Highlights of the September Sky. . .

- - - 3rd - - -

DAWN: A waning crescent Moon, Pollux, and Castor form a straight line.

- - - 4th - - -

DAWN: A thin crescent Moon is about 4° from the Beehive Cluster (M44).

DUSK: Venus is less than 2° from Spica (in Virgo) low on the west-southwest horizon.

- - - 6th - - -

New Moon
8:52 pm EDT

- - - 9th - - -

DUSK: A waxing crescent Moon is 4° to the upper right of Venus, with Spica nearly 5° below the Moon.

- - - 12th - - -

DUSK: The Moon is 3½° to the upper right of Antares.

- - - 13th - - -

First Quarter Moon
4:41 pm EDT

- - - 16th - - -

DUSK: The Moon is 5° to the lower right of Saturn.

- - - 17th - - -

PM: The Moon is nearly 7° to the lower right of Jupiter.

- - - 20th - - -

Full Moon
7:54 pm EDT

- - - 26th - - -

DAWN: A waning gibbous Moon is between the Hyades and Pleiades.

- - - 28th - - -

Last Quarter Moon
9:58 pm EDT

- - - 30th - - -

DAWN: A waning crescent Moon and Pollux (in Gemini) are 3° apart.

Prime Focus

A Publication of the Kalamazoo Astronomical Society

★ ★ ★ September 2021 ★ ★ ★

This Months KAS Events

Observing SIG Session: Thursday, September 2 & 30

Richland Township Park • See Page 13 for Details

General Meeting: Friday, September 10 @ 7:00 pm

Held on Zoom • Click to Register • See Page 14 for Details

Observing Session: Saturday, September 11 @ 8:00 pm

Jupiter, Saturn & Summer Nebulae • Kalamazoo Nature Center

Astrophoto SIG Meeting: Friday, September 17 @ 8:00 pm

Held on Zoom • Click to Register • See Page 3 for Details

Observing Session: Saturday, September 25 @ 8:00 pm

Venus, Jupiter, Saturn & the Moon • Kalamazoo Nature Center

Inside the Newsletter. . .

PERSEID POTLUCK PICNIC REPORT

After a one-year hiatus, the KAS held its twenty-seventh annual Perseid Potluck Picnic at the Kalamazoo Nature Center on Saturday, August 14th with a start time of 6:00 pm. Approximately 36 members and guests attended this year's summer gathering - not the lowest attendance ever, but the lowest percentage-wise considering our dramatic increase in membership over the past year.

Weather conditions for this year's picnic were quite pleasant. The temperature at start time was 79° F with 34% humidity. Skies were fair so members were able to view the Sun in H-alpha through the Tele Vue NP101 (Nona) and Coronado SolarMax II 90mm filter in Owl Observatory for the first time. Members were treated to two large prominences - one of which was so large it made headlines on websites like Spaceweather the following day. The Kendrick off-axis solar filter was placed on the Meade 16-inch SCT, but not a sunspot was to be seen on this day.

Dinner was served shortly before 7pm. Special thanks to Andrew Loveless who brought his grill for the first time and acted as the KAS gourmet chef. This gave both Jim Kurtz and Don Stilwell a much-need respite; both of which have been trading off grilling duties since 2005. Burgers were juicy tender and hot dogs were grilled with perfection, so kudos to the chef! Don Stilwell was kind enough to purchase and bring the buns, hamburgers, veggie burgers, hots dogs, and condiments this year. (He apologizes for forgetting to purchase cheese, but promises to do better next time.)

Dedication of the Leonard James Ashby Telescope (delayed from May 2020) was held immediately after the picnic. KAS President Richard Bell gave a speech listing as many of the people involved with the construction, maintenance, and upgrades of the observatory since 1996 (see page 5 for more). Special thanks to Cathy McMinn, granddaughter of Mr. Ashby, for cutting the ribbon and unveiling the plaque. The day concluded with a Public Observing Session. The Moon was featured early on, but those that stayed late enjoyed views of Jupiter and Saturn in the Ashby Telescope.

Observations

by Richard S. Bell

Many of us, myself included, were really looking forward to returning to the Kalamazoo Area Math & Science Center (KAMSC) this month for the general meeting. Several factors made me decide for us to continue meeting on Zoom. Attendance and/or participation was low for the July General Meeting, Public Observing Sessions, Perseid Potluck Picnic, and Ashby Telescope Dedication. Despite being outdoors in an open area, members still seem very hesitant to participant at in-person KAS activities. Contrast this with the high online attendance for the *Intro. to Amateur Astronomy* series, general meetings on Zoom, and the Online Viewing Sessions. Many of those events reached capacity, so some people had to view the live-stream on YouTube.

I also decided to conduct a short survey. (Thanks to Molly Williams for putting that together for me.) I was curious to see how members preferred to attend the September General Meeting. Of the 83 members that took the single question survey (out of ~250 memberships...UGH!), 22 planned to go to KAMSC while 47 preferred to logon to Zoom. The rest had no plans to attend either way. (Two people clicked the survey link, but skipped the single question. What's up with that? No one ever said running an astronomy club was easy, but I digress.) Frankly, 22 people in-person at KAMSC isn't enough to bring in guest speakers from outside the KAS. Our scheduled speaker planned to come from Adrian, MI (a nearly 2-hour drive) and he doesn't want to give his talk online. That is why I decided for us to remain on Zoom for *at least* the September meeting.

