

Highlights of the September Sky . . .

1st

DUSK: Venus and Spica are a little more than 1° apart in the west-southwest.

2nd

Last Quarter Moon
10:37 pm EDT

5th & 6th

DAWN: Find Mercury 1½° above Regulus in Leo before sunrise in the eastern sky. Mercury moves to the left of the star the following morning.

9th

New Moon
2:01 pm EDT

13th

DUSK: A waxing crescent Moon, Jupiter, and Alpha Librae (Zubenelgenubi) form a nearly perfect equilateral triangle with sides about 4° long.

15th

PM: The Moon is 8° above Antares and flanked by Jupiter and Saturn.

16th

First Quarter Moon
7:15 pm EDT

17th

PM: A waxing gibbous Moon is 4½° left of Saturn.

19th

PM: The Moon is about 4° above the red planet Mars.

22nd

Equinox: Autumn begins in the Northern Hemisphere at 9:54 pm EDT.

24th

Full Moon
10:52 pm EDT

30th

PM: A waning gibbous Moon and Aldebaran are only separated by 1°.

Prime Focus

A Publication of the Kalamazoo Astronomical Society

★ ★ ★ September 2018 ★ ★ ★

This Month's Events

General Meeting: Friday, September 7 @ 7:00 pm

Kalamazoo Area Math & Science Center - See Page 6 for Details

Observing Session: Saturday, September 15 @ 8:00 pm

The Moon, Mars & Saturn - Kalamazoo Nature Center

Board Meeting: Sunday, September 16 @ 5:00 pm

Sunnyside Church - 2800 Gull Road - All Members Welcome

Observing Session: Saturday, September 29 @ 8:00 pm

Mars, Saturn & The Summer Triangle - Kalamazoo Nature Center

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PERSEID POTLUCK PICNIC REPORT

The Kalamazoo Astronomical Society held its twenty-fourth annual Perseid Potluck Picnic at the Kalamazoo Nature Center on Saturday, August 11th with a start time of 6:00 pm. Approximately 33 members and guests attended this year's summer gathering.

Severe weather passed through Barry County just before the picnic, but the storm quickly dissipated as it neared the county line. We enjoyed mostly clear skies with a high temperature of about 85° F and an average humidity of 44%. Only Richard Bell brought his Lunt 60mm H-alpha telescope to share views of the Sun. Attendees got to view one large prominence on the edge of the Sun's disk and one filament of moderate length near the disk's center. Sunspots were absent thanks to the approaching solar minimum.



Dinner was served shortly before 7pm. Special thanks to Don Stilwell who brought his grill for the sixth time and acted as the KAS gourmet chef. Burgers were juicy tender and Nathan's hot dogs were grilled with perfection! Members provided numerous side dishes including picnic classics like coleslaw, baked beans, and potato salad. Jean DeMott brought Trace Creek Stag Night Taters (otherwise known as "Jean's Heart Attack Potatoes"), while Aaron & McKenzie Roman shared homemade zucchini bread (with or without walnuts).

Skies were clear for the Public Observing Session following the picnic, which included the near-peak of the Perseid meteor shower. Well over 100 people attended the session thanks to our publicity efforts. Members providing telescopes included Richard Bell (9.25-inch Schmidt-Cassegrain), Mike Melwiki (10-inch Dobsonian), Aaron Roman (8-inch Dobsonian), and Roger Williams (4-inch refractor). However, most people came prepared to view the Perseids. The observing field became filled with numerous reclining lawn chairs and blankets. The other highlight of the session was the Planet Parade. Early arrivals got to see Venus, but everyone got to view Jupiter and Saturn. The global dust storm on Mars is subsiding, so prominent features like Syrtis Major and Hellas were visible.



A Trip Through the Milky Way

by **Jane Houston Jones & Jessica Stoller-Conrad**

Feeling like you missed out on planning a last vacation of summer? Don't worry - you can still take a late summertime road trip along the Milky Way!

The waning days of summer are upon us, and that means the Sun is setting earlier now. These earlier sunsets reveal a starry sky bisected by the Milky Way. Want to see this view of our home galaxy? Head out to your favorite dark sky getaway or to the darkest city park or urban open space you can find.

