



NORTHERN LIGHTS



NORTH CENTRAL REGION OF THE ASTRONOMICAL LEAGUE

Autumn 2020 – Volume 5, Number 2

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NCRAL CHAIR'S MESSAGE

Wow! Wasn't Comet NEOWISE great? The first three weeks of July were terrific for those of us with clear dark skies. I've seen members of my own club get out to observe the comet who haven't done much sky watching for years. C/2020 F3 was like a shot in the arm when we needed it most. This apparition will go a long way toward keeping the spark of amateur astronomy alive during these bleak times of pandemic and social distancing. Comet NEOWISE exceeded my expectations and will long be remembered.

It also has been great to see a number of affiliate members working on the NCRAL Summer Mini Messier Marathon observing program. No club has been more active in this endeavor than Popular Astronomy Club in the Quad Cities. I congratulate the Club member for their repeated successes.

Because M83 sets rather early in the evening and then before sunset halfway through summer, as the originator of the program I have moved M83 from the summer program to the spring program and moved M51 from the spring program to the summer program. I announced this change on August 14th via email to those on the NCRAL email list. This will make

it possible for observers to continue working on this program throughout most if not all of the season. With the assistance of Terry Dufek and Jeff Setzer, new user-friendly observing forms are now available on the NCRAL web site at <https://ncral.wordpress.com/>. Changing eyepieces...

Summer is replete with administrative duties for your Regional Chair. Among the first of the most important duties is the creation of the Region Report due to the AL national office by the end of June. The second is to attend the Astronomical League (AL) National Council Meeting during July. The third is to look at the year ahead and set a number of goals that can serve as both guides and benchmarks for the year to follow. I want to focus part of this quarter's NCRAL Chair's Message on these important duties.

I prepared the Region Report and turned it in in a timely fashion as noted in the Summer 2020 issue of *Northern Lights*. I then attended via Zoom the 4½-hour AL National Council Meeting on July 16th where our Region was praised as "incredibly active." I was joined in this meeting by NCRAL's Regional Representative Bill Davidson. The Council meeting dealt with lots of important matters that Bill and I describe briefly in an article later on in this issue of *Northern Lights*.

Near the end of the Council meeting, I asked about the non-profit status of a Region in relation to the national which is a federally recognized 501(c)(3) corporation. Because Regions are part of the AL and not affiliates, the money that our Region holds is technically AL money under our management. Our Region may therefore receive tax-deductible donations given to the AL national office on our behalf. When such donations are made, they will be sent to NCRAL's Secretary-Treasurer for deposit in our Region's bank account. This will require a small change in how we have our banking account set up currently, but this will save the Region from having to go through unnecessary non-profit-status-seeking efforts. I will be working with AL Treasurer Bill Dillon and NCRAL Secretary-Treasurer Roy Gustafson to make final arrangements. Expect to hear more about this soon.

And speaking of meetings, it was a real pleasure for me as Regional Chair to speak with the membership of the Rockford Amateur Astronomers through a 30-minute Zoom presentation on September 16th. I took the opportunity to speak about Earth's changing magnetic field and say a few words about the Region. This is something than can be

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arranged for other affiliates as well. Let me know if your club wants a “guest speaker” for an upcoming event.

Where the coming year should take us, I am by no means certain. We've accomplished quite a bit together since I became Chair of the Region in 2017. (You can review these accomplishments at <http://ncral.wordpress.com/reports>.) I now feel at a loss to say what objectives we should pursue next. I would appreciate hearing from the membership via carlwenning@gmail.com with ideas of needs and wants. Without a clear direction for the future, I'll consider stepping down from my position as Chair at the end of my current term and hand over the leadership to someone who has a clear vision. Besides, several worsening health problems are preventing me from being as able as I'd like, and these will increasingly limit my ability to get around in the future. If ever you have thought about serving as Regional Chair, now would be as good a time as any to throw your hat into the ring.

Looking a bit further ahead still, I can't wait to attend the NCRAL 2021 convention. Two years between conventions is a long wait given the rescheduling of NCRAL 2020 due to the pandemic. Next spring's event will be hosted by the Neville Public Museum Astronomical Society in De Pere, Wisconsin, just south of downtown Green Bay. Make certain that you read the article about NCRAL 2021 by Gerry Kocken and mark its date in your schedule, so you won't miss it. Changing eyepieces again...

The Chair of NCRAL is the head of a 6-state organization with 37 affiliates and 1,899 members by the latest official count. As already noted, this position has associated with it a number of important duties outlined in the Region's bylaws, but none is more important than one unenunciated duty – that of providing perspective and clarity and setting direction for the rest of the body. Yes, being at the top of the body provides a different perspective from that which is available

to the rank-and-file members. Gone from the Chair's eyes are the blinders produced by the confines of one's club.

The Regional Chair, from the position of head, should be a guide, a caretaker, an assistant, an innovator, an adviser.... Indeed, I have been consulted in my position as Chair several times to provide my perspectives on a number of important matters of concern to the Region, affiliates, and even individual members. Thinking about this role recently while writing the 2019-2020 Region Report, made me turn my attention not only to what it means to be a successful Region, but what it means to be a successful club. I have shared my thoughts on this matter in the article *The State of Our Astronomy Clubs: Healthy or At-Risk?* found later on in this issue of ***Northern Lights***. I hope you'll read this article carefully and reflect on what it means in relation to your club. Changing eyepieces yet again...

As if the COVID-19 pandemic wasn't enough this year, our friends in Iowa experienced the effects of a violent derecho on August 10th. The Afton Observatory managed by the Des Moines Astronomical Society suffered considerable wind and water damage. Be certain to read the article by Greg Woolever, the observatory director, later in this newsletter.

This issue also contains articles by Dave Wagner (NPMAS), Alan Sheidler (PAC), Jeff Moorhouse (LCAAS), and Jeff Hunt. It's great to see the growing input by the membership; these additions make ***Northern Lights*** more informative and interesting than ever. If you have anything contribute about your club or some so other topic, please send it my way.

Wishing you clear skies and a safe and healthy autumn,

Carl J. Wenning
NCRAL Chair (2017-2021)
carlwenning@gmail.com

NCRAL FINANCIAL STATEMENT SUMMER 2020

~ Reported by Treasurer Roy Gustafson ~

Check #	Date	Description	Check Amount	Deposit	Daily Balance	Monthly Balance	
	30-Jun-2020					\$8,758.03	June
	31-Jul-2020					\$8,758.03	July
1014	10-Aug-2020	Carl Wenning (reimbursement for postage/mailers for Mini Marathon)	\$10.10			\$8,747.93	
	31-Aug-2020					\$8,747.93	August

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NCRAL 2021 MAY 7-8

~ by Gerry Kocken, Convention Chair ~

Next year's NCRAL Convention is slated for Friday/Saturday, May 7-8, 2021. The convention will be hosted by the Neville Public Museum Astronomical Society in Green Bay Wisconsin. The event will be held on the St. Norbert's College Campus in De Pere, Wisconsin. The convention will be held at the College's Bemis Center. We have booked the Kress Inn as the hotel of choice. The two buildings are located across Third Street from one another, and both are world-class facilities.



We are currently arranging speakers and working on the schedule of events. We do have several speakers booked but progress is moving a little slow due to the COVID 19. We are planning a number of events that include touring the newly renovated Parmentier Observatory, photo and sketching contests, possibly a swap meet, telescope displays, and other oddities for astronomy along with speakers and door prizes.

We are still entertaining ideas for possible speakers for the convention. If anyone is interested in making a presentation, please contact me at either (920) 676-6363 or gerryk@kockenwi.com and present a short description of your talk. Individuals or clubs will be able display any equipment or artifacts that they bring. Our plan is to post event details and registration by early January of next year. Stay tune for further details.

REPORT FROM THE JULY A.L. NATIONAL COUNCIL MEETING

NCRAL's Representative to the Astronomical League Bill Davidson and NCRAL's Chair Carl Wenning attended the AL Council meeting on July 16th. This 4½-hour event was held online using Zoom due to the one-year postponement of the summer meeting.

