NORTHERN LIGHTS

NORTH CENTRAL REGION OF THE ASTRONOMICAL LEAGUE

Summer 2019 – Series II, Volume 4, Number 1

INSIDE THIS ISSUE OF *Northern Lights*

NCRAL CHAIR'S MESSAGE

The NCRAL 2019 convention has come and gone, and what a convention it was! On behalf of the North Central Region of the Astronomical League, I want to express the Region's sincere thanks to *Popular Astronomy Club* (PAC) for hosting NCRAL 2019. They did a superb job, didn't they?

As I have told several of you already, NCRAL 2019 will be a very difficult act to follow. The program was full of interesting talks and informative activities, the meals and breaks were excellent, there was plenty of time for networking, the facilities wonderful, and – despite that fact that there was a huge amount of material to "cover" – the atmosphere never seemed rushed – ever!

As one whose club has hosted two NCRAL conventions and having attended many others, all I can say is that I was deeply impressed by PAC's professional management of this Regional event. It will be long remembered as one of the best conventions that an NCRAL affiliate has ever hosted.

I'm especially delighted that PAC decided to "push the envelope" to change the way things "have always been done" in order to improve this and future NCRAL conventions. As leaders, the leadership is to be highly commended because they have done precisely that.

Another contribution PAC has made to NCRAL is Terry Dufek's work on the new NCRAL logo and masthead making their appearance for the first time in this issue of ***Northern Lights***. A higher resolution version of the new official logo will be available for use on club newsletters, clothing, conference proceedings and so forth. See later in this newsletter issue.

During this year's Regional business meeting, the assembled members agreed to moving ahead with the creation of four seasonal *NCRAL Mini Messier Marathon* certificates and pins. The Astronomical League has no such seasonal observing program, and we will be among the first to formalize such a program. I will be working with the NCRAL Regional Council to establish rules for this event. This will pretty much be a "check off list." Required observations and records will not qualify completers for the AL Messier Observing Program which has its own rules and regulations.

Further, the membership encouraged me to once again promote my *Astronomical Bucket List* to the AL following the initial, out-of-hand rejection of the 300-item list because "it's not an observing program." Several arguments were presented in favor of its adoption by the AL which will be carried forward. If we fail to get the AL to accept this observing program, then NCRAL will consider adopting it as its own.

During this year's convention banquet, the Region honored several of its members and affiliates. A belated 2018 NCRAL Region Award was presented to **Roy E. Gustafson** of *Popular Astronomy Club* and the 2019 NCRAL Region Award was presented to **John Heasley** of the *Iowa County Astronomers.* The inaugural NCRAL Newsletter Editor Award for 2019 was conferred upon **Bill Davidson** of the *Rochester Astronomy Club* for his newsletter ***Rochester Skies***. **Terry Dufek** of Popular Astronomy Club received a $75 check from the Region for his first-place draft design for a NCRAL logo which won 97% of the votes cast at the convention. The *Twin City Amateur Astronomers* were awarded a $250 membership recruitment mini grant. Details about all these awards can be found in articles further along in this issue of ***Northern Lights***.

I have just completed the 2018-2019 Region Report to be presented to the AL leadership prior to its annual board meeting which will occur immediately prior to ALCon 2019 which will be held in July. An abridged version of that report also can be found further on in this issue of ***Northern Lights***.

The Report highlights the many things NCRAL and its members have accomplished since the last report during the summer of 2018. The last Report resulted in AL President John Goss saying that NCRAL is one of the two busiest, most innovative Regions in the League. This recognition resulted in an invited article about the Region appearing in the Astronomical League's ***Reflector*** magazine.

The NCRAL website has been extensively updated, thanks to the efforts of Webmaster Jeff Setzer. One noteworthy improvement was the removal of objectionable advertising that had begun to show up on the various pages. If you haven't visited the Region's website recently, be certain to do so at http://ncral.wordpress.com.

Only as I was working to provide Jeff with updated information following NCRAL 2019 did I realized that I committed a faux pas at this year's business meeting. We should have elected a Regional Representative to the National Council. As you might recall (and which I forgot), Bill Davidson's election last year was to complete the 3rd year of a 3-year term of the prior rep. Bill's 1-year "fill in" term was completed with the 2019 convention. Due to my oversight, and with the approval of the Regional Council, I have asked him to stay on in the same capacity until NCRAL 2020 when we can officially vote him in or find a replacement for the remaining 2 years of this 3-year term should he choose not to run. Bill has most graciously agreed to this appointment. I apologize to Bill and the membership for this oversight. Next time I rely less on my memory and more on the records.

Clear skies!

Carl J. Wenning
NCRAL Chair (2017-2021)
Twin City Amateur Astronomers
carlwenning@gmail.com

NCRAL 2019 IN REVIEW

Astronomical Voyages of Discovery: Past, Present and Future
~ by Sara Sheidler, Popular Astronomy Club ~

The Popular Astronomy Club hosted the 73rd annual convention of the North Central Region of the Astronomical League May 3-5 at Stoney Creek Hotel & Conference Center in Moline, Illinois. The PAC previously hosted NCRAL in 1953 and again in 1986. The 1953 event included observing and a picnic hosted by our club founder Carl Gamble at his Sky Ridge Observatory in Moline. The 1986 conference marked the 50th anniversary of the founding of our club with a day-long event held at Augustana College. Our 2019 convention committee worked for 2 years putting together an innovative agenda that had so many activities it had to be expanded to 2 ½ days. One goal of the convention planning committee was to attract students and boost attendance from NCRAL affiliates. With 88 registered attendees and an attendance of 103 for our two college students' presentations proves NCRAL 2019 succeeded in both goals!

We wanted to make the Quad Cities a destination not just for the amateur astronomers attending the conference but also for spouses and family members. We expanded the event to include pre-conference tours at the John Deere Harvester Works Combine Factory and the Rock Island Arsenal Museum. We offered a Best Practices for Community Outreach and an Astrophotography 101 class both before the official welcome by our Planning Chair Mike Gacioch. Attendees could bring DIY projects to share with others during the Social Hour before the Friday evening dinner. Following that was a rousing game of Astronomical Trivia with several tie-breaker rounds. Some of the "show and tell" items included an observing chair, equatorial polar mount adapter for a laser pointer, library telescope, solar funnel kits, and a 3D print adapter which fits over the eyepiece and provides a platform for people to use their smart phones to take astrophotography pictures. The Planetary Studies Foundation had a meteorite display and we had a display from the Osiris-Rex Mission.


Dr. Paul Sipiera

We had 10 speakers scheduled with the first program Friday afternoon by PAC member Roy E. Gustafson, who gave a *Brief History of the Popular Astronomy Club.* That evening Dr. Lee Carkner, Augustana College continued with his program entitled *A Relativistic Century: Eddington, Einstein, and the Great Eclipse*. Then Carl Wenning's talk *Voyages of Discovery* provided a discussion of his literary journey over his lifetime and the impacts reading has made for him. He encouraged members to get out under the night sky and to observe – to begin their own Voyage of Discovery as it were.

Friday evening ended with a visit to the John Deere Planetarium and Gamble Observatory on the campus of Augustana College with telescopic views of Mars hosted by Dr. Lee Carkner. Saturday morning began with the NCRAL Business meeting at 8:00am. Despite the early start time, we still had approximately 35-40 dedicated individuals in attendance. We then had two more presentations before breaking to take the group photo and have lunch. These excellent programs were *A Discussion of Historical Tests of General Relativity Theory* by Dr. Robert Mutel, University of Iowa, followed by *Meteorites: Messengers from Space and Time* by Dr. Paul Sipiera from the Planetary Studies Foundation, Galena, Illinois. After a foggy start Saturday morning, the skies cleared for the rest of the day, affording nice solar viewing through the PAC's mobile observatory (PACMO) parked in Stoney Creek's parking lot.

Dr. Robert Mutel

Dr. Esteban Araya

After our lunch buffet, Dr. Esteban Araya gave a program on *Voyages of Discovery in Radio Astronomy* and had some interesting demonstrations using diffraction gratings, infrared camera views of the audience and demonstrations of spectroscopy. Dr. Robert Mitchell, St. Ambrose University, Davenport then gave his talk on *Gravitational Waves*, updating us on the recent discoveries in this field. We then took a break and after that two of our native Quad-Citians and current college students presented their programs for the conference. Katie Melbourne, Yale University, presented on *Our Coolest Stellar Neighbors: The Role of M Dwarf Stars in the Search for Earth 2.0*

Katie Melbourne

Tiffany Fields

followed by Tiffany Fields, University of Nova Scotia, who talked about *Tweeting to the Stars with the Burke-Gaffney Observatory and Learning About Galaxy Evolution Using Simulations*. It should be noted that the BGO is the world's first twitter-controlled observatory.

Dr. Mike Solontoi of Monmouth College gave an animated talk titled *The Large Synoptic Survey Telescope: Your Own 8.4 Meter Telescope* and outlined the challenges and progress of this innovative telescope being constructed in Chile.

Dr. Mike Solontoi

At the conclusion of the Saturday evening banquet, Carl Wenning took the podium to announce several regional award winners. The 2018 Region Award was presented to Roy Gustafson of the Popular Astronomy Club and Lynda Schweikert accepted the 2019 Region Award for John Heasley, Iowa County Astronomers. (See separate article about award winners later in this issue of this of the newsletter.) The first ever Newsletter Editor Award went to Bill Davidson, Rochester Astronomy Club, and the Twin City Amateur Astronomers received the first Membership Recruitment Mini Grant in the amount of $250. He also announced the winner of the NCRAL logo design competition which was Terry Dufek of Popular Astronomy Club. He received 97% of all votes cast.

Lynda Schweikert accepting NCRAL 2019 Region Award on behalf of John Heasley

Dr. Steven Spangler of the University of Iowa gave the keynote presentation *Different Views of the Sky: American Indian Views of Astronomy* which was quite thought provoking as he delved into ancient Indian

Dr. Steven Spangler

cave drawings and the connection to astronomy. Saturday evening ended with a 40-minute drive to Saint Ambrose University's Menke Observatory to see their equipment and do some observing on a clear night.