While you're out there waiting for a peek at the Milky Way, you'll also have a great view of the planets in our solar system. Keep an eye out right after sunset and you can catch a look at Venus. If you have binoculars or a telescope, you'll see Venus's phase change dramatically during September - from nearly half phase to a larger, thinner crescent.

Jupiter, Saturn and reddish Mars are next in the sky, as they continue their brilliant appearances this month. To see them, look southwest after sunset. If you're in a dark sky and you look above and below Saturn, you can't miss the summer Milky Way spanning the sky from southwest to northeast.

You can also use the summer constellations to help you trace a path across the Milky Way. For example, there's Sagittarius, where stars and some brighter clumps appear as steam from a teapot. Then there is Aquila, where the Eagle's bright Star Altair combined with Cygnus's Deneb and Lyra's Vega mark what's called the "Summer Triangle." The familiar W-shaped constellation Cassiopeia completes the constellation trail through the summer Milky Way. Binoculars will reveal double stars, clusters and nebulae all along the Milky Way.

Between September 12th and 20th, watch the Moon pass from near Venus, above Jupiter, to the left of Saturn and finally above Mars!

This month, both Neptune and brighter Uranus can also be spotted with some help from a telescope. To see them, look in the southeastern sky at 1 a.m. or later. If you stay awake, you can also find Mercury just above Earth's eastern horizon shortly before sunrise. Use the Moon as a guide on September 7th and 8th.

Although there are no major meteor showers in September, cometary dust appears in another late summer sight, the morning zodiacal light. Zodiacal light looks like a cone of soft light in the night sky. It is produced when sunlight is scattered by dust in our solar system. Try looking for it in the east right before sunrise on the moonless mornings of September 8th through September 23rd.

You can catch up on all of NASA's current - and future - missions at www.nasa.gov.

Observations

of Amateur Astronomers

by **Richard S. Bell**

There are many different types of amateur astronomers. First is the complete novice. We've never taken a formal survey of the membership, but I would guess that 70% of the KAS falls into this category. Most of our general meetings, observing sessions, special programming, and newsletter articles are geared toward this majority. However, we do have the occasional technical lecture during our monthly general meetings.

Next is the armchair astronomer. This can be anyone who spends most of their time reading books, watching documentaries on astronomy, or surfing astronomical websites. I've been an armchair astronomer most of my life; spending a great deal of time in my youth reading books like Peterson's *A Field Guide to the Stars and Planets*. If you're an amateur in Michigan you have to be an armchair astronomer to some extent. You have to satisfy your astronomical interests during those frequent cloudy nights somehow!

There's also the casual stargazer; someone who owns basic equipment such as a planisphere, a pair of binoculars, or a small telescope. They enjoy an occasional glimpse at the Moon, Jupiter, Saturn, and maybe even a few Messier objects. This can be someone young who can't stay out very late or an adult that must be ready for work at the crack of dawn. Perhaps another 20% of the KAS membership falls into this category.

Amateur Telescope Makers (ATM's) come next. These are the folks that build their equipment and/or grind their own mirrors instead of buy. This is one of the reasons why we have "Gadget Night" every July. If you've ever read telescope making books, browsed through *Sky & Telescope*, attended a star party, or surfed the internet then you've likely seen some of their creations. Some of them are gifted craftsmen and their creations are very original. ATM's aren't necessarily gifted observers, but they usually are. I've always thought about building my own telescope, but right now I haven't got the resources or desire to do so.



The skilled observers know the night sky like no one else. These are the explorers; star-hoppers whose obsession is tracking down faint fuzzies. Most people think they're nuts because they enjoy looking at deep sky objects that are barely there. They just don't understand. Star-hoppers don't enjoy just looking at these distant objects, they enjoy searching for them. Think of them as visual athletes pushing the limits of their vision. A sub-category of skilled observer is the comet hunter. They relentlessly scan the skies searching for these faint denizens of the outer solar system. This branch of amateur astronomy is becoming scarce thanks to automated sky surveys.