While much of the proceedings are considered confidential at this time with the official report coming later, we can still provide a few generalities about the high points:

- ★ ALCon 2020 has been reschedule for August 4-7, 2021. It will be presented as ALCon 2021. ALCon 2021 will be held at the same venue, the Embassy Suites in Albuquerque, NM. Speakers and activities remain mostly the same as well. Revised information for ALCon 2021 will be published on the AL website soon.
- ★ Efforts are being made to revamp the AL's website.
- ★ There are hopes for establishing a League newsletter to supplement **Reflector**, but that will be delayed until some "nuts and bolts" customer service problems get resolved.
- ★ There is a need for volunteers to fill vacancies in the areas of grant writing, publicity, and media. (If interested in serving, please contact carlwenning@gmail.com.)
- ★ Several new observing programs were approved.
- ★ Announcements were made in relation to recent election results for AL President and Vice President. Carroll Iorg has been elected President and Chuck Allen Vice President.
- ★ Announcements were made in relation to the many AL Awards recipients for 2020.
- ★ Future AL national convention sites were discussed.
- ★ Efforts continue to develop amendments for revision of the AL Bylaws to make them more comprehensible.
- ★ Money from the AL Trust Fund was allocated to continue digitizing the organization's records.
- ★ The Council agreed that there is a need to focus on long-range planning and a prior committee will be resurrected.
- ★ The budget for FY21 was approved.

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NPMAS SKETCHING CHAMPIONS FOUR YEARS STRAIGHT

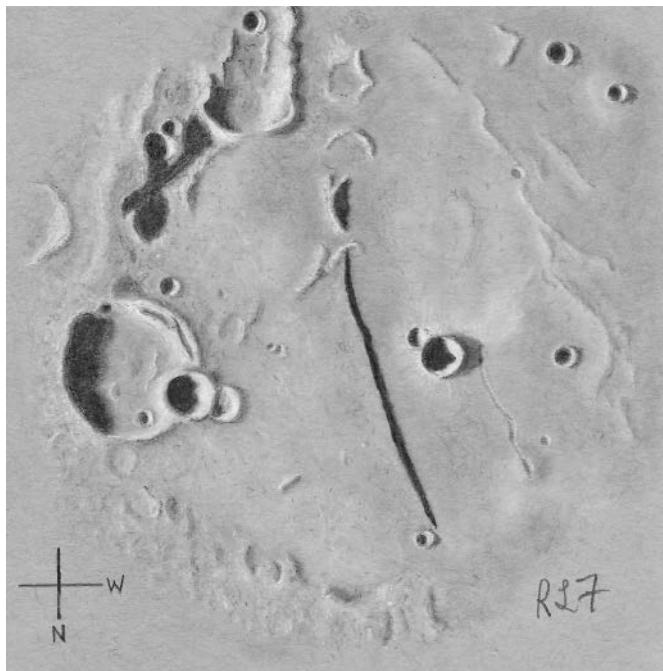
~ by Dave Wagner, NPMAS Newsletter Editor ~

The Neville Public Museum Astronomical Society (NPMAS) has several very talented sketching artists. These individuals have won the Astronomical League sketching award four years running. Dick Francini, Brian Chopp, and Gerry Kocken have all won over the last four years.

Brian started this trend by sharing his amazing sketches in the club meetings on a frequent basis. This clearly inspired others in the club to try their hand at sketching what they see through the eyepiece.

Brian started the winning streak by capturing the 2017 award for his sketch of M22. Dick Francini tried his hand by submitting his sketch of Clavius Crater in 2018 and winning the award that year. Having these two detailed examples to inspire him, Gerry Kocken undertook sketching a nice collection of moon craters in 2019 and went on to win that year's award with his sketch.

Dick Francini stepped up again this year to win the 2020 sketching competition with his rendering of the Rupes Recta fault. Dick notes,



Rupes Recta (the straight wall) by Dick Francini of NPMAS (2020)

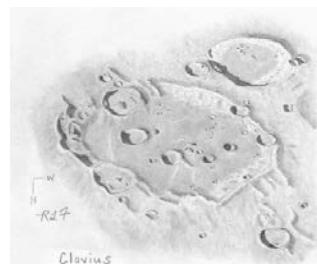
"I used graphite art and white and black charcoal pencils on toned gray paper. Observations were with a 13" Dob at 240x, 310x, and 350x and a variable polarizing moon filter; all on the first night after lunar first quarter for maximum shadows. Most of the sketch was done on 10-8-19 and 11-5-19 with

average and slightly above average seeing (3/5 or 3+/5). Fine details were added on 12-5-19 during a period of good seeing (2/5). I have about 10 hours of work into the sketch, including three sessions at the eyepiece and final tweaking."

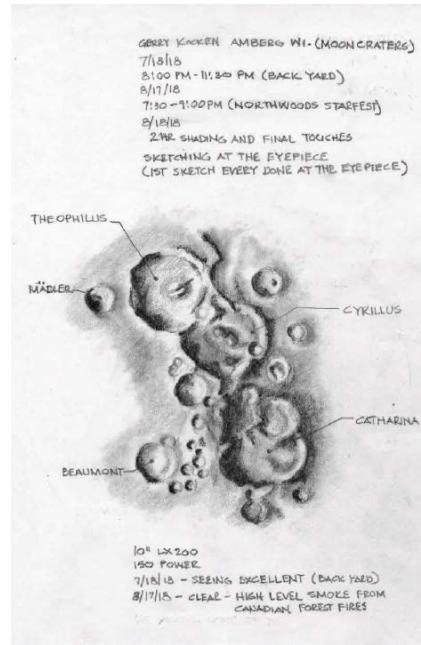
We hope these sketches inspire other club members to try their hand at sketching from the eyepiece. Pencils, chalk, patience, practice and a good measure of skill will come in handy. Even if you don't submit them for competition, don't be shy.... Share them with the club at the monthly meetings or send them over to put in the newsletter. You never know who you will inspire next!



Brian Chopp (2017)



Dick Francini (2018)



Gerry Kocken (2019)

Editor's Note – This is an abridged version of an article that first appeared in the NPMAS newsletter *The Eyepiece* August 2020. It is use here with permission of the author.

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NCRAL SEASONAL MESSIER MARATHON AWARDS – Spring & Summer 2020

The following individuals have qualified for NCRAL's **Spring Mini Messier Marathon** certificate and pin:

#9. Jeff Moorhouse, La Crosse Area Astronomical Soc.

The following individuals have qualified for NCRAL's **Summer Mini Messier Marathon** certificate and pin. The letter "U" indicates unassisted.

#1. Lisa Wentzel, Twin City Amateur Astronomers (U)

#2. Tim Stone, Twin City Amateur Astronomers

#3. Alan Sheidler, Popular Astronomy Club

#4. Carl Wenning, Twin City Amateur Astronomers

#5. Rusty Case, Popular Astronomy Club

#6. Dale Hachtel, Popular Astronomy Club

#7. Terry Dufek, Popular Astronomy Club (U)

#8. Jeff Moorhouse, La Crosse Area Astro. Soc. (U)

#9. Wayland Bauer, Popular Astronomy Club



Jeff Moorhouse, President of La Crosse Area Astronomical Society, beginning work on the Spring Messier Mini Marathon, 6/14/20.

NOTEWORTHY!

The following NCRAL members were recognized in the September 2020 issue of the Astronomical League's **Reflector** magazine for having completed observing programs. Congratulations to all for their many and varied successes!

Asterism Observing Program

Joe Timmerman, Minnesota Astronomical Society

Gerard Jones, Minnesota Astronomical Society

Binocular Variable Star Observing Program:

Dick Francini, Neville Public Museum Astronomical Society

Carbon Star Observing Program:

John Marchetti, Minnesota Astronomical Society

Constellation Hunter Northern Skies Observing Program:

Joe Timmerman, Minnesota Astronomical Society

Gerard Jones, Minnesota Astronomical Society

Galaxy Groups and Clusters Observing Program:

Joe Timmerman, Minnesota Astronomical Society

Lunar Observing Program:

Don Windseth, Minnesota Astronomical Society

Solar System Observing Program:

Dick Francini, Neville Public Museum Astronomical Society

Urban Observing Program:

John Marchetti, Minnesota Astronomical Society

Variable Star Observing Program:

Dick Francini, Neville Public Museum Astronomical Society

Also noteworthy is the fact that *Dave Tosteson* continues to have articles published in **Reflector** magazine. His September 2020 contribution was, "Edwin Hubble's Moment of Discovery."

Horkheimer/O'Meara Journalism Award, First Place:

Lucia Castillo will be in ninth grade this fall at Willows Academy in her hometown of Des Plaines, Illinois. She and her family are members of the Northwest Suburban Astronomers.



Lucia Castillo, NSA



Stephen Castillo, NSA

Horkheimer/O'Meara Journalism Award, Second Place:

Stephen Castillo finished sixth grade this year at Northridge Preparatory School. Like his sister, he lives in Des Plaines, Illinois, with his family, and is also a member of the Northwest Suburban Astronomers.