Yours truly will be presenting ***85 Years of Looking Up: A Brief History of the KAS***. Details can be found on page 14. This seemed like an appropriate alternative, since 2021 is our 85th anniversary and we've done little to directly celebrate it. I gave a similar talk at the start of our 75th anniversary in 2011, but very few people attended since severe winter weather interfered. That can't happen with a Zoom talk (plus it's still summer)! So, even though you hear me talk WAY too much, I hope you plan to register and Zoom in.

The same goes with the first regular meeting of the inaugural season of the Astrophotography Special Interest Group. I went through A LOT of effort to make arrangements for us to meet in Rood Hall on WMU's Main Campus. Instead the meeting will be on Zoom. Our very special guest speaker, Adam Block, was joining us via Zoom anyway. Mr. Block is regarded as one of the best astrophotographers in world. He's also known for founding and operating the Mount Lemmon SkyCenter Observatory for the University of Arizona. The title of Mr. Block's presentation is ***To the Ends of the World with Astrophotography***. Yes, this talk is being held at a Special Interest Group meeting. However, I promise this will be a presentation that *any* member (astrophotographer or not) will enjoy so I hope you can attend on September 17th. Check out the promotional poster on page 3 to learn more and register today!

All KAS members are invited to attend the premiere meeting of the Astrophotography SIG's inaugural season.

Feature Presentation by Adam Block:

TO THE ENDS OF THE WORLD
with
Astrophotography

During this talk Mr. Block will highlight some of the science he is involved with at the University of Arizona and how it is connected with things that are very important to all amateur astronomers.

Then he will show off some of the astrophotography he has been fortunate to do over the past 25 years. But more important than a slide show, he will show examples of how images can have fantastic reach that can have impact far beyond what we can either know or imagine.

Finally, he will end with an example of a kind of perspective that is an outgrowth of astrophotography - a link between the image and the underlying physics.

— About the Speaker —

Adam Block is recognized as one of the best astrophotographers in the world today and as won several awards for his work. In 2012, he was the recipient of the Hubble Award, one of the highest awards for excellence in astrophotography, from the Advanced Imaging Conference. To date, 98 of his images have been featured on the Astronomy Picture of the Day website. Mr. Block developed the National Observatory's public stargazing program at the Visitor Center in 1996. In 2008, he founded the Mount Lemmon SkyCenter Observatory for the University of Arizona. Mr. Block was also a columnist for *Astronomy* magazine for 2 years and is a PixInsight Ambassador.

Friday, September 17th @ 8:00 pm

Held on Zoom • Click Here to Register

Remembering Carolyn Shoemaker

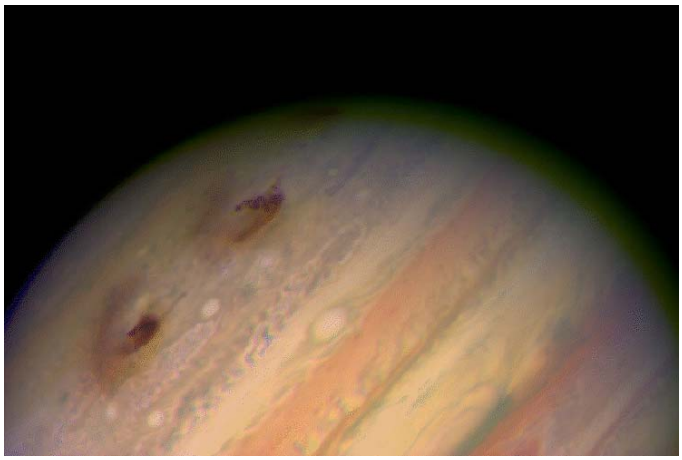
by Kevin Schindler

The world lost a legend on August 13th with the passing of Carolyn Shoemaker. A housewife turned scientist, she once held the record for most comet discoveries by an individual and also found hundreds of asteroids.

Born Carolyn Spellman in 1929, she grew up in Chico, California. She studied history, political science, and English literature at Chico State University. She taught for a short time but didn't like it. No matter — she soon was occupied with the duties of a mother after marrying her brother's college roommate at the California Institute of Technology, Gene Shoemaker.

While Gene's career as a geologist took off, Carolyn stayed at home to raise the couple's three children. Gene went on to become one of the most celebrated scientists of his era. He studied impact craters around the world, proved the impact origin of Meteor Crater, and brought the United States Geological Survey's Astrogeology Branch to Flagstaff.

In 1980, Gene found himself with a new research assistant: Carolyn. The children now all graduated from high school, 51-year-old Carolyn now looked for something fulfilling on



which to spend her time. Gene suggested she help him with his research on comets and asteroids, and she soon became proficient at searching for these diminutive bodies.

Carolyn went on to discover or co-discover 32 comets and more than 500 asteroids. Her most famous find came in 1993 when she teamed with Gene and amateur astronomer David Levy to discover Comet Shoemaker-Levy 9, which the following year dramatically collided with Jupiter in an event observed by astronomers around the world.

In 1997, the couple was involved in an automobile accident that left Gene dead and Carolyn severely injured. She carried on the research for years, splitting her time between the USGS and Lowell Observatory. She also became a popular guest at star parties and other amateur astronomy events around the world.

For her efforts, Carolyn garnered many awards and was bestowed an honorary doctorate from Northern Arizona University. She remained active in the scientific community even after retirement, serving on Lowell Observatory's Advisory Board, participating in astronomical events such as the 2018-2019 Flagstaff Lunar Legacy celebration, and speaking to groups.

Up until a couple years ago, she maintained residence in her beloved home on Hidden Hollow Road that she and Gene built over the course of several decades. She had a deep personal connection to the house, having handpicked the many river rocks used in the structure. Health concerns eventually led to her moving into the Peaks Senior Living Center a couple years back.