Astrophotographers are more like artists than observers. They turn their telescopes into camera lenses and capture stunning portraits of the night sky. Astrophotography can be the most expensive area of amateur astronomy. To be successful, you have to purchase high-end equipment that is very expensive. A telescope and mount worthy enough for astrophotography can cost several thousand dollars and let's not get into the other accessories. Fortunately many of us will be able to branch off into this area of amateur astronomy once our remote telescope in Arizona is fully operational.

Lastly, we have the "advanced" amateur astronomer (for lack of a better term). These are amateurs who are scientifically literate. Several of these advanced amateurs are already scientists in another field. They use their amateur equipment for the sake of science. Perhaps they measure magnitudes of variable stars, position angles of double stars, monitor the weather patterns on Mars and Jupiter, or take and analyze the spectrum of stars or distant quasars. A handful of amateurs have even detected planets orbiting distant stars.

I'm probably forgetting other types of amateur astronomers, but you get the idea. Where do you fit in as an amateur astronomer? I'm not sure myself. There are certainly better astrophotographers and more skilled observers out there, but I do my best to improve each night I head out under a starry sky. That's why we are all part of the Kalamazoo Astronomical Society; we can learn something from everyone. Clear skies and keep looking up!

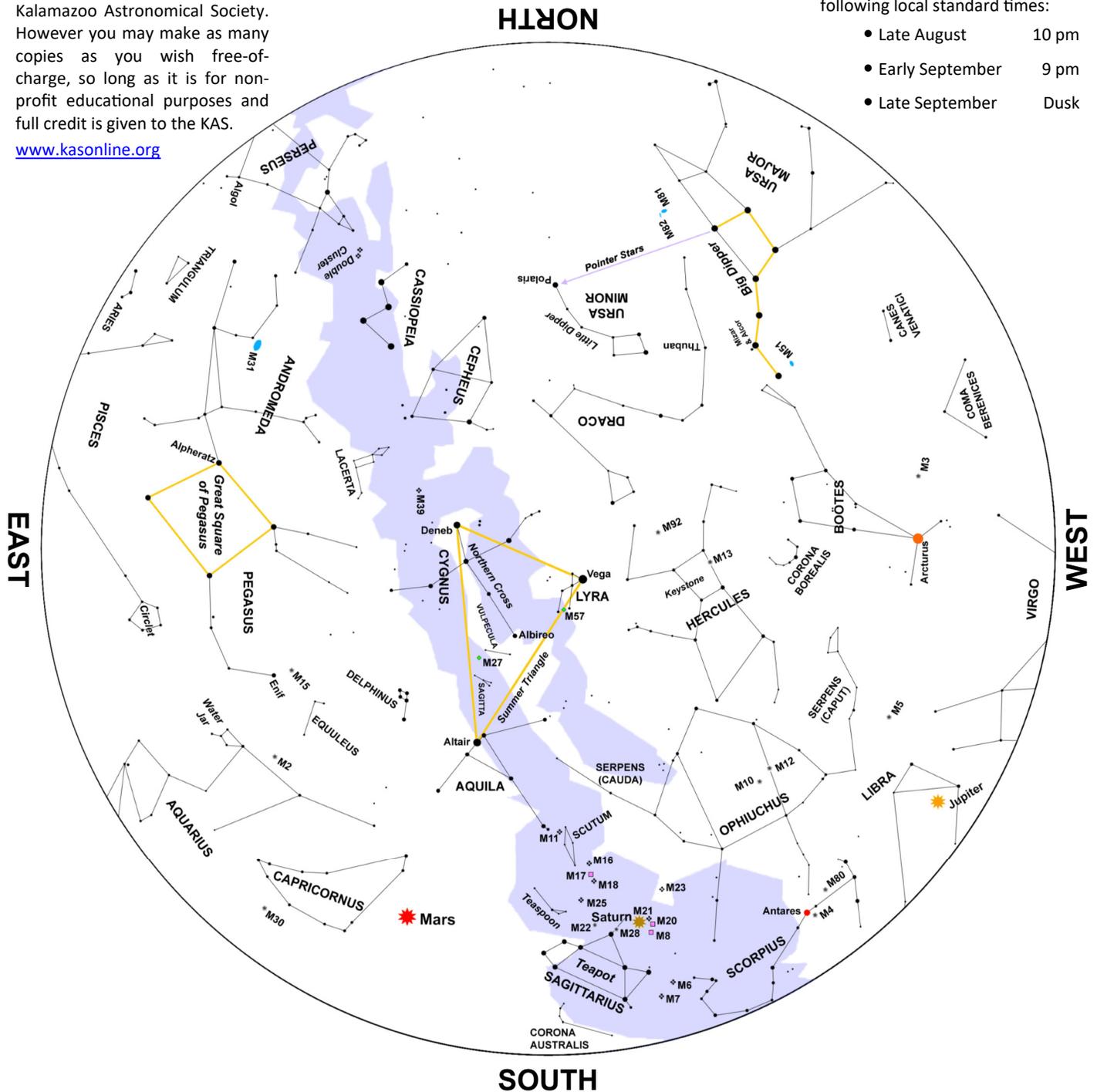
— September Night Sky —

This star map is property of the Kalamazoo Astronomical Society. However you may make as many copies as you wish free-of-charge, so long as it is for non-profit educational purposes and full credit is given to the KAS.

www.kasonline.org

This map represents the sky at the following local standard times:

- Late August 10 pm
- Early September 9 pm
- Late September Dusk



On the evening of September 13th a waxing crescent Moon, regal Jupiter, and Zubenelgenubi, or more formally Alpha (α) Librae, form an almost perfect equilateral triangle whose sides are some 4° long.

A First Quarter Moon sits 8° to the right of the ringed marvel Saturn on September

16th. That gap closes to 4½° the following evening, but the Moon has moved to Saturn's left.

The Moon, now a waxing gibbous, has moved to within 4° of Mars on September 19th. The Red Planet is well past opposition, but still shines at -1.6 magnitude. Give Mars a gander through a