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COVID-19 AFFECTING NCRAL MINI-GRANTS

The recent pandemic has affected all affiliates within the Region. The Twin City Amateur Astronomers (TCAA), recipient of two recent NCRAL Mini Grants, is no exception. The *2019 Membership Recruitment Mini Grant* met with exceptional success as noted in the pages of this publication last autumn and winter. The pandemic, which came to national attention in February, brought course follow-up activities to a halt. The TCAA Board recently agreed to extend the benefits of the grant one additional year.

The *2020 Affiliate Recruitment Mini Grant* to work with the Illinois State University (ISU) Astronomy Club and the University's Planetarium has not even been able to start due to the increasing spread of the virus. As of mid-September, ISU is among the four worst campus hotspots for infection in the nation with testing rates hitting 20% among students. The campus has been shut down and all courses are now being taught online. The timeline for the conclusion of these mini grants has been officially extended.

A SUMMER MINI MESSIER MARATHON OBSERVING REPORT

~ by Alan Sheidler, Popular Astronomy Club ~

Last evening (June 24/25th), a group of us got together at the Paul Castle Memorial Observatory to do some observing. When we arrived, it was very cloudy but like farmers and fishermen, we astronomers are eternal optimists and we decided to set up our telescopes and hope for the best. By the time it got dark, around 10:00 PM, it had cleared off for the most part. We did have to dodge some occasional clouds as they passed by, but by midnight it was clear, cool and beautiful.



Shown are Popular Astronomy Club members (l to r) Al Sheidler, Terry Dufek, Rusty Case, Eric Sheidler and Byron Davies.

We started off observing a nice crescent moon and, once it got dark enough to find alignment stars, we began seeking objects that were a little more challenging to find. Included below are snapshots of some of the objects I observed. The Messier objects are from the NCRAL Summer Mini Messier objects list.

All images were taken with a Nikon D7500 SLR camera attached to the 10" Meade LX200 shown in the accompanying figure. The Messier objects were all captured at a focal length of $F = 2500$ mm, ISO 25600, and 20-second time exposure. The

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image of the Moon was taken at $F = 2500$ mm, ISO 1600, and 1/1000-second exposure. Saturn and Jupiter were taken with a Barlow lens, providing an effective focal length of 5000mm. The images of Jupiter and Saturn were developed from video frame stacking of 60 seconds of video using Autostakkert software. The view of the Jupiter system is actually a composite image, one of the planet, taken as described above (by stacking video frames), and another overexposed snapshot to bring out the Galilean moons. I then combined the two images to provide something similar to what one sees looking in the eyepiece of the telescope.

All in all, we had a great time dodging clouds and bagging objects!



JUPITER WITH GALILEAN MOONS



M10 – GLOBULAR CLUSTER



THE WAXING CRESCENT MOON



M8 – THE LAGOON NEBULA



M5 – GLOBULAR CLUSTER



M17 – THE OMEGA OR SWAN NEBULA

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DMAS ASHTON OBSERVATORY DAMAGED BY DERECHO

~ Greg Woolever, Ashton Observatory Director ~



On August 10th, Des Moines Astronomical Society's Ashton Observatory sustained serious damage from the derecho storm. The winds tore off the rain-protecting surface of the roof of the classroom and rain then infiltrated the interior causing the ceiling tiles and insulation to collapse to the floor. The carpet was soaked and soiled, as was anything with upholstery. Wooden items are damaged by the water as well. Within 24 hours, the smell in the building was dreadful and has not improved yet. Power is still off in the park.

Park Officer Jerry Ratliff texted me with report of status on Tuesday morning, so I went out shortly after that. Smell was already bad, but the front room seemed intact except for smell (the two rooms share ventilation). The domes seemed to be okay, but until power returns (still off today), we cannot be sure of dome functionality. After an email message from Katie Cantu for Jasper County, it was clear that we needed to remove as much as possible from the classroom.

Wednesday, the County had a crew put a temporary covering on the classroom roof and began a cleanup that moved chairs out of the way to shovel the wet ceiling debris out of the building. A pile of debris has grown in the parking lot. On Thursday my wife, Mary, and I went out to start moving salvageable items to the front room. Dave Heck joined us, and we worked for hours until exhausted and the front room of the Observatory was getting full. I went out again Friday to finish moving some additional items, including

unbolting the speaker mounts from the back wall. Water drained from the mounts as it did from most other items.

Anyway, we've done about all we can until the building is reclaimed, whatever that might involve. All salvaged items will need some clean up if they are recoverable. Some things may best be purged if not essential. The county needs an itemized list of our damage estimates. I will attend to that as best I can with help of the Observatory Committee. Any help from others is appreciated. At some point in the future, recovery from this will need a "Spring Cleaning" like no other, in addition to professional services to rebuild/refurnish. In one sense this event is also an opportunity to create an observatory that is better than it was before. Many decisions will need to be made, and everyone's support will be critical.

I've included a couple of photos to indicate the state of affairs at the Observatory. The first photo shows the roof exposures. The next shows the appearance in the classroom before any work was done (ceiling debris continuously falls as soggy material falls apart). I have over 100 other photos, so this is just a sample.

We are staying in touch with the county and appreciate their strong sympathy and support. My closing remarks to Katie last week expressed my feelings at the moment. "At the moment things look overwhelming and discouraging, but somehow the universe will continue to unfold... I guess the night sky has taught me that."

PROFILES IN AMATEUR ASTRONOMY

Starting with this issue, we will shine the limelight on one of our most active Regional members. This will serve to inspire others to get out under the stars and show that amateur astronomy is alive and well despite the suppressing effect of the recent pandemic. This month, we spotlight Jeff Moorhouse, president of the La Crosse Areas Astronomical Society. What follows are Jeff's own words in response to a series of questions. If you, dear reader, know of a member who is a shining star worthy of being emulated, please let the Regional Chair know.

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Jeffrey S. Moorhouse

La Crosse Area Astronomical Society

1) *How long have you been an amateur astronomer, and who or what stimulated your interest?*

I have been a stargazer as long as I can remember. I grew up on a farm about 40 miles south of St. Paul, Minnesota. We always knew which way north was even on cloudy nights; the orange glow was always present. Mostly I just looked at the constellations, not really knowing their boundaries or necessarily their names. I remember looking for the Comet Kohoutek in 1973 but never seeing it. I always had my eyes open for a shooting star or the elusive Northern Lights. I only had my eyes back then, no telescope.

After college, I got married to the most beautiful and understanding woman, and we raised three children while also starting a business. The next thing I know, it's thirty years later. In 2013, I started walking in the early mornings for my health and started seeing the stars again – old friends long missed. This time, however, phone apps allowed me to put names to things. In 2015, a friend gave me a little red Astroscan, and that very night, as excited as I could be, I pointed it up at the Keystone in Hercules. It's a wonder I could see anything at all, but the globular cluster M13 magically appeared in the eyepiece almost immediately. I sat there in the dark, completely amazed. I wondered what the heck I had been doing for the past 30 years. I have been at the eyepiece as much as I can ever since.

2) *What sort of telescopes do you and have you owned?*

The Astroscan was my first telescope. My son has that one, but I have a bunch of telescopes now. They all have their place in my observing, depending on the circumstances. I have SCT's in 6", 8", 9.25", and 12" apertures. I have inexpensive refractors in 50mm, 60mm, 70mm, 80mm, 90mm, and 102mm varieties. I also have a Stellarvue Access 102mm that is my favorite. I have a 130mm reflector and a 12" f/5 truss tube Meade Lightbridge.

3) *How long have you been a member of your astronomy club?*

I have been active on *Cloudy Nights* since 2016 and active in my local club for three years. The La Crosse Area

Astronomical Society (LCAAS) has been around since 1979 when it was founded by Bob Allen. It has since remained a small organization. We typically have about 12 members at a meeting and do outreach once or twice per month. We also have, like most clubs, a fixed schedule of observing at a dark site during the new moon. I have eagerly been a part of all of these which makes me a very active member. I am also a very active visual astronomer, sketching and logging my observations on most clear nights. The group recognized this and asked if I would serve as president. Having not declined and running unopposed I was subsequently and unanimously elected to the position last year.

4) *Have you earned any awards or honors in the field of amateur astronomy? Please describe.*

I have enjoyed working on several observing programs offered by the Astronomical League. I have had the pleasure of completing the following: Constellation Hunter, Lunar, Messier, Urban, Double Star, Solar System, Universe Sampler, Carbon Star, Binocular Messier, Binocular Deep Sky, and the Observer Award.