On Sunday morning, we concluded at Bettendorf High School with a panel discussion led by Mr. Ian Spangenberg, Physics instructor at Pleasant Valley High School. In addition to teaching, Ian has sponsored an after-school astronomy club. The students discussed the general perception young people have about astronomy as a hobby including the costs for equipment, the time it takes, and the various other constraints such as involvement in sports, music, and time for studies. Mr. Chris Like, Bettendorf High School planetarium director, then gave us a tour of the planetarium and showed us some of the student-produced programs that he uses for elementary school visits to the planetarium to learn about the universe.

At the conclusion, Mike Gacioch passed the baton (the door prize buckets) to Jeff Setzer of Northern Cross Science Foundation. They are next year's host for NCRAL 2020 with the theme of *Vision 2020*. We are looking forward to another successful convention hosted by our friends in Port Washington, Wisconsin. See you there next year!

NCRAL Awards & Grants

The NCRAL Region Award is given to a member of the NCRAL who demonstrates extraordinary skill, generosity, and devotion to promoting amateur astronomy and support of the NCRAL events and goals. During NCRAL 2019 we presented the Region Awards for both 2018 and 2019. NCRAL also presented its inaugural Newsletter Editor Award and its first mini grant. Our award winners were as follows:

2018 NCRAL Region Award

Roy E. Gustafson, Popular Astronomy Club

Roy Gustafson has been an active member of the Popular Astronomy Club for 25 years. He has held the offices of treasurer and president. He has done everything from presenting programs to planning banquets to hosting annual club picnics. Roy has been involved in public outreach for decades. He has presented programs at libraries, schools, campgrounds, and museums. He is the "go-to" person for the Rock Island Regional Office of Education and their Star Lab inflatable planetarium. His outreach log, which he started in 2007, currently documents 153 events, 411 hours, and 12,711 participants. Roy received the Master Level Astronomical League Outreach Award in 2015. Roy is shown here along with NCRAL Chair Carl Wenning. Congratulations Roy!

2019 NCRAL Region Award

John Heasley, Iowa County Astronomers

John Heasley was a founding member of the Iowa County Astronomers club. He is currently an Astronomical Educator

with Driftless Stargazing LLC. He is also, a Solar System Ambassador with NASA JPL and a Dark Sky Ambassador for the International Astronomical Union. He promoted the 2017 Great American Solar Eclipse across Wisconsin and Northeastern Iowa, giving presentations at 50 locations (which averaged 25 people per site). He posted articles on social media and in local newspapers across the region. John handed out 1,100 pairs of solar eclipse glasses. He inspired libraries and other organizations to host eclipse events; several of which were highly successful. He is currently traveling the state of Wisconsin promoting the 50th anniversary of the Apollo accomplishments. John was unable to be present to receive the award, so he is shown here receiving the award after the convention from Lynda Schweikert who nominated him on behalf of Iowa County Astronomers. Congratulations John!

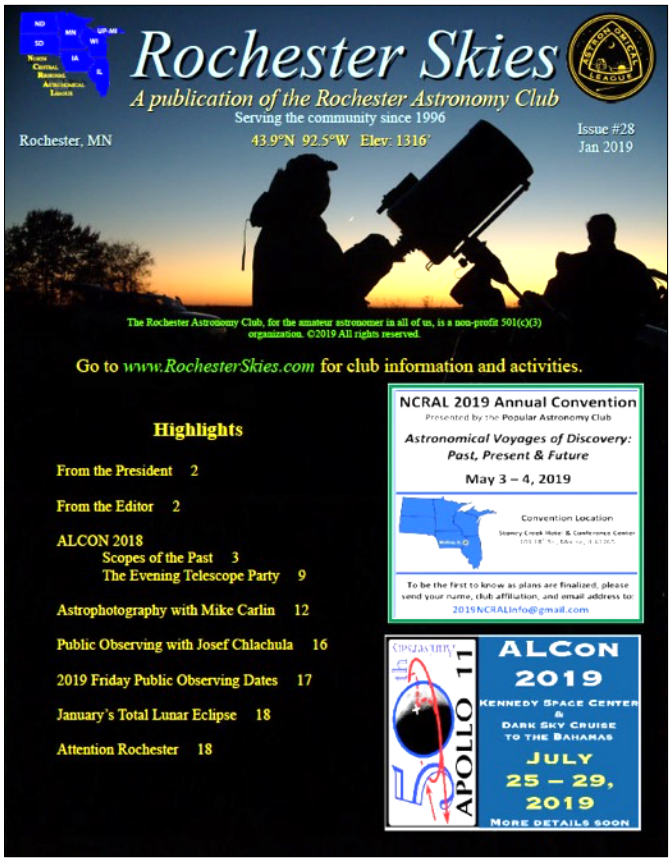
NCRAL Newsletter Editor Award

The NCRAL Newsletter Editor Award is new this year. This recognition is awarded for excellence in content and presentation for a club-level newsletter. It recognizes a critical service by the editor to an NCRAL affiliate that often goes unrecognized and unrewarded. The award includes a certificate for the editor and a $50 prize to the affiliate in recognition of others who also contribute.

2019 NCRAL Newsletter Editor Award

Bill Davidson, Rochester Astronomy Club

Since 2016, Bill Davidson has been the editor of *Rochester Skies,* the newsletter publication for the Rochester Astronomy Club. In 1996, he was a founding club member and has served as the club president. Bill has done an impressive job with a nearly complete overhaul of the newsletter; incorporating more graphics and photographs woven into the article and story content. He keeps his members current with ongoing and upcoming events and displays extraordinary attention to detail and accuracy. The *Rochester Skies* newsletter is published quarterly and is publicly posted on the Rochester Astronomy Club website. Bill is shown here with NCRAL Chair Carl Wenning. Congratulations Bill!



NCRAL Membership Recruitment Mini Grant

The membership recruitment mini-grant is designed to both recruit and retain members of an NCRAL affiliate. This grant is awarded for up to $250.

Twin City Amateur Astronomers, $250

This year the grant money will be used to provide printed copies of the TCAA's 52-page *Guide to Amateur Astronomy* for the club's 3-session course *Introduction to Amateur Astronomy*. The purpose of the course is to help attendees learn all they need to know to become successful amateur astronomers and should not be confused with an astronomy course. Successful completion of the course will result in a free one-year household membership in the TCAA (a $40 value). Congratulations Twin City Amateur Astronomers!

CONVENTION COLLAGE

From upper left to lower right: 1) NCRAL Banner and Diorama; 2) DIY Displays – Jeff Setzer, NCSF – telescope/cell phone adapter; 3) Carl Gamble Observatory – Augustana College; 4) Conference Group; 5) Saturday Banquet Food Line; 6) Panel Discussion with Ian Spangenberg & students; 7) BHS Planetarium Director Chris Like; 8) Pass off of the Door Prize Cans from Mike Gacioch to Jeff Setzer for next year's convention; 9) Mike Gacioch – Convention Chair

MINUTES OF THE MAY 4 REGIONAL COUNCIL & BUSINESS MEETINGS

Stony Creek Convention Center, Moline, IL

The Regional Council meeting was called to order at 8:00 am by Chairman Carl Wenning. A quorum was present.

Officer Reports

Carl summarized the events of the past year. He described three motions recently approved by the Regional Council via electronic vote. The Council:

1) agreed to pay to remove advertising from the NCRAL website.
2) agreed to partially fund Chair and Regional Rep. to attend national council meetings.
3) formalize a profit-sharing agreement in convention planning guidelines.

Bill Davidson gave a brief statement about ongoing work in relation to proposing Bylaw amendments to simplify and clarify operating procedures and indicated that suggestions would likely be available by the end of summer for our consideration. There being no additional business to be brought before the Region Council, the meeting was adjourned.

Carl called the Regional Business meeting to order. A quorum was present. In his President's Report Carl noted the following:

- Completion of two convention surveys and formalization of convention planning guide.
- Implementation of newsletter editor award, two mini grants, and logo design process.
- ALCon 2018 was hosted by MAS; there were several AL award winners; and ***Reflector*** articles by NCRAL members.
- ***Northern Lights*** published without interruption for 3 years running.

Vice Chair John Attewell reported that two Region Awards would be presented this year (for both 2018 and 2019), as well as the inaugural Newsletter Editor Award and NCRAL Mini Grants.

Secretary-Treasurer Roy Gustafson reported that the minutes had been sent out earlier and called for formal approval. They were formally approved without amendment. He then indicated a balance of $9512.08 in the treasury.

Old Business

Carl reminded members to cast their ballots for the NCRAL logo design contest, the winner of which would be announced at that evening's banquet.

New Business

The 2019 convention chair, Mike Gacioch, reported there are 87 registrants at the conference including 5-6 students.

Calls for nominations for positions of Chair and Vice Chair were then made. There being no new nominations, the nomination process was closed. An election of officers was the held. Carl Wenning was elected for a second 2-year term as Regional Chair. It was agreed that Regional Rep. Bill Davidson could serve in that capacity as well as Vice Chair. He was subsequently elected for 2-year term as Vice Chair. (Roy Gustafson has a 3-year term, so we did not vote for Secretary-Treasurer.) Carl thanked John Attewell who was stepping down after two years as Vice Chair.

Carl led a discussion about two observing program proposals. It was agreed that Carl should move ahead with developing an NCRAL seasonal Messier marathon, possibly including the use of GOTO telescopes. It was further moved and seconded to give pins as well as certificates for this seasonal marathon. Carl also suggested having an Astronomical Bucket List of 300 objects. It was agreed that Carl should resubmit his early proposal to the AL for approval with him serving as coordinator. If the AL rejects the program for a second time for "not being an observing program," NCRAL will consider adopting the program as its own.