telescope and see how much the dust storm that raged in June and July has dissipated.

A waning gibbous Moon and Aldebaran, the orange-red star representing the eye of Taurus the Bull, are separated by less than 1° around midnight on the night of September 29th/30th.

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THE MILLER PLANISPHERE



The Miller Planisphere is made with heavy duty plastic and includes a durable plastic case. All planispheres sold by the KAS are 10.5" in diameter and set at 40° latitude. Just dial the date and time and you'll see what's in the sky for that moment. Available for purchase at most meetings and observing sessions. Also available online at:

skyshop.kasonline.org

Only \$13.00

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Our Celestron 8" Schmidt-Cassegrain telescope is mounted on a very stable Super Polaris Equatorial mount. It's quick and easy to setup. A dew cap, 4 eyepieces, and a Tel-Rad finder are included.

This is a serious amateur telescope that will provide dazzling views of the Moon and planets, and is capable of showing you thousands of deep sky objects.

Visit the [Telescopes for Loan](#) webpage for more information and contact KAS Equipment Manager Arya Jayatilaka today if you'd like borrow it.



Public Observing Sessions

Saturday, September 15th

Features: Moon, Mars & Saturn

Saturday, September 29th

Features: Mars, Saturn & The Summer Triangle

Gates Open: 8:00 pm • Observing Begins: 8:30 pm

Kalamazoo Nature Center

— 7000 N. Westnedge Ave. —



General Meeting Preview



Michigan's Extraterrestrial Visitors

Meteorites

presented by Craig Whitford

Mr. Whitford, from Michigan State University, will give a presentation about Michigan meteorites. He is the Meteorites Collection Coordinator at Abrams Planetarium in East Lansing and is leading the effort to put up a major exhibition there in 2019 thanks to a \$100,000 grant from the Institute of Museum and Library Services. The program will focus on meteorite finds from across the state and discuss the characteristics to look for in determining if a particular rock is a meteorite or not. Nine of the ten known Michigan meteorites will be on display during the presentation.

Friday, September 7 @ 7:00 pm

Kalamazoo Area Math & Science Center

600 West Vine, Suite 400 • Use Dutton St. Entrance

– ***Dutton Entrance Locked by 7:10 pm*** –

Kalamazoo Astronomical Society
c/o KAMSC
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STAMP