5) *With which observing programs are you currently involved?*

I have completed but haven't submitted for the Caldwell Program, the Sketching Program, the Asterism Program, and the Binocular Double Star Program. I have two objects remaining in the Herschel 400 Program (NGC 615 and NGC 3621). I have started the Comet Hunter, Outreach, Two in The View, Multiple Star Systems, and the Variable Star observing programs.

6) *What is your greatest satisfaction in the realm of amateur astronomy?*

I can still sit alone in the dark and say "WOW" out loud to myself when I put a new object in the eyepiece. However, I enjoy it much more when I let someone else observe at my scope, and they say it.

7) *What are your fondest memories as an amateur astronomer?*



Jeffrey S. Moorhouse, LCAAS President

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My first view of M13 in my Astroscan. The wonder expressed by others as they view something in the telescope for the first time. Viewing the 2017 eclipse. Spending time with friends under starlight.

8) What are your thoughts about professional and amateur astronomy today?

I think the gap between what professionals do and what amateurs do is getting wider. I believe all the massive telescopes and the fantastic advancements in technology have been the best and the worst thing to happen. It is the worst as it has driven the expectations at the eyepiece to disappointment for some. It has also reduced almost all views at the eyepiece to just fun and not science. The science no longer exists with your eye (variable stars would be one of the few exceptions). However, these new tools and missions into space have opened up a tremendous amount of information and new understanding. With all of these new complex tools that most of us can hardly imagine, the professionals use them while sitting at their desks. Pounding through all of the newly acquired data, they rarely see what amateurs get to enjoy all the time. While, as amateurs, we get to see the results of all their time and effort, and we get all the good views at the eyepiece. So, I guess it kind of works out for everyone.

9) Is there anything else you'd like our readers to know?

I do most of my observing in an "orange" zone, from my front yard. I can drive 30 minutes to a "green" zone when I want darker skies. I put up temporary light barriers to block local light sources in the neighborhood in my front yard. I travel to South Dakota if I want to improve my sky in terms of less moisture and less light pollution.

My favorite setup is my Meade LX200-12. It's heavy, but it is a pleasure to look through. Even though the goto is fine, I star hop with the hand control to most objects. I also have an Explore Scientific Twilight 1 mount that I have on an LXD-75 tripod. This solid, 2" legged unit provides a firm foundation for the mount. I commonly put my Celestron 9.25" SCT on this. At 27lbs with eyepiece and finder, this is "overloading" the mount a bit, but it is light and easy to set up for the aperture. The clutches take the extra load well. I tolerate quite a bit of vibration when focusing, but it settles down quickly. I have the Evolution mount with the CPC tripod if I want something with tracking. I also have a white-light filter for the 6" SCT on a Celestron SE mount for solar observing, but that has been slow over the last few years.

I keep an observing log that has room to sketch each observation. I feel I haven't had a complete observation without the sketch. The pages I use are posted on Cloudy Nights: <https://www.cloudynights.com/topic/697340-tell-me-about-your-logbook/> Post #15 by jeffreym. They are

made to be printed back to back, typically on 28-lb paper. A sample of one of my earlier logbook pages in that post from the 2017 solar eclipse.

10) Would you like to share one or more of your best astronomical memories? If so, please describe it.

In the spring of 2016, I visited Dr. Clay Sherrod at Petit Jean Mountain State Park in Arkansas. He was working on my LX200-12, and over breakfast, at the park restaurant, we were conversing about the 2017 eclipse. I hadn't thought about it much at that point, but we got to talking about planning where to go and that the lodging in the path of the event would soon fill up quickly. Once home, I started looking for someplace that met five conditions: 1. On the path of totality. 2. Very dark sky. 3. The campground where we can set up telescopes. 4. Generally dry conditions (no rain = no clouds) and 5. As close to home as can be found (less than 12 hours travel time). After quite a bit of searching, we found one place that met the search conditions near Arnold, Nebraska, called Hidden Valley Campground. We made a reservation for September of 2016 to check it out and the week of the eclipse in August of 2017.

September came. This initial trip was to be made by myself and an observing buddy. It was a nine-hour drive through cow country from our home to the campground. I have always liked the rural landscape of fields and hills, so the drive was relaxing and pleasurable. Of course, we anticipated the pleasure of dark skies as well, having packed a truckload of astronomy equipment. There is a little town along the way about every 20 miles. Like an oasis in a grassy desert, always with food and fuel. The sun was still a couple of hours above the horizon when we pulled off the pavement onto the gravel drive. There was tall corn on our left, almost ready for harvest, and trees on our right sloping down into a shallow valley. The owner was waiting for us as we arrived. Sitting under a small pavilion overlooking the twenty or so, now empty camping spaces, we received a warm welcome. However, she thought it was odd we were coming from Wisconsin this late in the camping season. I explained it was for the dark sky and to see the place before the eclipse. She asked if we knew that the eclipse was supposed to go right over their property. We had. There was only one other camper who packed up and left the next day, leaving us alone for the rest of our stay.

It stayed perfectly clear for four nights in a row. The days were warm and windy, seventy degrees in the sun. At night, the wind dropped to almost nothing. The temperature also dropped, down to twenty-eight degrees by the time the pre-dawn moon peeked above the hills. The Flame Nebula was brilliant. We looked at faint galaxies and clusters and nebula at will. It seemed like nothing was out of our visual reach. I didn't take notes or sketches; I was simply absorbed into dim dust and starlight.

THE STATE OF OUR ASTRONOMY CLUBS: HEALTHY OR AT-RISK?

~ by Carl J. Wenning, NCRAL Chair (2017-2021)

With all the talk about COVID-19 over the last nine months, it's hard for me not to think regularly about health. Recently, my concern about my personal physical health was generalized into a concern about the health of NCRAL affiliates. What prompted this concern was a recent review of affiliate contact information on the NCRAL web site. Considering that a significant part of this information is inaccurate following several requests for review and updating, I couldn't help but wonder if some of the NCRAL affiliates are at risk. Only a couple of years ago NCRAL lost an affiliate when it dissolved while in the process for planning to host the Regional convention.

This concern for NCRAL's three dozen remaining affiliates prompted a considerable amount of introspection on my part concerning the following question, *"What are the characteristics or traits of a healthy astronomy club?"* Knowing the answer to this question and using that information to assess our NCRAL affiliates' lives is essential to their – and the Region's – continued well-being and longevity.

Several years ago, I wrote (and recently updated) **TCAA Guide #3 – Astronomy as a Hobby** (available with other TCAA Guides at <http://tcaa.us/TCAAGuides.aspx>). In this Guide, I lamented that many, if not most, members of the general public don't have a clue about what it means to have a hobby. I then provided descriptions about what having a hobby entails.

Now, I wonder if a similar lack of situational awareness doesn't also extend to the point where a club's members can't answer the question, *"What constitutes a healthy astronomy club?"* It's a question worth asking and answering especially with the recent influence of the COVID-19 pandemic that has undoubtedly affected all of our club and not necessarily for the better.

Bear in mind that this question is a question in general; I have no particular club in mind. Please stay with me as I muse about assessing the health of our Region's astronomy clubs. It might help to establish the wellbeing of your club or lead to healthy changes if it is, in fact, at risk.

Basis of Diagnosis

I want to help affiliates answer the question about their clubs' health using the analogy of determining the health of a human body. A club is, in a way, a living organism that has been born, has specific aims and goals, is actively living out its life, and will eventually die if not properly cared for. I play the role of a doctor in this analogy. As such, I need to explain my qualifications for diagnosing problems. I'll forego offering any cures, but cures to any problem diagnosed should be apparent to those who read through to the end of this work.

I have been an amateur astronomer since falling in love with the stars and planets one night in July 1957. It was then that my grandfather showed me the night sky for the first time. I saw the stars, Milky Way, Venus, and Jupiter from a dark rural setting, and was deeply impressed. That initial impression has stayed with me to this very day.

I have been associated with my club, the Twin City Amateur Astronomers, for 42 years now, and I was also a member of several other clubs before that. I've held every elected position within my club but for that of Treasurer. I have been involved with NCRAL as Chair since 2017 and speak to a lot of amateur astronomers over the course of a year. I also have been to a lot of conventions, meetings of astronomy clubs, and star parties. All of these have given me a bit of perspective and constitute what might be considered my "medical degree" for the sake of this article.