Carolyn was a kind and gracious person, known as much for her cheerful personality as the astronomical discoveries she made. She died 24 years after Gene and though the world mourns her loss, she is now reunited with her cherished partner in the heavens.

This article was originally published by the "Arizona Daily Sun." Used with kind permission.

A Comprehensive History of Owl Observatory

by Richard S. Bell

Amateur astronomers and astronomy clubs alike dream of having their own observatory. Some are fortunate enough to live that dream. The benefits are numerous. Your equipment is housed in a secure environment and permanently aligned with the celestial pole. Carrying your telescope out to the backyard or transporting it to a favorite observing site, along with time-consuming setup and take down, is not required. With the opening of a dome slit or roof, the telescope is ready to peer to the heavens. It could be for a night of general viewing, astrophotography, or research.

For astronomy clubs, an observatory also becomes a focal point for its observing activities and a gathering place for its members. Most members will never experience the benefits of having their own observatory, so using one owned and operated by their astronomy club is the next best thing! The KAS has been fortunate to own and operate Owl Observatory, located at the Kalamazoo Nature Center, since 1998. Owl is only a 12' × 12' roll-off roof observatory, but we recently installed a larger telescope on a much more capable mount. Now that we've finally dedicated the Leonard James Ashby Telescope, the time seems right for a comprehensive history of what it took to make our observatory a reality.

Past Attempts

Owl Observatory was not our first attempt at establishing an astronomical facility. We know of a handful of other attempts dating back to the early 1960s. Unfortunately, very little documentation is known to exist between the 1930s and 1950s, so we don't know of any aspirations during that time period. We do know that some of our first events were held in the observatory owned by our founder and first president, Leonard James Ashby. He built it into the top of his garage at 437 Stone Street in Kalamazoo. A section of the roof had been modified so that it could be slid back on rails and expose his telescope to the night sky. Cathy McMinn, Ashby's granddaughter, donated his observatory logbook recently. The earliest he hosted members of the newly-formed Kalamazoo Amateur Astronomical Association was May 6, 1936. The KAAA met and observed there several more times until the log ends on November 28, 1938.

Groundbreaking for Owl Observatory at the Kalamazoo Nature Center. Taken on October 16, 1996.

We jump ahead in time to the May 19, 1962 meeting of the Kalamazoo Astronomy Club (as we were generically known at the time). The minutes state that Hans Baldauf introduced the guest speaker, Charles Mohr. Mr. Mohr shared a film on the proposed Kalamazoo Nature Center at Cooper's Glen. During the question period, the future possibility of the "club having a hand in use of a telescope to be installed on the property" was raised. Indeed, the January 3, 1962 issue of Kalamazoo College's student newspaper, *Index*, has a story (on page 20) about the plans for the Nature Center. One brief statement mentions the possibility of an astronomical observatory. It would only take 36 years to become a reality!

Perhaps the most notable attempt for us to build an observatory took place in 1972. The minutes of the January 2, 1972 "executive meeting" report that KAS President Mike Potter "said that the club's goal for the proposed observatory...was the completion of the NE corner" by spring. The balance for the observatory was called for and KAS Vice President Robert Ross reported it to be $58.75. Despite this modest sum, construction of the observatory seemed to proceed on schedule as reported in the *Kalamazoo Gazette* on May 10, 1972.

According to the article, which features a photograph of KAS member Eric Schreur standing in the would-be foundation, the observatory was to be located on 26th St., north of U Ave., near Lawton in Van Buren County. The article says that the project cost ranged from $15,000 - $20,000. Adjusting for inflation, that works out to be $130,000 – comparable to the Remote Telescope Project. An article written by KAS member Jordan Marche, and first published in the October 1973 issue of *Prime Focus* (republished in June 2020), reveals why the project had such a high cost. This was to be a 3-level observatory with work-shop, meeting room, two darkrooms, lounge, restroom, library, 2 domes, roll-off observing deck, and twin 20-foot radio antennas! Mr. Marche harshly stated that they "have aimed for the moon, and instead, have hit the ground!"

Clearly, the KAS member's goals far exceeded their resources at the time. The January 2nd minutes also state low

Bill Nichols, Mike Sinclair, and Dave Garten pose in front of the freshly poured and smoothed floor for Owl on July 24, 1997. How did Mike manage to stay so clean?

membership and difficulty in obtaining incorporation status. The latter is a necessary step in gaining non-profit status, which itself is a necessity for obtaining large enough contributions to reach their lofty goal. This was a time when the KAS was in a state of renewal. The "old guard" handed the reigns over to its younger members at the October 18, 1968 meeting. An interim report written in 1970 or 1971 by KAS Secretary Robert Wade stated that the club nearly collapsed at one point. (This document is also the first known to use the name "Kalamazoo Astronomical Society.") Frankly, they should have spent the next decade building up the KAS. That's what we did starting in the mid-1990's during our resurgence, which continues to this day.

One more failed attempt at building a KAS observatory was made in the late 1980's. The minutes of the July meeting, published in the August 1989 issue of *Prime Focus*, state that an informal discussion about a club observatory took place. There was a "proposal to build a small, roll-off roof observatory to house the Society's 12.5-inch reflector at the WMU farm site." The minutes also mention a similar proposal made "a few years ago." The minutes conclude that as the meeting time ran out discussion would continue at the August meeting. Whether it did or not is no matter, because nothing ever came of it obviously.