Future NCRAL conventions will be held as follows: 2020 - Port Washington, Wisconsin; 2021 Green Bay, Wisconsin; 2022 – Open; 2023 – Twin City Amateur Astronomers, Bloomington/Normal, Illinois; 2024 – Open. President and Convention Chairman Jeff Setzer extended an invitation for everyone to attend the 2020 Convention in Port Washington, WI. It will be held May 2-3, 2020. The theme of the convention will be "NCRAL Vision 2020."

Announcements & Adjournment

- Only 371 of some 1850 NCRAL member are registered for the NCRAL email database. Carl encouraged us to sign up.
- Carl said to watch our email for a post-convention survey arriving within a week.
- Carl talked about ALCON 2019, which is being held in Florida with a 3-day cruise. The theme is the 50th anniversary of the Apollo moon landing.
- Jim Small from MSRAL, St. Louis, said they are thinking about copying NEAF, the 2-day New York convention with 5000 attendees and 180 vendors.
- It was moved and seconded to adjourn at 9:02 am. Motion carried.

Respectfully submitted,
Roy Gustafson, Secretary-Treasurer

TREASURER'S REPORT

NCRAL Financial Statement 2018 – 2019

Check #	Date	Description	Check Amount	Deposit	Daily Balance	Monthly Balance	
	20-Aug-2018	Open new Acct. - S.E. National Bank, Moline, IL		$5,000.00	$5,000.00	$5,000.00	Aug
1001	4-Sep-2018	Carl Wenning - attend A.L. Council Mtg.	$250.00		$4,750.00		
1002	4-Sep-2018	William Davidson - attend A.L. Council Mtg.	$250.00		$4,500.00		
	4-Sep-2018	Deposit from rest of NCRAL Account (US Bank) by Don Klempt minus $5.00 fee for closing account		$5,012.08	$9,512.08		
	30-Sep-2018					$9,512.08	Sep
	31-Oct-2018					$9,512.08	Oct
	30-Nov-2018					$9,512.08	Nov
	31-Dec-2018					$9,512.08	Dec
	31-Jan-2019					$9,512.08	Jan
	28-Feb-2019					$9,512.08	Feb
	31-Mar-2019					$9,512.08	Mar
	30-Apr-2019					$9,512.08	Apr
1003	1-May-2019	Rochester Astronomy Cub (Newsletter Editor Award)	$50.00		$9,462.08		
1004	1-May-2019	Twin Cities Amateur Astronomers (mini grant)	$250.00		$9,212.08		
1005	1-May-2019	Carl Wenning (2 plaques, FedEx shipping (LOGO ballet))	$191.50		$9,020.58		
1006	4-May-2019	Charlotte DuPree (shipping 2017 award)	$9.90		$9,010.68		
1007	4-May-2019	Terry Dufek (LOGO Winner)	$75.00		$8,935.68		
1008	4-May-2019	Dave Sheber (LOGO 2nd place)	$37.50		$8,898.18		
1009	4-May-2019	Jeff Setzer (Website)	$99.00		$8,799.18		
	31-May-2019					$8,799.18	May

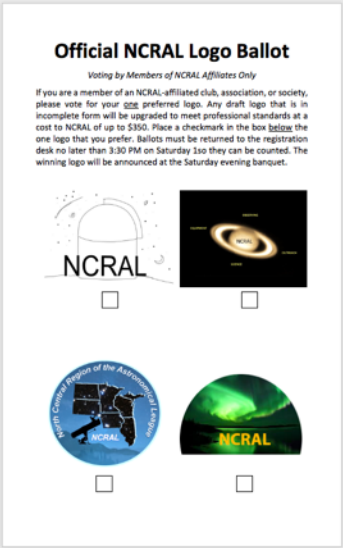
Respectfully submitted,
Roy Gustafson, Secretary-Treasurer

NCRAL Logo Contest Winner

Terry Dufek of the Popular Astronomy Club won the vote for the best draft version for the new NCRAL logo. Of all the ballots cast during NCRAL 2019, Terry's version received an astounding 97% preference rate. Second place was a tie between Dan Sheber (NEWSTAR) and Carl Wenning (Twin City Amateur Astronomers). Terry is shown on the below receiving his $75 award for winning the draft design logo contest. Congratulations Terry!

A total of seven drafts by four individuals were proposed over the course of the logo contest. In addition to our first-place and runner-up winners, receiving honorable mention was Alan Sheidler (Popular Astronomy Club).

At the time of NCRAL 2019, work on the logo is not yet complete. Two rounds of votes (the first conducted online and the second at NCRAL 2019) resulted in the best draft. Following a request for some minor changes, the logo variations were sent to the Regional Council (affiliate presidents and ALCors) for a vote that determined the final form of the official NCRAL logo.



Official NCRAL Logo Approved by Regional Council

Terry Dufek of Popular Astronomy club and winner of the draft NCRAL logo design competition, made some minor alternations to the draft version following NCRAL 2019.

He made two revisions at the request of the Regional Chair as follows: (1) put legs on the telescope pier and moved it down so as not to "crowd" the map, and (2) moved "NCRAL" from just under the map to the bottom with the NCRAL lettering plotted along a radius.

Two variations of the draft logo (one with a large and one with a small NCRAL) were sent to the Regional Council on May 17th for review and final selection. On May 24th it was determined by an online vote of the presidents and ALCors of NCRAL-affiliates that the version shown here will be adopted as first official NCRAL logo.

NCRAL affiliates are encouraged to use this logo (in addition to the AL logo) on their newsletters, publications, brochures, letterhead, and so forth. Contact the Chair of NCRAL at carlwenning@gmail.com if you'd like to receive a high-resolution image file.

OTHER RECENT ACTIONS BY NCRAL REGIONAL COUNCIL

In addition to approving NCRAL's first official logo, the Regional Council recently accomplished two additional actions following NCRAL 2019. The Council (1) approved Bill Davidson as Interim Regional Representative to the Astronomical League, and (2) reviewed, provided suggestions for, and approved the 2018-2019 Region Report which NCRAL must submit to the AL national office prior to the start of ALCon 2019 in July. The Report can be found further on in this issue of ***Northern Lights***.

2019 NCRAL MEMBERSHIP RECRUITMENT MINI GRANT

Pursuant to the requirements for transparency in all NCRAL approved mini grants, the Twin City Amateur Astronomers (recipients of $250 at NCRAL 2019) provided the following information about their grant:

Please describe the proposed recruitment and retention activities.

In 2015, TCAA member (and now NCRAL Chair) Carl Wenning wrote a 56-page guide titled *Introduction to Amateur Astronomy* (TCAA Guide #1). This guide explains what one needs to know to become a practicing amateur astronomer; it should not be confused with an astronomy textbook. The TCAA has used this guide three times as the basis of a course introducing members of the general public to the hobby of amateur astronomy – how to use eyes, binoculars, and telescopes to view celestial objects. The course and its resources (we train everyone using a CPC 11" GOTO telescope under a motorized 10' dome; those who become club members receive an observatory key) are valuable adjuncts to gaining and keeping new members. We will use this mini-grant to print as many copies of TCAA Guide #1 as possible thereby decreasing the cost of enrolling in the course and increasing the likelihood that more non-members will take the course and become active members of the TCAA. We will use a series of 8 public observing sessions this summer (typically attended by 50 to 100 enthusiasts) to recruit participants for an autumn course. The course will be taught the Illinois State University Planetarium with follow-up observing and telescope training at Sugar Grove Nature Center, a dark-sky location where we maintain two observatories.

Please explain the extent to which these activities would be replicable by other NCRAL affiliates.

This proposed process for recruiting and retaining new astronomy club members can be easily replicated by other NCRAL affiliates. TCAA Guide #1 publication is available on the TCAA website (and has been both described and offered through the NCRAL's ***Northern Lights*** newsletter). Affiliates would merely need to download the document and get the publication printed and bound, and then offer a course in introductory amateur astronomy which most affiliates should be readily able to do. The Guide #1 is available at: http://tcaa.us/Download/Intro_to_Amateur_Astronomy.pdf

Describe benchmark and baseline data that you will use to determine if the proposed activities are successful.

In the past, we have had about 8-10 people attend each of our three *Introduction to Amateur Astronomy* courses. Typically, we get 2-3 members of the course to become active club members of the TCAA and regular observers. Our goal would be to at least double the number of people attending an autumn 2019 course (and future courses) and at least double the number of participants who become active TCAA members as a result of that course.

Please explain in detail how you expect the mini-grant's funds to be spent given restriction to contractual and commodity expenses.

We will be using 100% of the funds allocated for contractual printing services. We will use Kinko's to print, provide covers for, and bind the TCAA Guide #1 publication. We will purchase as many guides as possible given the allocation. Guides typically cost about $8-$10 each, so we should be able to print anywhere from 25 to 30 copies, the number we will need for a larger autumn 2019 *Introduction to Amateur Astronomy* course.

Feel free to address any of the other factors that you feel should be taken into account by proposal reviews that relate to the merit of the proposal (feasibility of activities, likelihood of success, and potential impact on the Region).

