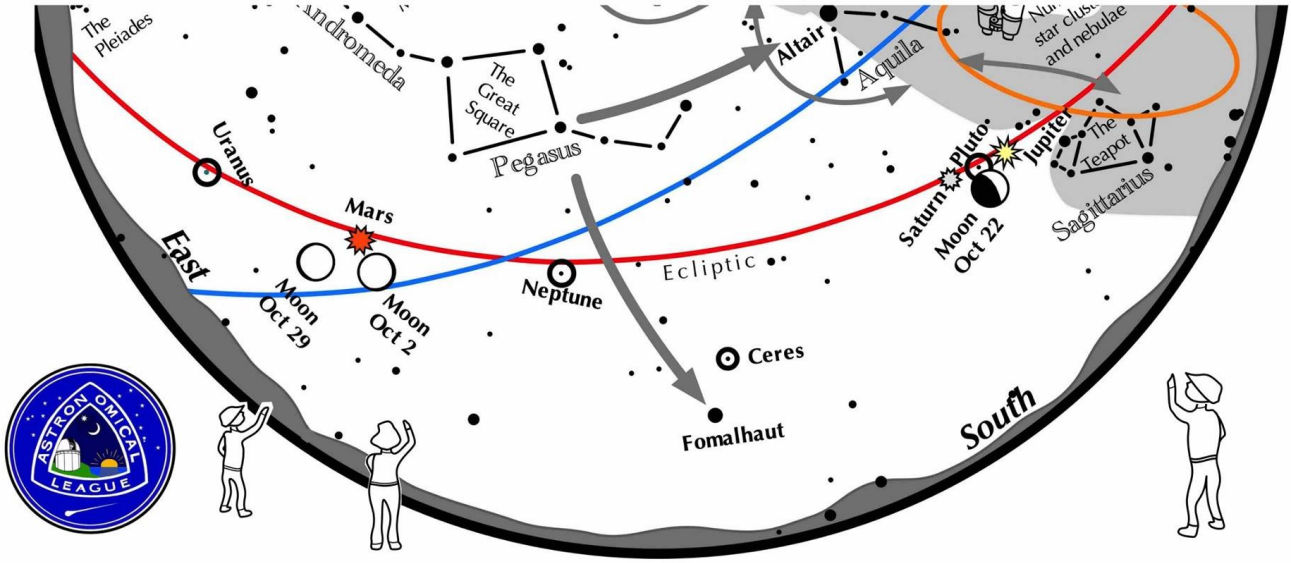
1. Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
3. To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
4. Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
5. High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

Binocular Highlights

A: On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. **B:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. **C:** Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. **D:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **E:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster.

If you can observe only one celestial event this month, consider this one:

See all three bright outer planets and a not-so-bright one



75 minutes after sunset, scan from the southwest to the south, then to the east: the Seen and the Unseen...

Fnd bright **Jupiter** and **Saturn** in the south–southwest, then locate **Mars** in the east.

- On the night of October 2, climbing in the east, brightly shines ruddy Mars with the near full moon glowing to its right.
- On the night of October 22, the near–first quarter moon is positioned between bright Jupiter and Saturn. **Unseen Pluto** lies immediately above the moon.
- On the night of October 29, the near–full moon hovers to Mars' lower left.
- **Unseen Neptune** lies one-third of the distance across the sky from Mars to easily seen Saturn.
- **Difficult–to–see Uranus**, which can be spotted by the keen-eye observer under dark skies, is found an equal distance that Mars lies from Neptune but on the other side of Mars. Binoculars will definitely help.
- The dwarf planet **Ceres** lies **unseen** just north of Formalhaut shining low in the south-southeast.

A curious fact: all these bodies of the solar system currently are placed just below the plane of the ecliptic.

Auburn Astronomical Society

Membership Application Form

Name:

_____

Address:

_____

City: _____ **State:** _____ **Zip:** _____

Phone: _____ **Date of Application*** _____/_____/_____

E-mail:

_____

Telescope(s):

_____

_____

Area(s) of special interest:

_____

_____

Enclose: $20.00 for regular membership, payable in January. *Full-Time* student membership is half the Regular rate.

If you are a NEW member joining after the first of the year, refer to the prorated table below

Jan $20.00	Feb $18.33	Mar $16.66	Apr $14.99	May $13.33	Jun $11.66
Jul $10.00	Aug $8.33	Sep $6.66	Oct $4.99	Nov $2.33	Dec $1.66

Make checks payable to: Auburn Astronomical Society and return this application to:

Auburn Astronomical Society
c/o John Wingard, Secretary/Treasurer
#5 Wexton Court
Columbus, GA 31907

For questions about your dues or membership status, contact: jwin1048@gmail.com

Thank you for supporting the Auburn Astronomical Society!