Now, let me tell you – in my opinion – what every astronomy club needs to be healthy. Then, I'll provide readers with ideas about how to perform a checkup of their club to see if it is healthy or at risk of dying. But first, what does it mean for a club to be healthy?

What Does it Mean for a Club to be Healthy?

Because we are reasoning by analogy, we first need to determine what it means for a human body to be healthy. Here is a definition that I like: *Being healthy consists of being in a state of complete physical, mental, and social well-being that allows a body to grow, thrive, and achieve its purposes; being healthy is not merely the absence of disease or infirmity.* With this definition of health as a basis, let's examine the characteristics of a healthy club.

Every club needs specific organizational structures if it is to grow, thrive, and achieve its purposes. Organizational structures are very much like a body's skeletal framework. If the structure of bones does not exist, then the body – though living – cannot accomplish its ends. Instead, it rests as a quivering pile of flesh. What then are these necessary structures? Here are a few to consider:

- **Bylaws or constitution**, either of which serves to clarify the aims of the club and as an organizing document to provide structures for effective governance.
- **Office duties** should be available in a highly detailed document so that everyone knows the expectation and responsibilities associated with the various offices.
- **Officers** who are both reactive and proactive leaders with visions aligned to the club's principle aims rather than solely reactive or inactive placeholders.
- **Diverse leadership** so that not too much reliance is placed on one person, officer or otherwise.

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- **A multi-year plan** that includes general goals and specific objectives aligned with the aims of the club that can serve as a basis for ongoing assessment of progress.
- **Membership dues** that allow a club to not only help achieve its aims, goals, and objectives, but also provide a stake in the club and allow the officers to know who the club's members are.

Every club needs effective communications if it is to operate smoothly. Pretty much gone are the days when a person would pick up a telephone to call another. That still happens between friends, but this is not often the case among mere acquaintances and strangers. Many people are hesitant to phone those they do not know well. While such phone calls still happen, more modern means of asynchronous communication are often preferred in these situations. Here are the necessary forms of asynchronous communication that clubs need in this modern era.

- **Listservs** that provide pathways for informally communicating immediately with other all club members on an as-needed basis.
- **Social media** such as Facebook and Twitter that reach a lot of people – members and otherwise. Members can read and share posts with other members and members of the public to increase the visibility of a club.
- **Meeting minutes** so that those who miss a meeting can be kept apprised of the events that have transpired. It is best that approved minutes be made available in a newsletter or web site or disseminated through a listserv.
- **Newsletters** with lots of astronomy and social content so that members remain informed and feel connected to and involved with their club.
- **Web sites** that can easily be found with search engines, and detailed information can be provided on demand.

Not to be neglected are membership resources to be used on an as-needed basis. Many people join clubs to gain access to material resources because sometimes they cannot afford quality items of their own, or if they have them, they don't know how to use them. Consider the following valuable astronomy club resources:

- **Quality loaner telescopes** can be items of significant value to those without them. Some people join clubs to gain access to loaner telescopes and be assisted in learning how to use them. They want to avoid the pitfalls of unknowingly purchasing toy telescopes that will do little more than frustrate them after the first views of the moon and Saturn's rings.
- **Observing sites** are essential if members are to enjoy the hobby of amateur astronomy. Having a place to set up a telescope that provides a dark sky and protection from

direct light is critically important. Without such sites, precious little observing will get done, and the hobby will lose its appeal to those who want to look at the heavens.

- **Observatories** are ideal for those who want to view year-round. During colder months, observatory walls and domes can protect from the cold blowing wind. Observatories also provide a degree of security from those things on the outside that might do the observer harm.
- **Regular meeting locations** such as a clubhouse, nature center, planetarium, museum, or community center are essential to the existence of a club. Without a place that a club can call home, clubs often meet in locations where they are sometimes welcome and other times merely tolerated. If the latter is the case, once a formal gathering is over, out they go!
- **A listing of membership benefits** can be very helpful to members, new and old alike. My club, the TCAA, has an extensive listing of membership benefits that is updated regularly. See this listing among our TCAA Guides at <http://tcaa.us/TCAAGuides.aspx>

Every club needs astronomical activities that can be used to engage members and the general public.

- **Membership meetings** constitute the glue that holds any club together. The key players don't need such meetings due to their constant interactions; however, those on the fringes of a club do for reasons that will become clear.
- **Welcoming procedures** are critical to have in place for new members. This sometimes consists of a welcoming committee plus effective means of establishing communications. Without such procedures, membership often becomes a revolving door with members paying dues one year and departing a club the next.
- **Meaningful communication** is what builds relationships and is the glue that holds a club together. There is nothing more critical to the forging of friendships than significant face-to-face interaction. Casual conversations that consist of only niceties ("Wow, aren't these cookies great?") do little to further the relationships necessary to build and bind a club's membership. Clubs must provide regular opportunities that engage members in meaningful conversations if they are to welcome, integrate, and retain new members.
- **Educational offerings** for the club's membership are critical to convert those new to amateur astronomy into experienced members. Members-only talks, activities, and observing sessions provide opportunities for the newbies to get to know and learn from the pros. Educational activities should be accessible to a variety of knowledge levels, not just one.

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- **No-agenda social events** provide opportunities for members new and old to focus on something other than astronomy. From such events interpersonal relationships are forged. Sometimes it's nice just to get together to have a meal or share a drink and experience the camaraderie of amateur astronomy.
- **Public outreach** is a key that motivates many amateur astronomers. While they love astronomy, they also enjoy giving talks and showing people around the heavens using their telescopes and explaining what viewers are seeing.
- **Active observers and imagers** are the heart of any astronomy club. New club members who look forward to getting out under the stars are unlikely to be unimpressed by a group of armchair amateur astronomers.

It's only when astronomy clubs have the requisite structures, communications, resources, and activities that they can perform at their optimum to achieve the club's aims, goals, and objectives. While these four traits are necessary, they are not sufficient conditions to ensure that an astronomy club is healthy.

Merely counting the marks on a checklist – “*Do we have this? Yes. Check! Do we have that? Yes. Check!*” – is inadequate for determining the health of a club. A club can have all of the checklist items and still not be operating with optimum health. You might wonder why. Here, in my opinion, is why this is so.

A checklist evaluation is quantitative but in no real sense qualitative. Quality is just as important as quantity, and perhaps even more so. A club might check every box on a club-needs checklist and be misled into believing that they are “doing enough” for their members. That’s not necessarily so. Here is a list of examples that illustrate this point.

- A club might have elected officers, but perhaps they are satisfied to be merely reactive place holders rather than the proactive leaders a club needs them to be.
- A club might have a newsletter, but it might not contain the most interesting and useful information.
- A club might have a dysfunctional website that is either fails to provide adequate information or is not kept up to date.
- A club might have a listserv, social media, and a web page but if few members access them they are close to being worthless.
- A club might have loaner telescopes, but they might be in such poor condition or are so inaccessible that no one wants to use them.
- A club might have social activities, but new members might feel unwelcome or excluded for any of a number of reasons.

- A club might host public viewing sessions, but does a poor job inviting attendees to get involved in the world of amateur astronomy.

If we are to fully and honestly assess the health of a club, we must look beyond the checklist of structures, communications, resources, and activities. Let us therefore diagnose a club’s health by looking at its most important aspect – the membership.



Performing a Meaningful Club Checkup

To conduct a proper diagnosis of a club’s health, one must look at the membership – the life force within a club. Consider the following questions about membership that reveal a club’s actual health in my opinion.

- **Inclusivity** – Does your club have a membership that reflects your community? Does it include those of different backgrounds (education, sex, race, creed, etc.) and make everyone feel welcome? Is the leadership involved in club activities to the exclusion of the rank-and-file membership?
- **Age distribution** – Does your club membership consist primarily of older individuals? If it does, add 20 years to the age of everyone in the club and see what you have left two decades from now if the club does not attract and retain new members. A healthy club will have a mix of new, intermediate, and long-time members.
- **Units of membership** – What is the primary unit of membership of your club? Does your club consist mostly of individuals, or is there a mixture of singles, couples, and

families? Clubs comprised of primarily singles will rarely be attractive to couples and families.