Participants will be asked to pay a substantially lower registration fee for this course as compared to the past. The former fee was $25/household; the new fee will be $15/household due to the cost savings on printing. Only one printed copy of the guide will be made available to each household

ABRIDGED NCRAL REGION REPORT

July 1, 2018 – June 30, 2019

Carl J. Wenning, Regional Chair

Region Administrative Updates:

- Paid to remove advertising from our WordPress website: http://ncral.wordpress.com/
- Completed third year of publishing four consecutive issues of ***Northern Lights***, the region's quarterly newsletter. Back issues are accessible on the Region's website at https://ncral.wordpress.com/newsletter-archive/
- Approved $250 allocations for both the Regional Chair and the Regional Representative to attend the AL National Council meeting. (Previously, only the Regional Representative was funded.)
- Chose a draft NCRAL logo using a contest in which there were 7 entries. The finalized logo has been adopted by a vote of the Regional Council.
- Developed a small grant program for membership recruitment for a selected affiliate.
- Developed a small grant program for affiliate recruitment for Astronomical League and by default NCRAL. (There were no applicants for this grant in 2019.)
- Developed the content for a draft NCRAL affiliate recruitment brochure.
- Developed and conducted a survey of the NCRAL membership specifically focused on why many members do not attend Regional meetings and attempt to find what it takes to increase participation from the section of the membership.
- Developed and conducted its second post-regional convention survey of participants of NCRAL 2019 in an effort to conduct an evaluation and improve future offerings. The 33-item survey is available by contacting the Regional Chair.
- Updated its NCRAL *Convention Planning Guidelines* based on an NCRAL 2019 post-convention survey. Available online at https://ncral.files.wordpress.com/2018/11/ncral-convention-planning-guidelines.pdf

Notable Awards:

- Terry Dufek of Popular Astronomy Club (Illinois) received the Astronomical League's *Mabel Sterns Newsletter Editor Award* for 2018 during ALCon 2018 at Minneapolis, MN.
- Roy E. Gustafson of Popular Astronomy Club (Illinois) received the *2018 NCRAL Region Award.*
- John Heasley of the Iowa County Astronomers (Wisconsin) received the *2019 NCRAL Region Award.*
- Bill Davidson of Rochester Astronomy Club (Minnesota) won the (inaugural) *2019 NCRAL Newsletter Editor Award* for producing *Rochester Skies*.
- The Twin City Amateur Astronomers (Illinois) received the first *NCRAL Mini Grant for Membership Recruitment* ($250). (The *NCRAL Mini Grant for Affiliate Recruitment* went unclaimed.)
- Dave Falkner and Valts Treibergs from the Minnesota Astronomical Society won the Astronomical League G. R. Wright Award for Volunteerism for their work on the 2018 ALCon event.
- Benedict Althoff, La Crosse, Wisconsin, won the Horkheimer/O'Meara Journalism Award for "Memories of the Great American Eclipse"
- Jean Napp, member of the Iowa County Astronomers of Wisconsin, won the 2019 Poetry Award – Adult Category sponsored by Astronomers Without Borders.

NCRAL Member Accomplishments:

- Four Regional authors had seven articles published in the Astronomical League's ***Reflector*** magazine during the past four quarters:
  - Jamey L. Jenkins, Twin City Amateur Astronomers, *Adventures of a Starlight Detective,* June 2018.
  - Carl Wenning, Twin City Amateur Astronomers, *Sea Changes in NCRAL,* September 2018.
  - Dave Tosteson, Chicago City, Minnesota, *White Snow and the Seven Dwarves,* September 2018.
  - Dave Falkner, Minnesota Astronomical Society, *ALCON 2018 in Review,* September 2018.
  - Dave Tosteson, Chicago City, Minnesota, *Things to a Void: Some Parts of the Universe are Emptier than Others,* December 2018.
  - Jamey L. Jenkins, Twin City Amateur Astronomers, *Basic Small-Scope Lunar Imaging,* March 2019.

  - Dave Tosteson, Chicago City, Minnesota, *The Cosmic Web: I Life My Eyes to the Heavens Whence Comes My Joy,* March 2019.
- Numerous members earned AL observing club pins and certificates.

NCRAL 2019 Regional Convention:

Astronomical Voyages of Discovery: Past, Present & Future was the theme of the NCRAL 2019 Regional convention held May 3-5, 2019 at the Stoney Creek Hotel and Convention Center in Moline, IL. The event was hosted by Popular Astronomy Club. There were 88 registrants in attendance. New this year were events on Thursday afternoon and evening and Sunday morning.

Affiliate Activities:

- The Minnesota Astronomical Society (Minnesota) hosted ALCon 2018 at Minneapolis, Minnesota, July 11-14.
- The Minnesota Astronomical Society celebrated Spring and Fall Astronomy Day with special daytime activities and observing.
- The Champaign-Urbana Astronomical Society (Illinois) had a regional park recognized by the International Dark-Sky Association as a dark-sky site.
- The Champaign-Urban Astronomical Society (Illinois) hosted an *Astronomy Jamboree* for astronomy club members from around central Illinois during September.
- The Twin City Amateur Astronomers (Illinois) installed a 24” AG Optical telescope at their Waynesville Observatory.
- The Door Peninsula Astronomical Society (Wisconsin) replaced their 14" Celestron Schmidt-Cassegrain telescope with a 16" Ritchey-Chrétien telescope with a 7" Maksutov-Cassegrain piggybacked for planetary viewing in the Leif Everson Observatory.
- The Door Peninsula Astronomical Society (Wisconsin) replaced its inflatable dome planetarium with a new Digitalis inflatable planetarium and has already provided both on-site and off-site outreach with this equipment.

Star Parties:

- The Wisconsin Observer’s Weekend was held at Hartman Creek State Park near Waupaca, WI.
- The Iowa Star Party was held at the Whiterock Resort in Coon Rapids, IA.
- The Illinois Dark Skies Star Party was hosted by Sangamon Astronomical Society and held at the Jim Edgar Panther Creek State Fish & Wildlife Area in west central Illinois.
- The Minneapolis Astronomical Society hosted Camping with the Stars @ Eagle Lake Observatory in Norwood-Young America.

Objectives for 2019-2020:

The current objectives for 2019-2020 is to increase individual memberships in NCRAL-affiliated clubs, societies, and associations, to promote the regional affiliate’s involvement in NCRAL events, and increase the number of astronomy clubs participating in the Astronomical League and, by default, the Region. At its annual business meeting at NCRAL 2019 in Moline, IL, the Region’s leadership sought and obtained approval to set the following objectives for 2019-2020:

- Continue development of the *Astronomical Bucket List* and re-submit to the Astronomical League for re-consideration after being rejected earlier as being “not an observing list.” If this proposal fails to be accepted a second time, then the Region will consider adopting the program as its own.
- Develop four check-off-list *Mini Messier Marathon* observing programs, each with a seasonal basis and including both pins and certificates. (The program’s observations will not be designed to qualify observers for the AL Messier Certificate.) A detailed proposal will be sent to the Regional Council for approval.

Added to the above list after the convention was an objective to investigate and obtain, if possible, Federal 501(c)(3) non-profit status so that contributions to the Region will become tax-deductible to the extent permitted by Federal law.

Respectfully submitted,
Carl J. Wenning
NCRAL Chair (2017-2021)

Come Walk with Me

Come walk with me tonight, my child;
We'll keep the hearth fire burning.
And wrap up snug against the cold —
We won't be late returning.

We'll pass through pine groves dark and still
To reach the treeless prairie
Where ancient stories 'bout our heads
Call us to gaze and tarry.

The twins are hiking side by side.
A long-horned bull is prancing.
Two kids rest sweetly by their doe
Near seven sisters dancing.

Our winter friends will be replaced
By springtime stars, west creeping:
Where lions hunt beside the pond,
Gazelles, alarmed, go leaping.

The slinking water serpent slips
Along the tree tops gliding;
The crow and goblet on its tail
Haphazardly are riding.

Soon rising in the east so bright
The hook where hangs the lyre
Predicts tall tales of centaurs, whales,
And sea goats told 'round fires.

Reluctantly towards warmth we'll turn,
Our rapid steps belying
Our longing to remain and watch
The eagle and swan flying.

by Jean Napp

Starsplitters of Wyalusing
Iowa County Astronomers

Winner of the NCRAL 2018
Poetry Contest
Sturgeon Bay, WI

Winner of the 2019
Poetry Contest
sponsored by
Astronomers Without Borders

Congratulations Jean!

SOME ASTRONOMICAL HEROES

by Jamey Jenkins, Twin City Amateur Astronomers

It has been over fifty years now that I've embraced astronomy as a passion. The story began when photos of the planets Saturn, Jupiter, Mars, and Venus in a science text book caught the attention of a curious 12-year old. Then the following year my mother answered the pleas of her son to spend the ninety-five cents required for the purchase of a 112-page paperback titled, *Exploring Space with Astronomy*. This book became my "bible" to astronomy. Much later, I discovered that the author of that book, Lloyd Mallan (1914-1973) had written numerous other space and hobby titles. Over the years some of those paperbacks also found their way onto my book shelves. I guess when I look back on it; Mallan was my first astronomical hero. He succeeded via his writings of planting within that 12-year old an astronomical seed, nurturing it, and encouraging it to grow. Somehow, I think that was his intended purpose. Well done, Mr. Mallan!

Other individuals, more than a few historical figures and some personal acquaintances, have kept the curiosity alive and mentored me along the way. I want to present in these pages a selection of brief biographical notes and comments about *some* of my personal astronomical heroes; people that through their passions have passed on the thrill of science, astronomy in particular. Perhaps you too might contemplate your astronomical journey, and thereby appreciate more so those individuals who over the years have influenced you.

Galileo Galilei

A required book report was how I was introduced to the Italian astronomer Galileo Galilei. A man of science, his explorations into astronomy were revolutionary and thought changing. Known as the father of observational astronomy, Galileo became a telescope maker after hearing of the recent invention by the Netherlands' optician Hans Lippershey. His application of the telescope to viewing the heavens around 1609 led to many eureka moments. Other than the general appearance of the mountainous, crater strewn moon, Galileo's astronomical discoveries include Jupiter's four largest moons, the phases of Venus, structures confirmed as Saturn's rings, and miraculously an unknown observation of Neptune. He also observed sunspots and telescopically the Milky Way. The astronomer's eventual blindness may well be attributed to an unsafe technique of solar observing.

Galileo lived at a time when various beliefs were on a collision course. Ancient natural philosophy and the Catholic Church were at opposition to the ideas of Galileo and his contemporaries. Although science proved Galileo correct, for his convictions he suffered the final years of his life under house arrest. The story of Galileo Galilei is magnetic to me; his eyes being the first to gaze upon the celestial bodies I still find amazing. Galileo in my opinion has deserved hero status.