Planning for Owl Begins

According to Dave Garten, discussion of what would evolve into Owl Observatory began around 1992 – when Mark Miller was president. However, serious talk of building an observatory at the Kalamazoo Nature Center didn't begin until 1995. It was reported at the June 2, 1995 meeting that the Nature Center "set aside" $1,000 for an observatory and that we raised approximately $250 during observing sessions (presumably through admission fees). It was also at this meeting that Dave Garten stated it would be a roll-off roof design and house the club's 10-inch Newtonian reflector on a fork mount (built by Dr. Lawrence Upjohn, an inaugural member of the KAAA).

Three board members - Dave Garten, Dave Moore, and Bill Nigg – formally began negotiations with the Nature Center in early 1996. My guess is that, among the 3, it was newly-elected Vice President Dave Moore that led the negotiations and was the driving force behind getting the construction of the observatory underway. Knowing him at that time, Dave had that no-nonsense, get-it-done-and-now kind of attitude that was needed to get a project like this moving forward. Unfortunately, construction of the observatory was delayed due to another KNC building project, but the Board had hopes it would begin in the spring. This gave everyone involved time to work out a final design.

Bill Nigg invited the KNC's architect, Nelson Megan, to speak about the observatory at June 1996 meeting. For the first time publicly, it was announced that the observatory would be a 12' × 12' roll-off roof design. Reading the minutes in the newsletter, you'd think that Mr. Megan came up with the final design. In fact, both the name and design came from a 3-part article written by Jim Krick and featured in *Astronomy* magazine between April and June 1992. In fact, this design was already in use by Dave Moore. With the help of some KAS members, he built a 10' × 10' Owl-type observatory he named "Astropad" and dedicated it in June 1996. It was located on S Ave. in Pavilion Township.

Construction Begins

Groundbreaking for Owl Observatory was on October 16, 1996. The foundation for the concrete pier and pit for the fork mount was dug out with a Bobcat equipped with an auger attachment, while another Bobcat with a bucket attachment cleared away soil for the floor. Shortly before this, Bill Nigg staked off the position of the observatory. For some reason, he asked me to choose the exact spot. My thinking was somewhere far enough away from the dirt service drive and equidistant from the trees to the north and south. Concrete for the pier poured on October 22nd. Winter came early that year, so further work was halted until warmer weather returned. It wouldn't be until July 24, 1997 that concrete for the floor was poured. Dave Garten, Bill Nichols, and Mike Sinclair – armed with trowels - smoothed out the floor. They carved their initials, along with KAS, into the southeast corner of the floor.

Construction of the building frame itself likely started in early August 1997. Dave Garten worked along side KNC

Owl Observatory under construction. This gentlemen is with the Nature Center. Taken in August 1997.

staff and volunteers Don Hamilton, Randy Gray, and "Al" (Dave never did catch his last name). Both Dave and Bill Nigg installed the 10-inch Newtonian reflector on May 16, 1998. This put the observatory in working order. Owl Observatory was formally dedicated on August 22, 1998. KAS President Mike Sinclair and Dave Garten gave speeches thanking all involved and cutting a ceremonial ribbon. The building permit stated it was "issued for the erection of a Owl Observatory." The name seemed to fit the Nature Center theme, so we kept it.

The First Upgrade

It took the KAAA/KAC/KAAS/KAS 62 years to finally build an observatory of its own. The good news was...mission accomplished. The bad news was...nobody used it. The 10-inch reflector on the massive fork mount saw very little, if any, use. The mount was motorized, but the observatory had no electricity at that time. Promises were made to install a battery and charge it with a solar panel, but nothing ever came of it. Telescopes brought to Public Observing Sessions by KAS members were more modern and capable than what was housed in Owl Observatory. Our accessories – specifically eyepieces – were better quality as well. At one point, I even offered to keep my Meade 10-inch LX200 Schmidt-Cassegrain in the observatory. Nothing ever came of that either. After 2 years of sitting unused, it was clear the observatory needed an upgrade to be viable.

The original Owl Observatory Telescope, a 10-inch Newtonian reflector built by Dr. Lawrence Upjohn.

Dave Garten and Mike Sinclair cut the ceremonial ribbon during the Owl Observatory dedication on Aug. 22, 1998.

The perfect opportunity presented itself in the form of the Christmas Day Partial Solar Eclipse in 2000. I laid out my plan in a column published in the May 2000 issue of *Prime Focus*. We would sell at least 1,000 pair of Eclipse Shades and purchase a Meade 12-inch LX200 SCT. We did sell all 1,000, making a profit of $2,627.36 (with $3,335.86 in total sales). One longtime KAS member, Allen Buskirk, paid $300 for one pair! We didn't raise enough funds to purchase the 12-inch from those sales alone, but our treasury was healthy thanks to selling Eclipse Shades for the 1994 annular eclipse. Some of the proceeds from that fundraiser were used to build Owl Observatory as well.

Two things would need to be installed in the observatory before the 12-inch LX200 could be added: electricity and a pier. A handful KAS members generously donated a total of $750 to the Nature Center for the purpose of adding electricity to the observatory. Installation began sometime in August 2000 and was completed later that Fall. Matt Borton answered the call to build a pier since he was looking for a worthwhile project to earn his Eagle Scout badge. After visiting the observatory, both he and his father Gordon also decided to redesign the roll-off roof system. Owl Observatory's roof is so heavy, some of the original caster wheels flattened under the weight. All tools and materials for this portion of the project were generously donated by Consumers Concrete and Alro Steel Company. The contributions totaled to about $3,700!