- **Friendships versus acquaintances** – How good are the relationships among the members of your club? Are your members friends or merely acquaintances? If members gather for a club meeting or event and depart immediately after it concludes, then there are few real friendships. If members linger long after the end of an event to socialize, then you are seeing an indication of friendship.
- **Shared responsibility** – Does your club membership consist of a mixture of types when it comes to give and take? Granted, the old pros are most qualified to provide training, answer questions, conduct the club's business, host observing sessions, produce the newsletter, manage the web site, and such, just like the newbies are most likely to be on the receiving end. That's fine and as it should be. However, when it comes to the long-time members, is there shared responsibility for what goes on in the club, or does it always fall on the same few people to get things done? When this happens, there is a lack of equitable relationships, and a club can, in the long term, be at-risk.
- **Engagement** – Just how involved are the members of your club in its activities? My experience with more than four decades of involvement in astronomy clubs has shown me that typically 20% to 25% of a club's dues-paying members are actively engaged in club activities. The unengaged members seem to be content to support a club financially by paying dues, and there's nothing wrong with that. Nonetheless, successful clubs often will have a much higher rate of engagement with their members because they are doing things right. Be implication, if 75% to 80% of a club's members are not engaged with its activities, then there must be some sort of undiagnosed problem.

By answering these questions about the membership of your club honestly, you will have some sense about your club's real health. If you have a healthy club, congratulations! If your club is at-risk, then you have your work cut out if you care to see your club grow and thrive now and into the future.

Diagnosis, Prognosis, and Treatment

As I mentioned at the start of this article, it is sometimes helpful to reason by analogy. Let's use our analogy one final time. Every good doctor is concerned with the health of the patient. This concern takes the form of diagnosis, prognosis, and treatment. *Diagnosis* tells us what is wrong; *prognosis* tells us what we can expect with or without certain treatments. Applying a proper *treatment* is what must be done if we can give legitimacy to the hope of avoiding an undesirable prognosis.

By reviewing the data from your club generated by reflecting honestly on the membership questions, you are making a diagnosis. What you decide to do with that information will result in treatment. If your club is at risk and you apply either the wrong or no treatment at all, then the prognosis cannot be good.

Unless a problem is properly identified, no solution is warranted. Treating symptoms rather than causes will not result in effective long-term solution of a problem, and the long-term prognosis can't be good.

Putting Knowledge to Work

I encourage you to give your club a health checkup! This isn't something that should be done alone, however. As in any important medical decision, its best to have a second opinion and then assess the differences based on evidence and logic. Only then can you be reasonably sure of the suitability of a particular diagnosis, treatment, and prognosis.

I recommend that clubs gather a cross-section of members to begin diagnostic efforts and work out potential treatments. Note that I didn't say to pick your leaders or most active members. If you want to obtain an honest perspective on the health of your club, you'll include in your discussion young through old, new through long-time, male and female, singles, couples, families, leaders and followers, the quiet and the outspoken... a representative sampling of your club's membership. Only then will you be able to get a good understanding of the health of your club.

In light of this article, talk about each of the factors that are essential to ensuring the good health of a club - structures, communications, resources, and activities. Talk about the nature of your membership. Identify the problem(s) and then work out some possible solutions. Come up with specific goals and avoid merely developing broad resolutions that will do little to improve the health of your club. Develop activities, create a timeline, set clear expectations, establish benchmarks, and assign specific duties to specific individuals. All these are necessary to help your club make and assess progress toward its goal of improved health.

When deciding on a course of action, don't merely ask the question, "*Is this a good idea?*" My nearly 50 years of experience in social organizations is that you'll get lots of people to respond with platitudes in the affirmative to this question. A positive response to this question does not, however, provide leaders with any sense of commitment. The real question that needs to be asked is, "*Will you support this activity with your time, talent, and treasure?*" It's only when you get an affirmative to this latter question that you will know you are on the right path to returning your club to a state of health.

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WHAT MOTIVATES MEMBERS OF YOUR ASTRONOMY CLUB?

~ by Alan Sheidler, President, Popular Astronomy Club ~

As I am writing this article, I just received a draft of the August edition of the Popular Astronomy Club (PAC) newsletter *Reflections*. Recently, PAC's newsletter has greatly increased in size. Amazingly, the August issue has more than 50 pages. Not only is this a testament to the hard work of our newsletter editor, Terry Dufek, it is also an indication of an active and enthusiastic club.

In the midst of the Covid-19 pandemic, the club has shifted its focus to refurbishing the Paul Castle Observatory and conduct of club observing sessions. Although public events have been canceled, members have stepped up to work on updating the observatory and pursue their own observing programs.

A number of us have completed NCRAL Seasonal Messier Mini Marathons and pursued observing of solar system objects such as Comet NEOWISE, Jupiter and Saturn, all of which have been simply outstanding objects this summer. All of this club activity has captured the attention of NCRAL leadership. Carl Wenning asked me to write an article about what motivates people to be involved in PAC's club activities. So here is my attempt to jot down some thoughts.

PAC is indeed active, but contrary to what has been suggested, I doubt, as president, that I can take a lot of the credit for the club's success. Basically what I do as president to motivate is make suggestions, encourage people, and then let things happen. This is what I think is happening, for example, with our observatory update project. Having a competent and enthusiastic observatory director (Rusty Case) is also a huge advantage. But everybody is pitching in and helping with it. Even folks that typically don't come to club meetings or observing sessions have stepped up to work on the observatory. It has also been refreshing to have the Holt boys (Alex and Hugh) working on the observatory, driving screws, running power tools, hammering nails, and just being involved proves there's more to astronomy than "meets the eye" if you know what I mean?

One thing I think has helped encourage folks to participate in club activities is acknowledgement of participation. Every time the club gets together, we have a group photo. People love to be photographed and identified in the group. They think it's funny too when I set my camera on a timer, push the shutter release button and then run to get in with the group before the camera takes the picture. They love it too when they are photographed by their scope. Our club's newsletter is an outstanding tool for recognizing members, to highlight activities and show off astrophotography.



Finishing up the rebuild of the Paul Castle Memorial Observatory

As I am writing, I realize that acknowledgement is very important. Folks love the NCRAL Messier observing program, I think, because it is an opportunity to get recognized officially for having done something. These mini marathons are pretty easy to do too, which I think is critical to getting folks involved with observing.



Recently receiving Mini Marathon certificates were this article's author Alan Sheidler along with Wayland Bauer and Eric Sheidler.

Allowing the use of a GOTO scope enables many folks to succeed in finding the objects, many of which are difficult to discern in today's light polluted skies. I think this is a great program. I encourage everyone to get involved in doing one or more of these seasonal mini marathons. You won't regret it as a participant, and if you are club president or observing

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chairperson, it is a great excuse to convene a group to get out under the stars and do some observing.

At observing sessions, the emphasis should be fun and enjoyment. PAC observing sessions are a lot of fun. I really look forward to them. There's a lot of joking around. Everyone is "doctor" or "professor" of something (whether or not they really are or not). This is a way of highlighting whatever it might be that the person is doing or observing at the time.

We also have a mix of visual observers and imagers at our club sessions. The visual guys are always inviting folks to come over and look in the eyepiece. The imaging guys are actually doing this too though – they want folks to come over and look on their laptops at the object they have on the screen. A couple of us have large flat screen monitors upon which we show live views of Jupiter, Saturn, etc., and time exposure images of deep sky objects. Everyone gathers round to see what's on the monitors and laptops. We started doing this "TV screen" observing thinking we would do it during our public outreach sessions so that visitors could social distance more easily. But, as we have become proficient with it, we have found this is actually a great way to do astronomy. Of course, this flies in face of the traditional conduct at observing sessions (dark adaption is not possible if you are staring at monitors, for example). But the jocularity, spontaneity and enthusiasm during these observing sessions is contagious and exemplifies enjoyable, casual conduct during a "star party".



PAC members getting ready for their 4th of July Observing Session



A typical PAC observing session at Paul Castle Memorial Observatory.

I think the key is keeping things fun, simple, and low key. I am very jealous of some of the results I have seen by high-end astro-imagers. However, I realize these results demand a lot of effort and technical competence. Personally, I am a snapshot imager. If I can get a decent shot of an object in 30 seconds, I will do it. This enables me to do imaging more or less in real time at observing sessions with the group. I think this is more or less where many PAC members are right now, though there is a growing number who are continuously improving their imaging capabilities too. But I still love it when folks first "discover" an object and then burst forth excitedly to invite others to come quick to look at that incredible object in their scope or on their monitor. Never lose that magic!

Don't get me wrong, there is a place for the more accomplished astro-imaging folks. Their images are captivating art forms. There is something in this hobby for everyone. Just realize we are all indulging ourselves in different ways and for different reasons. Astronomy is a way for everyone to learn about science and admire the beauty of the universe. We all have different ways of doing that. Each club has a unique set of members with diverse experience and expertise. The challenge for club leadership is to divine their member's talents, desires and enthusiasm and then to encourage them to pursue their passions. Keep looking up!