Clyde Tombaugh

Figure 1. A vintage photo of Clyde Tombaugh at his homemade 9-inch Newtonian reflector near 1928. Image copyright Astronomy Magazine.

I remember stumbling upon Clyde Tombaugh during high school study hall. A wholesome habit of browsing the encyclopedia after completing my school assignments led me to a short biographical sketch inside the *astronomy* section of the "A" book.

Tombaugh was an amateur astronomer, telescope maker, and native from Streator, Illinois. The farm boy spent much of his leisure time reading, building telescopes, and observing the heavens, activities with which I could identify. Then his story while quite typical in the astronomical world became awesome – a job offer at Lowell Observatory and the discovery on February 18, 1930 of a new "planet" in the constellation Gemini. That interloper was Pluto!

In much later times I read David Levy's biography, *Clyde Tombaugh: Discoverer of Planet Pluto,* a book heartily recommended for aspiring observers. In those pages, besides Clyde's early years we relive the astronomer's activities following the discovery of Pluto: galaxy distribution studies, war time projects, and astronomy at White Sands. For me, a young Midwest amateur astronomer, Tombaugh became an inspiration as well as an astronomical hero.

George Ellery Hale

Modern astronomy owes more to George E. Hale (1868-1938) than any other visionary. You cannot delve into astronomical history without stumbling into Hale somewhere

along the way. Let me list some of his accomplishments: Hale is responsible for building three world class observatories, Yerkes in Wisconsin and in California, Mt. Wilson and Mt. Palomar. He created the National Research Council, established the California Institute of Technology, and founded the American Astronomical Society, the International Astronomical Union, and the *Astrophysical Journal.* As an observer Hale invented the spectroheliograph, while discovering the magnetic fields of sunspots. Whatever Hale did, he did it in a big way.

Hale like Tombaugh was an Illinoisan, born in Chicago in 1868 where as a young man he established his first facility, Kenwood Observatory featuring a 12-inch Brashear refractor and an on-site laboratory. I don't remember when or where I first heard about Hale, but his biography *Explorer of the Universe* by Helen Wright is the definitive study on his life. Read this book if you want to deeply explore the life of this man, but just as interesting in the book you will find the people he connected with during his journey. So many shakers and movers, and Hale became the biggest of them all!

Walter Semerau

Some folks just naturally deserve hero status when you discover their accomplishments. For me Walter J. Semerau is one of those people. Semerau was an amateur astronomer and member of the Buffalo Astronomical Association (New York) during the 1950-1970s. He would easily be classed as an advanced amateur, instrument builder, and astrophotographer rolled into one. Solar astronomy has been an interest for most of my time in this hobby, and Semerau was one of the few observers assuming the lead in this specialized field. In the history of the Buffalo Astronomical Association an excerpt describing member's backyard observatories reads as follows: "Several have their own backyard observatories. One in particular, Walter Semerau, built a fully equipped solar observatory, including a spectrograph, spectroheliograph and coronagraph. With this equipment, first located in his back yard and later in his cellar, he has done work comparable to that of some of the world's foremost solar observatories." Over the years Semerau published a variety of works in *Scientific American* and *Sky and Telescope* magazines.

Although I never had the pleasure of meeting Mr. Semerau, I did exchange a modest amount of correspondence with him. He offered encouragement to this novice observer, as well as detailed descriptions of his equipment and observing techniques. Semerau was an observer that followed the usual course in astronomy until he reached the limitless bounds of astrophysics. At that point he set sail and discovered a new and exciting set of observing opportunities.

Howard F. Zeh

Figure 2. A photo the author took in 1980 of Howard F. Zeh in his backyard observatory with the orange tube 14-inch Celestron telescope.

It was an article in *Sky and Telescope* magazine in 1968 that brought to my attention the astrophotography of Howard F. Zeh from Toledo, Ohio. A competent deep sky imager, he was a master of lunar and planetary astronomical photography. Remember this was a time when film was the only recording medium. Besides being skilled at the telescope, the astrophotographer also had to be a wizard in the darkroom. I soon discovered Howard was this and more. A talented home machinist, he constructed much of his own equipment, and when necessary deftly modified the limited commercial products available. Because he worked as a TV/radio repair man, Howard even designed and built his own electronic guiding equipment.

Over a nearly 20-year period we exchanged hundreds of

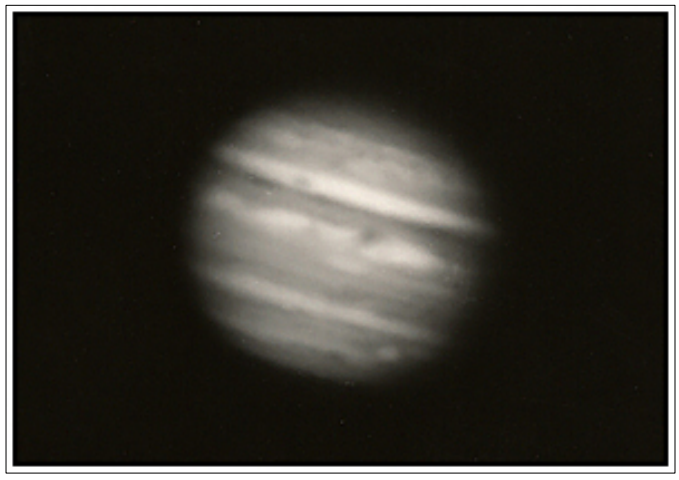


Figure 3. Jupiter as photographed by H.F. Zeh through his 14-inch Celestron on a single film frame. Circa 1980.

pen pal type letters. Other than being a resource for astronomy and photography matters, we spoke sometimes of life's other designs. More than a few times a package would arrive at my doorstep containing perhaps a roll of the latest super film, or maybe a filter not available at my local camera store. Howard was a generous and supportive individual, a true mentor.

A highlight of our friendship was the afternoon and evening my wife and me spent visiting and observing with Howard at his new home in Temperance, Michigan. Taking a side trip while on vacation in the early 1980s, we found ourselves cordially welcomed, spending the day chatting and enjoying my wife's concert on the Howard's custom electronic organ. Howard had built the organ in his spare time to augment an interest in music recording. Late that evening was spent observing from his backyard observatory through a 14-inch Celestron telescope.

If Howard were still with us, I know he would be embracing today's digital technologies so common in astrophotography. Our friendly correspondence had already advanced from a Smith-Corona typewriter to a dot matrix printer. Simple CCD cameras and Personal Computers were just in their infancy.

In Retrospect

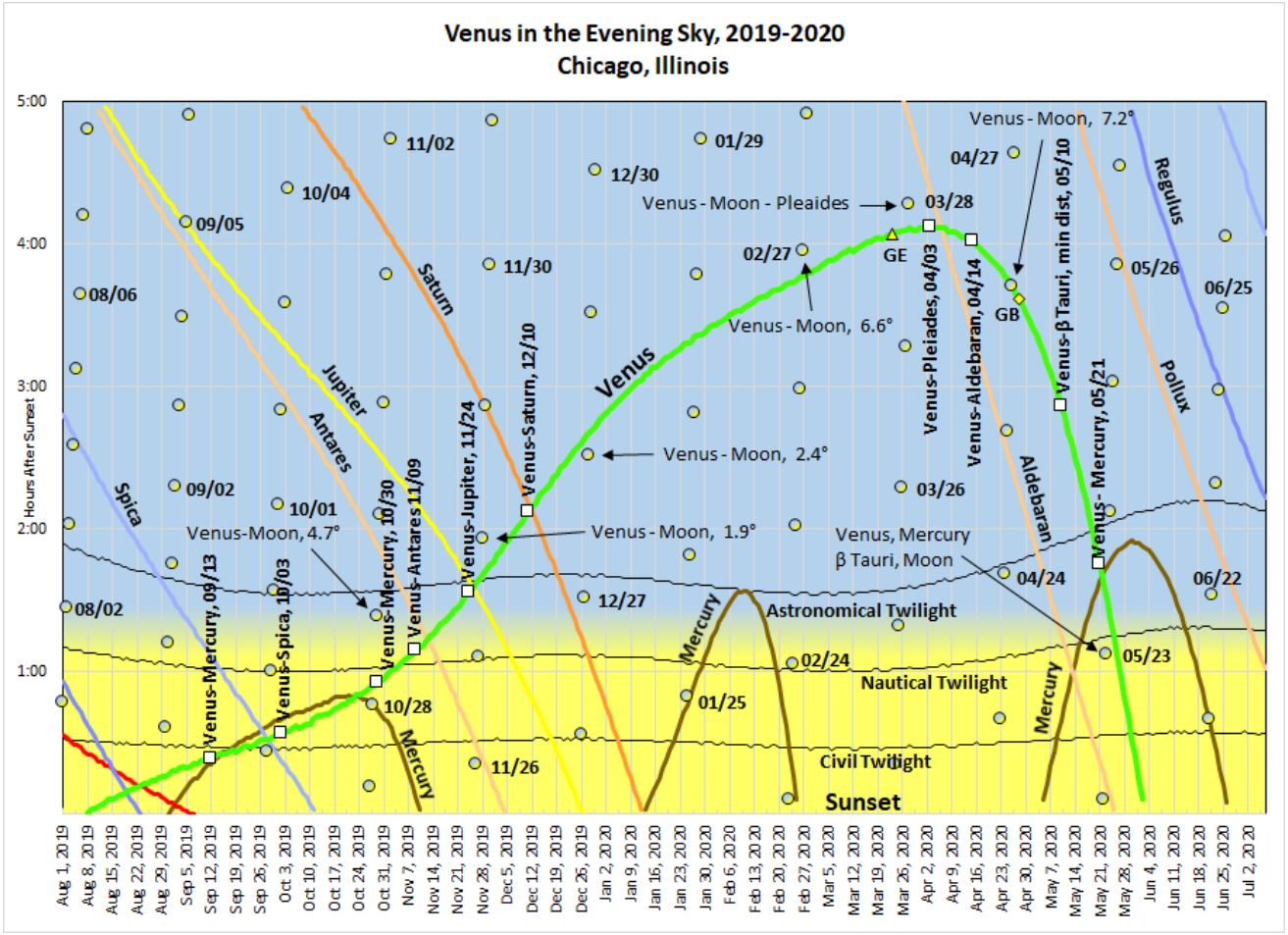
For me this journey back in time has been sentimental. Truthfully, I could have made this list longer and still omitted several observers which have made lasting impressions.