Matt and Gordon Borton - along with assistance from friends Stephen Johnson, Pat Lawson, and Jason, Lloyd and Nathan LeZotte – started with rebuilding the roll-off system on January 18, 2001. The original track was replaced with angle iron and wheel rails were added to the east and west side of the roof. There are a total of 6 wheels, each able to handle up to 800lbs. After disassembling the original Owl Observatory Telescope, the new pier was installed on March 27, 2001. Dave Garten, Mike Sinclair, and I installed the brand-new Meade 12-inch LX200 SCT on June 7, 2001. First light was the Sun. It was formally dedicated after the Perseid Potluck

Matt & Gordon Borton redesigned Owl's roll-off system and built a pier for the new telescope. Matt received his Eagle Scout badge for his efforts. Taken March 27, 2001.

Picnic on August 11, 2001. President Mike Sinclair, Matt Borton, and I all gave short speeches to commemorate this achievement.

Notable Events

The 12-inch in Owl Observatory made its public debut during the Nature Center's Free Admission Day (and our Astronomy Day) on June 16, 2001. Back in those days, Free Admission Day had a corporate sponsor and the KNC gave away free pizza and soft drinks. Over 1,500 people attended and a large majority passed through the observatory to view the Sun through the new telescope. The *Kalamazoo Gazette* featured a picture of many of those involved in the project posing with the new telescope earlier in the week and that helped bring in more guests.

The most memorable observing event featuring the 12-inch, and likely our biggest event ever, was *MarsWatch 2003*. That year saw a perihelic opposition of Mars, which occur every 15 or 17 years, but this particular opposition had a special catch. Mars would come closer to Earth than it had in nearly 60,000 years on August 27th. The hype for the opposition was tremendous and astronomy clubs around the country saw massive attendance, the KAS was no exception. Both KNC parking lots were filled to capacity, so visitors had to resort to parking up and down the long driveway. Some even commented that they had to park on N. Westnedge Ave. and walk back to the observatory!

It was difficult to tell how many members setup telescopes because of the massive crowd of people. It's also tough to estimate, but we likely had over 1,200 people attend that night. People lined up for hours to view the Red Planet through the 12-inch in Owl Observatory. Several hundred people also came on August 28th, but the sky conditions weren't quite as good. I was SO happy to have a capable telescope in the observatory for this historic event. It made the efforts of our fundraiser more than worth it.

Owl Observatory Benched

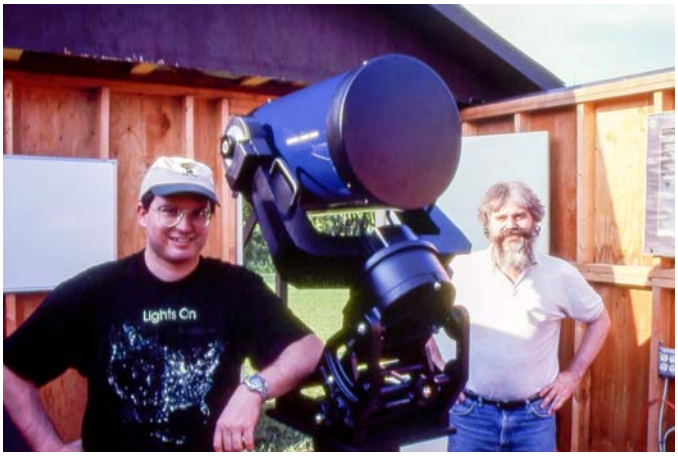
Thanks to the installation of the 12-inch, Owl Observatory became a regular fixture during Public Observing Sessions. Students from KAMSC as well as the local colleges and universities were also visiting the observatory to work on observing projects. Students were having difficulty logging their observations one night because there was no place to sit. I realized we needed a bench along the south wall. Storage space was also at a premium. At the time we were only using a white dresser drawer to keep items in. After mentioning starting a carpentry business after his retirement, I asked KAS member Norm Terry if he could build a storage bench for the observatory. He agreed to do so for only the cost of materials and installed it in the spring of 2006. (Norm documented the bench project in the June 2006 issue of *Prime Focus*.)

The Second Upgrade

Our 12-inch SCT developed many issues inherent to the design as it aged. There was always a great deal of flexure in the fork-mount and focusing became a challenge. It suffered from the worst case of image shift I have ever seen and once focus was achieved it promptly slipped out of place. An upgrade was clearly needed and I starting making an argument for it in the February 2007 issue of *Prime Focus*. Discussions for an upgrade were set aside once the Remote Telescope Project began. They resurfaced once the RT was installed, but not yet fully operable.

The 2017 *Great American Eclipse* presented another opportunity to sell Eclipse Shades as part of a fundraiser. My desire to use the funds for another Owl Observatory upgrade were made during the board meeting in November 2016. However, a majority decided to use the more general term of "Telescope Improvement Fund;" the idea being that additional capital might be needed to get the Remote Telescope up-and-running. Our latest Eclipse Shades fundraiser started at CraneFest in October 2016. We sold 2,200 pair of shades and came away with a profit of over $5,100. This was only the start though.