FALL 2020 PLANET SUMMARY

~ by Jeffrey L. Hunt ~

After an exciting summer of planet watching and the appearance of a bright comet, autumn leads to a Mars opposition and the Great Conjunction of Jupiter and Saturn. The notes that follow largely summarize articles that have appeared in earlier issues of this publication. Exciting events continue for the remainder of the year.

Mercury makes its best morning appearance during November. The speedy planet reaches its greatest morning elongation (19.1°) on November 10. Mercury ($m = -0.6$) rises 141 minutes before sunrise. On this morning it is 6.9° to the lower left of Spica (α Vir, $m = 1.0$). **Venus** is nearby, 8.6° above Spica. About a week (November 4) before its greatest

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elongation, Mercury ($m = -0.3$) has a quasi-conjunction (4.2°) with Spica. Forty-five minutes before sunrise, Mercury – about 7° up in the east-southeast – is to the left of the star. On the morning of November 13, the crescent moon (27.5d, 4%) joins the scene. Venus, Mercury ($m = -0.7$), Moon, and Spica fit within a 13° circle. Venus and Mercury are farthest apart, 12.9° . Venus stands 5.1° to the upper right of the moon and 5.5° to the upper left of Spica. The Moon – Spica gap is 6.9° , with Venus to the upper right of the lunar crescent.

Brilliant Morning Star **Venus** had a dazzling summer display as it quickly raced into the morning sky after its June 3, inferior conjunction. It then moved through Taurus, Gemini, Cancer, and into Leo as this issue is published. On the mornings of October 2 and October 3, Venus ($m = -4.1$) is near Regulus (α Leo, $m = 1.3$). The separation each morning is 0.6° . On the first morning the planet is to the upper right of the star and to the lower left the next morning. The moon joins Venus ($m = -4.0$) on the mornings of October 13 and October 14. On the first morning the moon (25.7d, 16%) is 8.8° above the brilliant planet. The next morning, the lunar crescent is 6.6° to the lower left of Venus. On October 23, Venus moves into Virgo. It passes Gamma Virginis (γ Vir, $m = 3.4$) on November 5. Mercury then joins the scene. (See the preceding note about Mercury's best morning appearance.) On November 10, Venus and **Mars** are at opposition – opposite directions as viewed from our planet. Venus rises as Mars sets in the west. This leaves Venus and Mercury as the morning planets. Mercury moves to 13.0° from Venus on November 11. Five days later, Venus ($m = -3.9$) passes 3.8° to the upper left of Spica. On November 28, the planet moves into Libra and past Zubenelgenubi (α Lib, $m = 2.8$) on December 3; the gap is 1.3° . Venus becomes the lone morning planet as Mercury departs the sky in early December. On December 12, the crescent moon (27.1d, 6%) joins Venus low in the southeast about one hour before sunrise, when Venus rises 125 minutes before sunrise. Venus zips across Scorpius in four days. On the morning of December 18, Venus appears only 0.1° to the upper left of Beta Scorpii (β Sco, $m = 2.6$). The next morning, the planet is 1.5° to the lower right of Nu Scorpii (ν Sco, $m = 4.0$). As the year ends, Venus is low in the southeast, to the upper left of Antares (α Sco, $m = 1.0$). The star is quite low; exceptional observing conditions are needed to see it.

Mars ($m = -2.5$) retrogrades in Pisces near Mu Piscium (μ Psc, $m = 4.8$) during late September and early October. The planet has been prominent in the morning sky and the late evening sky for several weeks. Mars makes its closest approach to Earth on October 6 followed by its opposition (0.419 Astronomical Unit away) a week later. After its closest approach and opposition, Mars's brightness fade rapidly. By year's end it is nearly 2.5 magnitudes dimmer (10x) than at its brightest. On October 29, the bright moon (13.2d, 98%) is 4.8°

to the lower left of the Red Planet. The planet's retrograde ends November 13. Two hours after sunset, it is nearly 40° up in the southeast. On November 25, the moon (10.8d, 84%) is 5.1° to the lower left of Mars ($m = -1.3$). The planet passes 1.0° below Epsilon Piscium (ϵ Psc, $m = 4.2$) on December 4. Eight days later, the Red Planet ($m = -0.7$) passes above Zeta Piscium (ζ Psc, $m = 5.2$). On the evening of the Great Conjunction of Jupiter and Saturn, Mars ($m = -0.5$) is nearly 83° of ecliptic longitude east of Jupiter. Mars ($m = -0.2$) ends the year 1.0° to the lower left of Pi Piscium (π Psc, $m = 5.5$). At the end of evening twilight, the planet is nearly 60° in altitude in the south-southeast.

Jupiter's conjunction with **Saturn** occurs December 21. This conjunction (0.1°) is the closest since 1623. As September closes Saturn's retrograde ends as Jupiter's direct motion carries the Giant Planet toward the Ringed Wonder. The gap is 7.8° . The jovian planet pair is 90° east of the sun during early October. On October 22, one hour after sunset, the thick crescent moon (6.2d, 44%), 23° up in the south, makes a nice triangle with Jupiter and Saturn. The crescent is 4.4° to the lower left of Jupiter and 4.2° to the lower right of Saturn. The Jupiter – Saturn gap is 5.9° . During November, the planetary duo is in the south-southwest during the early evening hours, setting before 9 p.m. standard time. As viewed from the sun, Jupiter passes Saturn on November 2 – a heliocentric conjunction. Jupiter cuts the distance to Saturn in half by month's end. The Giant Planet passes **Pluto** again for the third conjunction (November 12). The moon passes through again on November 18. Look for the crescent moon (3.8d, 18%) over 16° in altitude in the south-southwest. It is 6.8° to the lower right of Jupiter. The Jupiter – Saturn gap is 3.5° . Jupiter is to the lower right of Saturn. By November's end the planets' gap is approaching 2.0° . During early December find them about 20° up in the southwest during the latter stages of evening twilight. By December 11, they are 1.0° apart and the gap closes about 0.1° each evening. On December 16, the thin crescent moon joins the planets. One hour after sunset, the moon (2.3d, 7%) – over 6° up in the southwest – is about 5° below Jupiter. The Jupiter – Saturn gap is 0.5° . On December 21, Jupiter is 0.1° to the lower left of Saturn. By the end of the year, Jupiter is 1.1° to the upper left of Saturn, and they are less than 10° in altitude in the southwest. Saturn sets at the end of evening twilight.

This year is the first Halloween Full **Moon** since 1955 in the Central Time Zone and the first for all of North America since 1944. To have the full phase on Halloween, another Full moon occurs on October 1 or October 2. The Halloween moon fits one of the definitions of a "Blue Moon." A penumbral lunar eclipse occurs on November 30. The maximum penumbral eclipse is 86% when the moon is over 30° up in the west at 3:43 a.m.

NORTHERN LIGHTS

Uranus (m = 5.7) – in southern Aries – is at opposition on October 31. The planet is in a dim starfield, near 19 Arietis (19 Ari, m = 5.7) and 29 Arietis (29Ari, m = 6.0) during the early evening hours. It retrogrades until mid-January when it is 2.2° south of 19 Ari.

Neptune (m = 7.8) was at opposition on September 11. It is among the stars of eastern Aquarius, near Phi Aquarii (φ Aqr, m = 4.2). The planet retrogrades until the end of

November when it is about 0.7° to the east of the star. By late January, Neptune passes 0.3° to the south of 96 Aquarii (96 Aqr, m = 5.5).

Pluto is in the region of Jupiter and Saturn. If you have sufficient telescopic aperture, then look for Jupiter 0.6° to the upper right of this 9th “Classic Planet,” although it is low in the sky at the end of evening twilight on conjunction evening. Pluto reaches its solar conjunction on January 14, 2021.

FUTURE NCRAL CONVENTIONS

During NCRAL’s annual business meeting the Region receives offers for hosting upcoming conventions. The following affiliates have agreed to hosting future conventions. We are in need for hosts for 2024 and the years beyond. It’s never too early to start planning to host.

- 2021 De Pere, WI: Neville Public Museum Astronomical Society (May 7/8)
- 2022 Port Washington, WI: Northern Cross Science Foundation (dates TBA)
- 2023 Bloomington-Normal, IL: Twin City Amateur Astronomers (May 12/13 tentative dates)
- 2024 **OPEN**

If your club has never hosted an NCRAL Regional convention, please consider doing so in 2024 or later. While hosting a Regional Convention is a considerable amount of work, it can be quite rewarding – even fun. It provides an opportunity to showcase your group’s facilities and accomplishments, build club camaraderie, and to get to personally know interesting guest speakers. You can also use such an event to grow your club’s membership.