But what about you, do you have astronomical heroes in your past? Do you think about them when venturing out under a brilliantly starlit night?

One interesting web page highlighting heroes of astronomy can be found here: https://cosmos-book.github.io/unsung-heroes/index.html. If you have one or more favorites, suggest that they be included. Maybe someday you also will be an astronomical hero to an aspiring observer.

VENUS AS AN EVENING STAR, 2019-2020

~ by Jeffrey L. Hunt ~



Venus shines as a brilliant evening star during late 2019 and early 2020. The apparition includes conjunctions with Jupiter and Saturn that occur within a month. Then Venus moves past Neptune and Uranus. The appearance includes a close conjunction with the Pleiades and a quasi-conjunction with β Tauri. The apparition ends as Venus dives toward inferior conjunction and has a conjunction with Mercury, followed by a pretty grouping of the two planets, β Tauri, and the moon.

The young lunar crescent's appearance with Venus is always an exciting time to view and photograph the brilliant planet and the moon displaying Earthshine. The best view occurs on November 28, when the pair is 1.9° apart.

The chart above shows the setting time of Venus compared to sunset along with other bright stars near the ecliptic and the moon. The chart is constructed from data from the U.S. Naval Observatory for Chicago, Illinois. Setting time intervals of Venus are noted in the daily entries that follow so that observers at other locations can determine the times for their observing circumstances. When the Venus line crosses the lines of other objects, they set at the same time. A conjunction occurs near the intersection. If a moon circle is near one of the setting lines, a conjunction may occur on that date, or on the day before or day after the date the moon and that object are plotted together.

It is important to note that because two objects set at the same time, they may not appear close together in the sky. Two objects that are far apart in the sky can set at the same time. Because objects have been selected for the chart that are near the ecliptic, close conjunctions might occur. While Antares, Aldebaran, and Pollux generally lie near the ecliptic, the conjunctions with planets usually have gaps of several degrees.

In the daily notes that follow, five numbers are included that describe some Venusian observational characteristics. They include, the apparent magnitude of Venus; the planet's apparent size in arc seconds; the phase of the planet displayed as a percentage of the planetary disk that is illuminated; the distance to Venus from Earth in Astronomical Units; and the time difference in minutes between sunset and the setting of Venus.

Venus passes superior conjunction at 1:07 a.m. CDT on August 14, 2019, nearly 1.3° north of the sun. Because of the time, the conjunction is invisible in the Central U.S., but Venus can be found with optical assistance in a clear sky northeast of the sun after it rises that morning. Of course, great care must be taken for visual observations of the planet in close proximity to the sun.

Early in the apparition events occur that are difficult to observe but are worth noting. Six days after its solar conjunction, Venus passes 1° to the upper right of Regulus (α Leo, m = 1.3). A few days later, Venus passes 0.3° above Mars as the Red Planet heads towards its conjunction. On September 13, Venus is 0.3° to the upper left of Mercury. Venus is only 2° up in the west, 15 minutes after sunset. On September 21, Venus sets at Civil Twilight, when the sun is 6° below the horizon. On October 3, Venus passes 2.8° to the upper right of Spica (α Vir, m = 1.0). Just 10 minutes after sunset, Venus is 4° up and Spica is less than 2° in altitude. On October 7, Venus is 15° east of the sun, setting 36 minutes after sunset. On October 20, Venus passes 0.2° below Zubenelgenubi (α Lib, m = 2.8). Twenty minutes after sunset, Venus is 4° up in the west-southwest.

Venus Emerges into Bright Evening Twilight

Venus continues to climb into bright evening twilight in the southwestern sky. It is headed toward a conjunction with Jupiter in about a month.

- **October 27**: (m = −3.8, apparent size 11", 94% illuminated, distance 1.58 Astronomical Units, sets 53 minutes after sunset) Venus is 20° east of the sun, setting 53 minutes after sunset.
- **October 29**: (−3.8, 11", 94%, 1.57 AU, 55m) Venus and the crescent moon (1.8 days old, 4.4% illuminated) are 4.7° apart. Thirty minutes after sunset, the moon appears to the upper left of Venus, only 4° up in the southwest.
- **October 30**: (−3.8, 11", 94%, 1.57 AU, 56m) Thirty minutes after sunset, Venus, 4° up in the southwest, appears 2.5° to the upper right of Mercury (m = 0.4). This is the second conjunction during this apparition of Mercury. Use a binocular to view the planetary pair.
- **November 1**: (−3.8, 11", 94%, 1.56 AU, 59m) Venus moves into Scorpius. While Scorpius is a large constellation, the section the ecliptic cuts through is short. Venus traverses the constellation in a week.
- **November 4**: (−3.8, 11", 93%, 1.55 AU, 62m) Thirty minutes after sunset, Venus, about 5° up in the southwest, is 1.5° to the lower left of Graffias (β Sco, m = 2.5). Venus sets at Nautical Twilight, when the sun is 12° below the horizon. Tonight that's 62 minutes after sunset.

Venus – Jupiter Conjunction

For the second time during this apparition of Jupiter, Venus passes the Giant Planet. Watch Venus move into Ophiuchus and then it passes Jupiter on the edge of Sagittarius. The next conjunction is February 11, 2021, but the planets rise during bright morning twilight. On April 30, 2022, the planets rise into the eastern sky about 90 minutes before sunrise 29'

apart, an Epoch Conjunction. During the current apparition, Venus and the moon have a very nice pairing (1.9°) near the end of November. Follow the progress of the 2019 Venus – Jupiter conjunction during November:

- **November 8**: (−3.8, 11", 93%, 1.53 AU, 67m) Venus moves into Ophiuchus, 16° to the lower right of Jupiter.
- **November 9**: (−3.8, 11", 92%, 1.53 AU, 69m) Thirty minutes after sunset, Venus, nearly 6° up in the southwest, is 3.9° to the upper right of Antares (m = 1.0). The Venus – Jupiter (m = −1.9) gap is 15°.
- **November 13**: (−3.8, 11", 92%, 1.51 AU, 75m) Thirty minutes after sunset, the Venus – Jupiter gap is over 10°. Venus is 6° up in the southwest.
- **November 16**: (−3.9, 11", 91%, 1.50 AU, 80m) Venus is 25° east of the sun. Thirty minutes after sunset, it is 7° in altitude in the southwest.
- **November 19**: (−3.9, 11", 91%, 1.49 AU, 84m) Forty-five minutes after sunset, the Venus – Jupiter gap is about 5°. Venus is 4° up in the southwest. The separations until the conjunction: **Nov 20**, 3.9°; **Nov 21**, 2.8°; **Nov 22**, 2.1°; **Nov 23**, 1.5°, Venus is to the lower left of Jupiter.
- **November 23**: (−3.9, 11", 90%, 1.47 AU, 92m) Venus moves into Sagittarius.

November 24, 2019: The Venus – Jupiter conjunction occurs when Venus is 1.4° to the lower left of Jupiter.

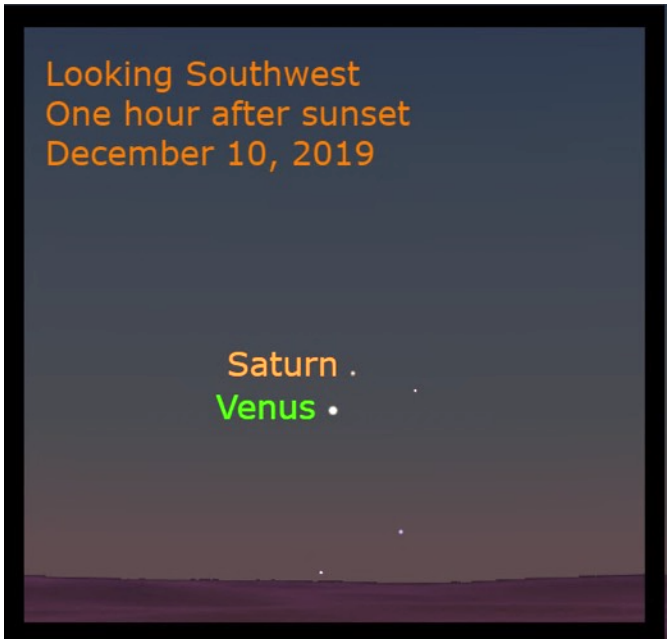
- **November 24**: (−3.9, 11", 90%, 1.47 AU, 93m) Venus – Jupiter conjunction! Forty-five minutes after sunset, Venus, nearly 7° up in the southwest, is 1.4° to the lower left of Jupiter (m = −1.8). This evening, Venus sets at its southern-most azimuth, 236°. It sets here until December 1. The planet is nearly 1.5° below the ecliptic. The Venus – Jupiter separations after conjunction: **Nov 25**, 2°, Venus is to the left of Jupiter; **Nov 26**, 2.8°; **Nov 27**, 3.7°, Venus is to the upper left of Jupiter; **Nov 28**, 4.7°.
- **November 26**: (−3.9, 11", 90%, 1.46 AU, 97m). As twilight progresses, attempt to locate Venus 0.6° to the lower left of the Lagoon Nebula (M8, NGC 6530). This is certainly a stretch with the nebula low in the sky and during latter twilight. Venus is 5° up in the southwest, 1 hour after sunset. This evening Venus sets at the end of twilight when the sun is 18° below the horizon. Venus sets after the end of evening twilight until May 19, 2020.
- **November 27**: (−3.9, 12", 89%, 1.45 AU, 99m) Thirty minutes after sunset look for the crescent moon (1.3d, 2%), about 5° up in the southwest. It is nearly 11° to the lower right of Venus, with Jupiter between them, but Jupiter is closer to Venus.
- **November 28**: (−3.9, 12", 89%, 1.45, 101m) At mid-twilight (about 45 minutes after sunset) Venus and the moon (2.3d, 6.3%) have a classic appearance, with Venus 1.9° to the lower right of the moon. At this time, Venus is about 7° up in the southwest. Both appear in the viewfinder of a camera with a 300 mm focal length lens. A longer exposure reveals Earthshine on the moon.
- **November 29**: (−3.9, 12", 89%, 1.44 AU, 103m) Venus is at its most southerly declination, −24.8°.
- **November 30**: (−3.9, 12", 89%, 1.44 AU, 105m) Venus passes 0.8° to the upper right of Kaus Borealis (λ Sgr, m = 2.8), the star at the top of the lid of the Teapot of Sagittarius.