I was anxious to get the next phase of the Owl Observatory fundraiser underway, but the rest of the Board didn't share my enthusiasm. At a board meeting in October 2017, the Board thought it more prudent for the Remote Telescope to fully operational first. Perhaps they were right, but all we needed to do was send out a fundraising letter and hope



Richard Bell and Dave Garten pose with the newly installed Meade 12-inch LX200 SCT on June 7, 2001.

contributions started rolling in! Another request to mail a fundraising letter to the membership was rejected in June 2018. The Board now felt a detailed plan should be laid out. That occurred at the board meeting in December 2018 and a goal of $35,000 was set. One board member felt the KAS membership was suffering from "donor fatigue" after the Remote Telescope Project and that I was setting myself up for failure. However, we started receiving several very generous donations even before the donation letter was sent to the membership. I knew we'd be fine! The long-awaited fundraising letters were mailed out in mid-March 2019 and we exceeded our goal. Over $41,000 has been raised thus far! I was so relieved we started the fundraiser and met the goal when we did. Any later and the coronavirus pandemic would likely have brought it to a premature halt. My continual efforts to push the Board make me look like a prophet now!

After nearly 18 years of service, the 12-inch LX200 was removed on June 5, 2019. We attempted to sell it as one package, but ended up selling the optical tube, fork mount, Super Wedge, etc. separately. Little confidence was had that the Matt Borton pier would be able to steadily support the weight of our new equipment. KAS member Josh Taylor-Lehman agreed to build a new pier for only the cost of materials. The Borton Pier was removed on July 8, 2019. Josh and I alone were able to carry it to his truck. It took four grown men (including Dave Taylor, Josh, and I) to carry the new 10-inch diameter, 54-inch-tall pier into the observatory on August 9, 2019. It was gently lowered into the pit with a Cherry Picker. Josh claims it can support 100,000 lbs.!

Previous to the pier installation, Jim Kurtz helped me install a new carpet. The previous carpet, laid down shortly after the 12-inch was installed, was provided by Frank Severance. Jim also modified one of the boards used to cover the pit, but had to rebuild the other.

Several members attended an impromptu "Installation Party" on September 8, 2019. The main telescope, a Meade 16-inch f/10 Schmidt-Cassegrain, was delivered on April 9th and spent the summer in Mike Patton's storage facility in Plainwell. We purchased it early, because Meade had it

Josh Taylor-Lehman and Dave Taylor pose with the new pier before lowering it into the pit with the Cherry Picker seen on the right. Taken August 9, 2019.

Rich Mather, Mike Cook, Jim Kurtz, Dave Woolf, and Matt Garten admire the Leonard James Ashby Telescope at the end of the "Installation Party" on September 8, 2019.

marked down $1,000! The Astro-Physics 1600GTO German equatorial mount, along with some other accessories, arrived on September 3, 2019. The 1600GTO has an instrument capacity of 220 lbs., so I knew it would guarantee an ultra-stable platform. To avoid the image shift and focus slippage experienced with the 12-inch, we added a Starlight Instruments 3-inch dual-speed Feather Touch rack-and-pinion focuser (regarded as the best focuser on the market today) to the 16-inch. The Board supported my proposal to name the telescope after our founder and first president, Leonard James Ashby, at the June 23rd board meeting.

Jack Price, with a helping hand from Mike Sinclair, connected the electrical cables to the mount on September 14th. Mike and I had first light shortly thereafter. Technically, the first object viewed with the Ashby Telescope was Arcturus (for alignment purposes). We then viewed Jupiter and were greatly impressed with the optics of the 16-inch. We had hoped to provide sneak peaks through the new scope during the remaining 2019 Public Observing Session, but the "new telescope curse" proved true. All remaining sessions were clouded out. And then, as spring approached, the coronavirus pandemic began. This would force us to completely cancel the 2020 season of observing sessions. With no reason to be in a rush now, we proceeded with the remaining upgrades at a more leisurely pace.

The next phase of the upgrade project was to *at last* motorize the observatory's roof, so Owl was more accessible. We ended up using an Alecko Sliding Gate Opener (model AR2450), which Dave Garten began to install on April 26, 2020. On that same afternoon, I mounted the Tele Vue NP101is apochromatic refractor atop the Ashby Telescope. I decided to name the NP101 "Nona," after the wife of Leonard James Ashby. Owl's roof was open and closed with the motor for the first time on June 4, 2020. Hopefully the "big stick" previously used on to open/close the roof can be retired forever! One final step was to add limit switches to the east and west walls. When the walls are lowered, power to the motor will be automatically cut so there's no possibility of moving the roof. Special thanks to Matt Garten, Dave's son, for getting that wired up.

Several high-end accessories, like Tele Vue eyepieces, Thousand Oaks deep sky filters, ZWO camera, laptop computer, and Coronado 90mm hydrogen-alpha filter were all added as part of the upgrades. We wanted a cabinet to keep them safe and secure in when not in use. KAS member Greg Sirna worked with a friend, Sturgis cabinet builder Steve Hice, to construct a custom cabinet. It was added to the observatory on June 18, 2020. Since it's tall and black, I've nicknamed it the "monolith."

The last phase of the project was to install a 40W solar-powered ventilation fan to help lower the temperature inside the observatory during long, hot summer days. Dave Garten, the Steward of Owl Observatory, took care of this in July 2020. He added a second 50W panel, on the northwest corner of the roof, on August 28, 2021. The first panel, mounted on the south end of the observatory, fails to capture light when the Sun is too far north at the height of summer.

The Leonard James Ashby Telescope was formally dedicated at the Perseid Potluck Picnic on August 14, 2021. Cathy McMinn, KAS member and granddaughter of Mr. Ashby, cut the ribbon to unveil the dedication plaque. The dedication was originally scheduled for May 30, 2020 but had to be delayed due to the pandemic.

Cathy & Mike McMinn stand next to the telescope dedicated to her grandfather and founder of the KAAA. The newly unveiled plaque can be seen on the pier.