Remember, NCRAL now has its own convention planning guide. The **NCRAL Convention Planning Guide** has three sections. Section 1 deals with the “preliminaries” of what it takes to host a Regional convention. Section 2 deals with programming information. Section 3 deals with budgeting information. The guide was developed by experienced hosts of NCRAL conventions in conjunction with one future host who asked lots of excellent questions. To download the planning guide, you may access it through the NCRAL website the following URL: <https://ncral.wordpress.com/conventions/>. Look for the link at the bottom of the page.

Please contact NCRAL Chair Carl Wenning at carlwenning@gmail.com should you have any questions or wish to toss your hat into the ring for hosting a future NCRAL convention.

NCRAL SEASONAL MESSIER MARATHON OBSERVING PROGRAM

Don’t overlook or forget about the NCRAL Seasonal Messier Marathon! The Seasonal Messier Marathon observing program is NCRAL’s introduction to viewing the Messier objects. This program is intended to serve as motivation to get NCRAL-affiliated members out under the stars to observe.

The program permits the use of goto telescopes to find the objects and, as such, the program must not be seen as proof of observing prowess. NCRAL will permit Astronomical League’s Messier observing program to serve that purpose. Still, for those who have asked for some sort of demarcation, NCRAL observing certificates will hence forth include the words “manual” or “assisted.” Certificates and pins are now being distributed on the equinoxes and solstices along with **Northern Lights**.

Up-to-date details about the Region’s four observing program and helpful observing record sheets can now be found on the NCRAL website: <https://ncral.wordpress.com/awards/>. Below are the seasonal observing lists followed by some helpful observing notes.



Autumn: M55, M69, M70, M75, M11, M26, M56, M57, M71, M27, M29, M39, M2, M72, M73, M15, M30, M52, M103, M31, M32, M110, M33, M74, M77, M34, and M76. (27 objects)



Winter: M1, M45, M36, M37, M38, M42, M43, M78, M79, M35, M41, M50, M46, M47, M93, M48, M44, M67, M40, M81, M82, M97, M101, M108, M109, M65, M66. (27 objects)

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Spring: M95, M96, M105, M53, M64, M85, M88, M91, M98, M99, M100, M49, M58, M59, M60, M61, M84, M86, M87, M89, M90, M104, M3, M51, M63, M94, M106, and M68 (28 objects)



Summer: M83, M102, M5, M13, M92, M9, M10, M12, M14, M19, M62, M107, M4, M6, M7, M80, M16, M8, M17, M18, M20, M21, M22, M23, M24, M25, M28, and M54. (28 objects)

OBSERVING NOTES:

- **Autumn:** This season's objects span a wide range of right ascension and declination. With several objects located in Sagittarius and disappearing into the glare of the sun by mid-autumn (M55, M69, and M70), it is best to complete the autumn observing program before the end of October. After that they will be too near the sun to observe during late autumn evenings.
- **Winter:** It probably would be best to begin the winter Marathon around mid-February or later. Any earlier in the year, observers will have to wait until late into the night for all winter objects to have risen high enough in the sky to observe. With winter weather moderating in March, it wouldn't be too late to start then so long as observations are completed by the March equinox.
- **Spring:** This season's objects span a rather narrow region of right ascension, with most of the objects being associated with or in proximity to the Virgo-Coma cluster of galaxies. At the start of spring, an observing run beginning near the end of astronomical twilight should allow observers to view all objects by around 10:30 PM. By mid-April, all objects should be well enough placed at the end of astronomical twilight allowing for their fastest possible observation.
- **Summer:** All summer Marathon objects are above the horizon at the end of astronomical twilight on the first day of summer through the last day of summer. They are nearly all tightly clustered around the galactic center and most are globular clusters with a few notable exceptions.

ADD YOUR EMAIL ADDRESS TO THE NCRAL MEMBER DATABASE

Did you know that just over 425 of some 1,900 NCRAL members are receiving this newsletter via email? That's only 23% of the membership. Please help NCRAL get its newsletter out to the membership by encouraging fellow club members to add their email addresses to the NCRAL member database. Editors please include this information in your affiliate's newsletter.

When one adds his or her email address to the NCRAL member database, he or she will receive direct notifications about the availability of ***Northern Lights***. In addition, subscribers will receive important and timely announcements about Regional conventions, star parties, and so forth. Only blind addressing (Bcc:) will be used with this email list so that others will not see your email address. Email addresses will never be shared with or sold to outside entities.

No one will add your email address to this list for you, so you'll need to do it yourself. Sign-up takes only about a minute. You'll need to provide your name, email address, astronomy club affiliation (or indicate A.L. membership-at-large) and let us know if you hold specific positions within your club. Go to the following case-sensitive URL to add your information to our database at <https://goo.gl/gsS8SF> today so you won't miss important future communications.

NCRAL WEBSITE

~ by Jeff Setzer ~

Did you know that NCRAL has its own website? Point your browser to ncral.wordpress.com and you'll see a central repository for information about our Region and affiliates, the Region's Bylaws, back issues of ***Northern Lights***, information about observing programs, awards, and grants, and much more. Will the website progress from an occasionally used reference to something more? That's entirely up to you, dear reader. If you have ideas or submissions, contact me at astrosetz@hotmail.com

NORTHERN LIGHTS

REGIONAL OFFICER & LEADER CONTACT INFORMATION

Chair (2-year term): Carl Wenning (term expires Spring 2021, in second term)

Bio: Carl has been an amateur astronomer since being introduced to the sky by his grandfather during July 1957. Today he is an A.L. Master observer. He has been involved with the Twin City Astronomers of Bloomington-Normal (Illinois) since September 1978. He currently serves as the club's secretary, historian, and editor of *The OBSERVER* newsletter for which he received the AL's 2017 Mabel Sterns Newsletter Editor Award. He continues to serve as the sole *Northern Lights* newsletter editor. Carl was planetarium director (1978-2000) and physics teacher educator (1994-2008) at Illinois State University. He continues to teach physics education courses in retirement.



Contact: carlwenning@gmail.com

Vice Chair (2-year term): Bill Davidson (term expires Spring 2021, in first term) and **Regional Representative to the Astronomical League (3-year term):** Bill Davidson (Interim 2019-2020)

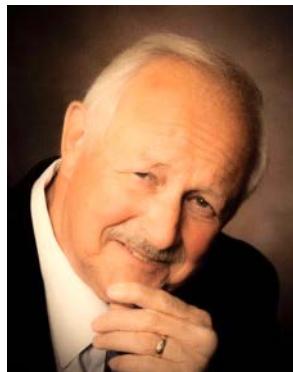
Bio: In the days of the Apollo missions, Bill first observed the moon (and sunspots!) with a 50x, 60mm JC Penny's refractor telescope. Not discouraged, 40 years later, he built and observes with a 6.25-inch achromatic doublet objective, f/10, 1600 mm focal length refracting telescope. He recently retired as a college mathematics instructor, has been a member of the Rochester Astronomy Club (Minnesota) for 20 years, and serves as editor of the club's award-winning newsletter *RochesterSkies*.



Contact: rochesterskies@outlook.com

Secretary-Treasurer (2-year term): Roy Gustafson (Interim 2020-2021)

Bio: Roy, a member of Popular Astronomy Club (Quad Cities), got interested in astronomy when visiting the Adler Planetarium in Chicago when he was in 2nd Grade. The stars projected by the Zeiss Projector hooked him and started him on the path of astronomy. He has been active in outreach and has presented astronomy programs to over 20,000 people. He was awarded the Master Outreach award from the Astronomical League. Roy travels with his telescopes and has observed both Transits of Venus and last year the Total Solar Eclipse. Roy also taught astronomy at Black Hawk Junior College in Moline, IL. Roy retired from John Deere & Company after 32 years of service.



Contact: astroroy46@gmail.com

NCRAL Webmaster: Jeff Setzer (appointed)

Bio: Jeff has been an amateur astronomer since 1984 and has been part of the Northern Cross Science Foundation (Wisconsin) since that time. He is a longtime member of their Board of Directors, has held several office positions, and is currently their President. He has completed several Astronomical League observing programs, made his own telescopes and optics, and is a self-described telescope nut. You will often find him at star parties with his 22" Starmaster and TeleVue 85 telescopes.



Contact: astrosetz@hotmail.com