Venus – Saturn Conjunction

As Venus moves away from Jupiter, it approaches and passes Saturn. Watch Venus close the gap on Saturn and pass it on December 10. Venus passes Saturn again on February 6, 2021 in a difficult-to-see conjunction, just 5 days before the Venus-Jupiter conjunction of 2021. On the morning of March 29, 2022, Venus is 2.1° from Saturn. Mars is nearby, 4.4° to the upper right of Saturn.

- **December 2**: (−3.9, 12", 88%, 1.43 AU, 109m) Forty-five minutes after sunset, Venus, about 9° up in the southwest, is about 10° to the lower right of Saturn (m = 0.6).

- **December 3**: (−3.9, 12”, 88%, 1.42AU, 111m) The three evening planets – Venus, Jupiter, and Saturn – are nearly equidistant tonight, but they are not along the same arc in the sky: Venus – Saturn, 8.6°; Venus – Jupiter, 9.7°.
- **December 5**: (−3.9, 12”, 88%, 1.41AU, 115m) Venus passes 1.9° to the upper right of Sigma Sagittarii (σ Sgr, m = 2.0).
- **Venus – Saturn** separations until the conjunction: **Dec 7**, 4.3°, **Dec 8**, 3.3°; **Dec 9**, 2.4°.
- **December 8**: (−3.9, 12”, 87%, 1.4 AU, 121m) Venus is 30° east of the sun. Note that it sets 2 hours after sunset.



December 10, 2019: The Venus – Saturn conjunction occurs when Venus is 1.8° from Saturn.

- **December 10**: (−3.9, 12”, 87%, 1.39 AU, 125m) Venus – Saturn conjunction! At mid-twilight, Venus, over 11° up in the southwest, is 1.8° to the lower right of Saturn. Venus – Saturn gaps after the conjunction: **Dec 11**, 1.9°; **Dec 12**, 2.5°; **Dec 13**, 3.4°, Venus is to the upper left of Saturn; **Dec 14**, 4.4°, **Dec 15**, 5.4°.
- **December 16**: (−3.9, 12”, 86%, 1.36 AU, 137m) At the end of twilight, Venus is about 6° up in the southwest. With a binocular look for four kite-shaped stars of the Dogs Kingdom asterism, composed of fourth magnitude stars. Venus is 3.6° to the upper right of Omega Sagittarii (ω Sgr, m = 4.7). Mars appeared near the asterism as its retrograde ended during its 2018 opposition.
- **December 19**: (−3.9, 12”, 85%, 1.34 AU, 143m) One hour after sunset, Venus, 12° up in the southwest, is nearly 10° to the upper left of Saturn. Venus moves into Capricornus.
- **December 26**: (−3.9, 13”, 83%, 1.31 AU, 156m) Venus is at its most southerly celestial latitude, −1.86°.
- **December 28**: (−3.9, 13”, 83%, 1.29 AU, 160m) About an hour after sunset, Venus is about 15° up in the southwest. The moon (2.8d, 8%) is 2.4° below the planet.

Venus as an Evening Star in 2020

Venus begins the New Year among the dimmer stars of eastern Capricornus. Now setting abut 3 hours after the sun, watch Venus move eastward into Aquarius and toward a Neptune conjunction. Venus moves about 1.2° eastward along the ecliptic each day.

- **January 1, 2020**: (−4.0, 13”, 82%, 1.27 AU, 167m) Venus is 35° east of the sun, setting nearly 3 hours after sunset.
- **January 6**: (−4.0, 13”, 81%, 1.24 AU, 175m) About an hour after sunset, Venus, nearly 18° up in the southwest, is 0.8° to the upper right of Gamma Capricorni (γ Cap, m = 3.6).
- **January 8**: (−4.0, 14”, 80%, 1.23 AU, 178m) An hour after sunset, Venus, nearly 19° up in the southwest, is 0.9° to the upper right of Delta Capricorni (δ Cap, m =2.8).
- **January 11**: (−4.0, 14”, 79%, 1.21 AU, 182m) Venus moves into the dimmer starfield of Aquarius.
- **January 20**: (−4.0, 14”, 77%, 1.16 AU, 193m) About an hour after sunset, Venus, 22° up in the southwest is 4.3° to the upper right of Tau Aquarii (τ Aqr, m = 4.0).
- **January 23**: (−4.1, 15”, 76%, 1.14 AU, 196m), About an hour after sunset, Venus, 23° up in the southwest, is 1° left of Lambda Aquarii (λ Aqr, m = 3.7) and 4.5° to the lower right of Neptune (m = 7.9).
- **January 26**: (−4.1, 15”, 75% 1.12 AU, 199m) Through a telescope observe that Venus is 75% illuminated, an evening gibbous phase that is 15” across.
- **January 27**: (−4.1, 15”, 75%, 1.12 AU, 201m) Venus is 40° east of the sun. At the end of evening twilight, Venus, 18° up in the west-southwest, is 0.2° to the upper left of Neptune, nearly 7° above the crescent moon (3.1d, 9%) and 0.2° to the lower right of Phi Aquarii (ϕ Aqr, m =4.2).
- **January 28**: (−4.1, 15”, 74%, 1.11 AU, 202m) At the end of evening twilight Venus, about 18° up in the west-southwest, is 7° below the moon (4.1d, 15%).

Venus Moves into Pisces

During February brilliant Venus, still moving about 1.2° each day along the ecliptic, moves into Pisces and passes several magnitude 4 stars.

- **February 2**: (−4.1, 16", 73%, 1.08 AU, 206m) Venus moves into Pisces about 7° to the lower left of six, fourth magnitude stars that outline the western fish of Pisces.
- **February 7**: (−4.1, 16", 71%, 1.04 AU, 211m) Venus sets west (azimuth 270°). Venus passes the vernal equinox, celestial coordinates: 0°, celestial longitude; 0°, celestial latitude.
- **February 9**: (−4.2, 16", 70%, 1.03 AU, 212m). Venus is about 7° to the lower left of Omega Piscium (ω Psc, m = 4.0). Tomorrow evening the separation is about the same, although Venus is farther east along the ecliptic. This evening at the end of evening twilight, Venus is over 20° up in the west-southwest.
- **February 15**: (−4.2, 17", 68%, 0.99 AU, 218m) Venus crosses the ecliptic moving northward.
- **February 19**: (−4.2, 17", 67%, 0.96 AU, 221m) Venus is 1.8° to the lower left of Delta Piscium (δ Psc, m = 4.4).
- **February 22**: (−4.2, 18" 66%, 0.94 AU, 223m) At the end of evening twilight, Venus, over 20° up in the west, is 0.5° to the lower right of Epsilon Piscium (ε Psc, m = 4.2).
- **February 26**: (−4.3, 18", 64%, 0.91 AU, 226m) At the end of twilight, the moon (3.4d, 10%), 14° up in the west, is 10° to the lower left of Venus.
- **February 27**: (−4.3, 18", 64%, 0.90 AU, 227m) At the end of evening twilight, Venus, 25° up in the west, is nearly 7° to the right of the waxing crescent moon (4.4d, 16%)
- **February 29**: (−4.3, 19", 63%, 0.89 AU, 228m) Venus has an elongation of 45°, setting over 2.5 hours after sunset. At the end of evening twilight, the brilliant planet is nearly 25° up in the west.

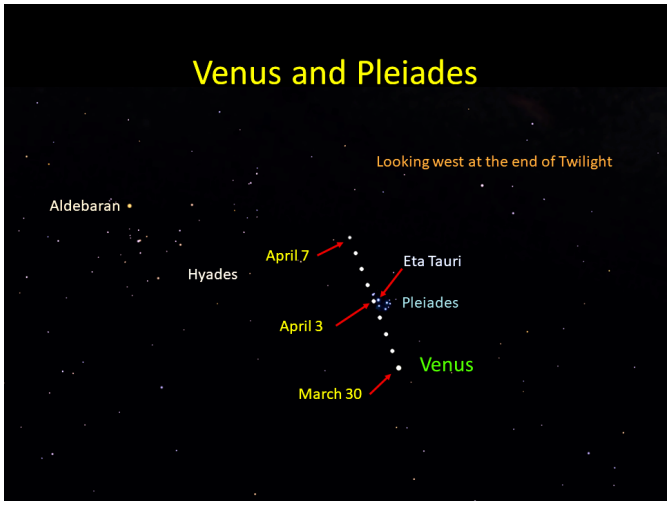
Venus Moves Through Aries: A Venus – Uranus Conjunction

During March, Venus crosses into Aries, passing far from the constellation's brighter stars. Venus is 17° north of the sun in declination and speeds along the ecliptic about 1.1° each day, but it begins to slow about mid-month as it nears its greatest elongation.