A Final Thank You

One last "Thank You!" to everyone that helped build, maintain, and upgrade Owl Observatory these past two plus decades. I did my best to mention everyone involved, but I'm sure I missed some of you and for that I apologize. Please remember that all of this work is meaningless if you don't use the observatory in some way, either privately or during an observing session. Hopefully, once the pandemic is in the rear-view mirror, more members will feel safe enough to come out and peer at the cosmos through the Ashby Telescope. It may be only a glorified 12' × 12' shed, but it now contains the best setup in southwest Michigan. One that most of us can only dream off. Please take advantage of it.

Thoughts for the Future

Hopefully the Leonard James Ashby Telescope enjoys many good years in Owl Observatory. It will almost certainly be the last telescope to ever reside in that observatory. However, I hope another, much grander, observatory project is in our future.

The Kalamazoo Nature Center has been very good to us, but the southern skies there are terrible...and growing worse. Eventually, I would like to secure a fair-sized piece of land in the southeastern part of Kalamazoo County were the southern skies are darker. Something similar was in the works in the mid-2000s before the Remote Telescope Project came along. We would then launch a major fundraiser and build a larger observatory – something on the scale of what was proposed in 1972.

My plan includes a 24-inch PlaneWave in a dome, with plenty of additional space for meetings and classes. Another structure would house a large Dobsonian, something in the 30-inch range, and a smaller separate dome or roll-off roof observatory for the current 16-inch. Obviously, this isn't going to happen right away. It could be a decade or more in the future, but I would like to accomplish it before our 100th anniversary in 2036. Between the Remote and Ashby Telescope projects, we now have a lot of fundraising experience under our belts. If the membership doesn't have the will or ambition to pursue this goal, then I'm happy to enjoy all that we have accomplished these past 25 years.

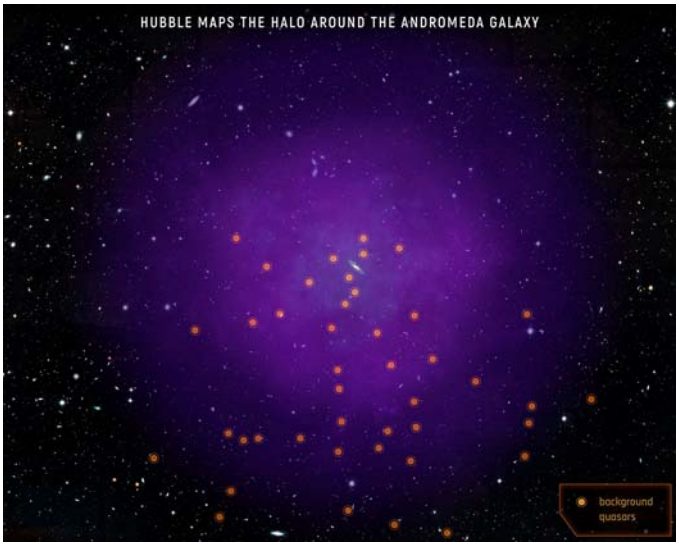
NASA Night Sky Notes...

Catch Andromeda Rising

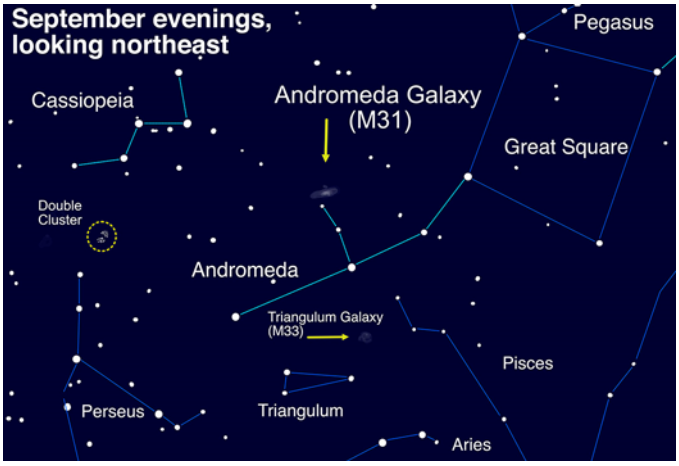
by David Prosper

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.

Have you heard that all the stars you see at night are part of our Milky Way Galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light-years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32.



While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material.



Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes from dark sky sites. Hints of it can even be made out from light polluted areas.

Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

Modern astronomy was greatly shaped by studies of the Andromeda Galaxy. A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the "Andromeda Nebula." Increasingly detailed observations of M31 caused astronomers to question its place in our universe – was M31 its own "island universe," and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the "Great Debate" of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the "nebula" was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt's work on Cepheid variable stars as a "standard candle" for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31's distance as far outside our galaxy's boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

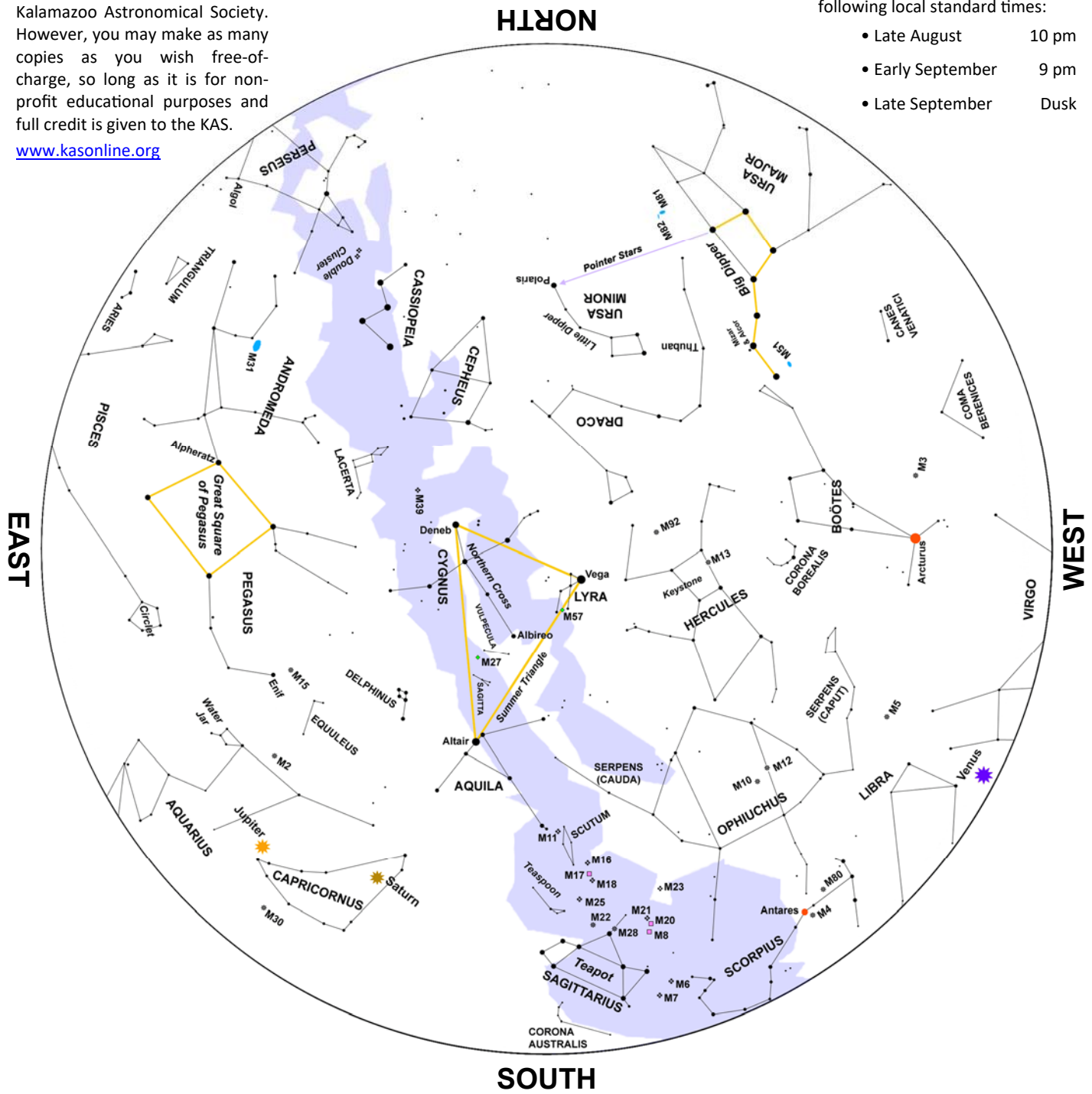
These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT). Dig into NASA's latest discoveries about M31, and the cosmos at large, at nasa.gov.

— 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



Look toward the east before dawn breaks on September 4th. There you can spot a thin waning crescent Moon 4° from the Beehive Cluster (M44) in Cancer. That's close enough to fit in the field-of-view of both 7×50 and 10×50 binoculars. Later that same evening, use those binoculars to spot Venus and Spica low on the west-southwest horizon. Only 2° will separate the evening star and actual star.

On the evening of September 9th, the Moon, now one day past new, moves to within 4° of Venus. Spica can be spotted another 4° below the Moon.

A nearly first-quarter Moon visits the heart of the scorpion, Antares, on the night of September 12th. The two will only be 3° apart - another grand sight for binocular viewers!

A waxing gibbous Moon then moves to within 4° of Saturn on September 16th and 5° from Jupiter on September 17th. More sights to enjoy with binoculars!

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Observing
Special Interest Group

The primary goal of the Observing SIG is to help foster an observing culture in the KAS by helping and encouraging its members to complete Astronomical League Observing Programs. One way to maintain enthusiasm for getting out under the stars is to have a long-range viewing plan or goal. Observing Programs do that by motivating and directing your viewing. Programs are available for unaided eye, binocular, and telescopic observers of all skill levels. This gathering will be canceled in the case of inclement weather.

Sept. 2nd @ 9:00 pm | Sept. 30th @ 8:15 pm
Richland Township Park • 6996 N. 32nd St.

NEW KAS Clothing Line

Multiple Sizes, Colors & Styles Available

Click Here to Learn More & Place Your Order

Public Observing Sessions

Saturday, September 11th
Highlights: Jupiter, Saturn & Summer Star Clusters

Saturday, September 25th
Highlights: Venus, Jupiter, Saturn & The Moon

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

Kalamazoo Nature Center
— 7000 N. Westnedge Ave. —

General Meeting Preview

85 Years of Looking Up

A Brief History of the Kalamazoo Astronomical Society

presented by

Richard S. Bell

The history of our organization can be traced to its origin in 1936 when it was founded as the Kalamazoo Amateur Astronomical Association. Eighty-five years and a few name changes later, the Kalamazoo Astronomical Society is the oldest and currently the largest astronomy club in Michigan. Richard will highlight some of the most prominent members from our early years and list our greatest events and accomplishments thus far. He will conclude with ambitions for the future.

Friday, September 10th @ 7:00 pm

Held on Zoom • Click Here to Register

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