- **March 3**: (−4.3, 19", 62%, 0.87 AU, 231m) Venus passes 4° to the lower left of M74 (NGC 628, m = 8.8, 8' apparent size). Mallas, in **The Messier Album**, describes the galaxy, "This is a difficult galaxy for a 4" refractor, but it is easily seen in the 10 x 40 finder. A casual observer might miss this object completely, for the central condensation is starlike and the outer parts have very low surface brightness" (p. 146).
- **March 4**: (−4.3, 19", 61%, 0.86 AU, 232m) Venus moves into Aries, 4.3° to the lower right of Uranus (m = 5.8).
- **March 7**: (−4.3, 20", 60%, 0.84 AU, 234m) Venus is 2.2° to the right of Uranus. Through a telescope, Venus is 60% illuminated, larger in apparent size but a lesser evening gibbous phase than when we last noted its telescopic properties.
- **March 8**: (−4.4, 20", 59%, 0.83 AU, 235m) At the end of evening twilight, Venus, over 25° up in the west, is 2.2° to the upper right of Uranus and 5.4° to the lower left of Gamma Arietis (γ Ari, m = 3.9).
- **March 9**: (−4.4, 20", 59%, 0.82 AU, 236m) Venus passes nearly 8° to the lower left of Beta Arietis (β Ari, m = 2.6).
- **March 12**: (−4.4, 21", 57%, 0.80 AU, 237m) Venus passes nearly 8° to the lower left of Hamal (α Ari, m = 2.0).
- **March 24**: (−4.5, 24", 51%, 0.71 AU, 245m) Venus is at greatest elongation (46.1°) at 5:13 p.m. CDT. At the end of evening twilight, Venus is over 25° up in the west.
- **March 26**: (−4.5, 24", 50%, 0.69 AU, 246m) Through a telescope, Venus is 50% illuminated, an evening half phase, and 24" across.
- **March 27**: (−4.5, 24", 50%, 0.68 AU, 246m) Venus is nearly 10° to the upper right of the waxing crescent moon (3.7d, 12%) and 6.5° to the lower right of Alcyone (η Tau, m = 2.8). Here are the gaps as Venus closes in on the Pleiades: **March 30**, 3.6°; **March 31**, 2.7°; **April 1**, 1.8°; **April 2**, 0.9°, Venus is below Alcyone.
- **March 28**: (−4.5, 25", 49%, 0.68 AU, 247m) At the end of evening twilight, Venus, 26° up in the west, is 8° to the lower right of the moon (4.7d, 18%) and 5.5° to the lower right of Alcyone. The trio – Venus, Moon, and Pleiades – makes nearly an equilateral triangle. Venus sets at its maximum interval after sunset – 4 hours, 7 minutes, through April 7.

Venus in Taurus: A Spectacular Pleiades Conjunction

In late March, Venus moves into Taurus, heading for a conjunction with the Pleiades. During April, Venus moves between the Pleiades and Hyades and toward Elnath (β Tauri, m = 1.6), the Bull's northern horn. As Venus approaches the star, it begins a rapid descent toward the western horizon, toward its early June inferior conjunction.



March 30 – April 7, 2020: This chart shows the progress of Venus as it passes the Pleiades and the conjunction with Eta Tauri on April 3.

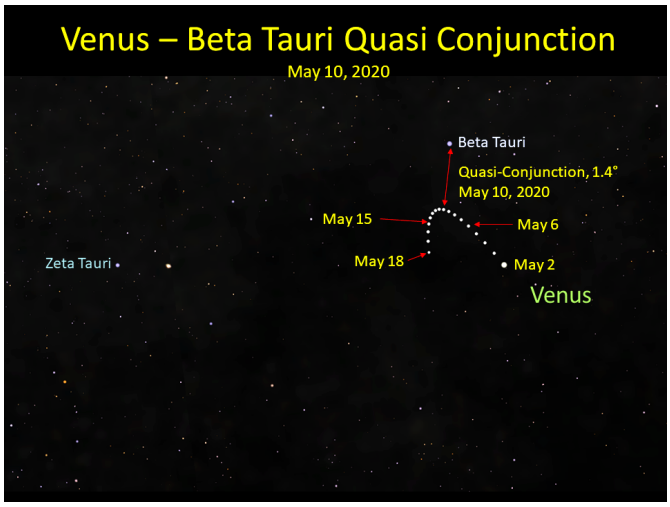
- **March 30**: (−4.5, 25”, 48%, 0.66 AU, 247m) Venus moves into Taurus, 3.6° to the lower right of Alcyone (η Tauri, m = 2.8).
- **March 31**: (−4.5, 25”, 47%, 0.65 AU, 247m) At the end of evening twilight, Venus, over 25° up in the west, is 2.7° to the lower right of Alcyone.
- **April 3**: (−4.6, 26”, 45%, 0.63 AU, 247m) One hour after sunset, Venus, 30° up in the west, is 0.3° to the lower left of Alcyone.
- **April 4**: (−4.6, 27”, 45%, 0.62 AU, 247m) This evening and for the next few evenings Venus and Sirius (α CMa, m = −1.5) are at nearly the same altitude in the west at about 9 p.m. CDT in Chicago, a few minutes after the end of evening twilight (about 105 minutes after sunset). While Venus and Sirius are too far apart for technical comparisons of their brightness difference, the brightest star and the brightest planet are the same altitude in the western sky. Sirius, Orion’s belt, Aldebaran, and Venus are nearly in a line across the western horizon. The Venus – Alcyone gap, 0.9°. Gaps as Venus moves eastward along the ecliptic and away from the Pleiades: **April 5**, 1.8°; **April 6**, 2.7°; **April 7**, 3.5°; **April 8**, 4.6°; **April 9**, 5.2°.

- **April 7**: (−4.6, 28”, 43%, 0.60 AU, 247m) Venus passes 2.8° to the upper right of 37 Tauri (m = 4.3). From this evening until its inferior conjunction, Venus sets, on average, over 4.3 minutes earlier each evening. The difference starts slowing but picks up at the end of the apparition.
- **April 9**: (−4.6, 29”, 41%, 0.58 AU, 245m) At the end of evening twilight, Venus, nearly 25° up in the west-northwest, is below a line that extends from Aldebaran (α Tau, m = 0.8) to Epsilon Tauri (ε Tau, m = 3.5).
- **April 12**: (-4.6, 30”, 39%, 0.56 AU, 243m) Venus passes nearly 7° to the upper right of Epsilon Tauri.
- **April 13**: (−4.7, 30”, 39%. 55 AU, 243m) Venus reaches its maximum brightness until May 10. The midpoint, April 27, is marked on the accompanying chart (GB). While the planet may grow brighter, as measured photometrically, our eyes likely cannot perceive the minute difference in brightness during this duration. The planet reaches its latest setting time 11:33 p.m. CDT in Chicago, 243 minutes after sunset. This setting time continues until April 18.
- **April 14**: (−4.7, 31”, 38%, 0.55 AU, 242m) One hour after sunset, Venus, 30° up in the west, passes nearly 10° to the upper right of Aldebaran.
- **April 21**: (−4.7, 34”, 33%, 0.49 AU, 232m) Venus sets at its northern most setting azimuth (309°). It sets here until May 14.
- **April 26**: (−4.7, 36”, 28%, 0.46 AU, 223m) One hour after sunset, Venus, over 25° up in the west-northwest, is over 7° to the right of the crescent moon (4d, 14%). The planet is 5.5° to the lower right of β Tauri. The moon is 5° to the lower right of Zeta Tauri (ζ Tau, m = 3.0), the southern horn of Taurus.
- **April 27**: (−4.7, 37”, 28%, 0.45 AU, 219m) The waxing crescent moon (5.0d, 22%) is over 17° to the upper left of Venus. The planet has an elongation of 40°, and it is midway between its greatest elongation and inferior conjunction. Venus is at its greatest illuminated extent. The illuminated portion of the planet covers the largest area of the sky. (For a more technical explanation of greatest illuminated extent, see https://tinyurl.com/venus-greatest-illuminated.) Venus closes in on β Tauri. The gaps: **Apr 27**, 5.1°; **Apr 28**, 4.6°; **Apr 29**, 4.1°; **Apr 30**, 3.7°.
- **April 29**: (−4.7, 38”, 26%, 0.44 AU, 214m) Venus reaches its most northern celestial latitude, 4.8°, continuing to set at its most northerly azimuth, 309°, until May 14.
- **April 30**: (−4.7, 39” 25%, 0.43 AU, 211m) Through a telescope Venus displays an evening crescent, 25% illuminated, and 39” across.

A Venus – Beta Tauri Quasi-Conjunction and a Venus – Mercury Conjunction

During May, Venus rapidly descends toward the western horizon, as measured from its setting time compared to the sun. Venus is nearing its quasi-conjunction with β Tauri. The gap between the brilliant planet and the star: **May 1**, 3.3°;

May 2, 2.9°; **May 3**, 2.6°; **May 4**, 2.3°; **May 5**, 2.1°; **May 6**, 1.9°; **May 7**, 1.7°; **May 8**, 1.6°, **May 9**, 1.5°.



May 2 – May 18, 2020: Venus approaches Beta Tauri during a quasi-conjunction. Venus approaches within 5° of the star but does not pass it. The closest point is 1.4° on May 10.

- **May 4**: (−4.7, 42”, 21%, 0.40 AU, 198m) Venus is at its northernmost declination, 27.8°.
- **May 5**: (−4.7, 42”, 20%, 0.40 AU, 194m) Venus is 35° east of the sun. Through a telescope, Venus is an evening crescent, 20% illuminated and 42” across.
- **May 10**: (−4.7, 46”, 16%, 0.36 AU, 194m) Venus’ closest approach to β Tauri, a quasi-conjunction or “near conjunction.” One hour after sunset, Venus, over 17° up in the west-northwest, is 1.4° to the lower left of the star.
- **May 11**: (−4.6, 46”, 15%, 0.36 AU, 167m) Venus is 30° east of the sun. The Venus – β Tauri gap is still 1.4°, but slightly larger than last night, when the small fractions of a degree are included in the measurement. The Venus – β Tauri gap begins to widen: **May 12**, 1.5°; **May 13**, 1.6°; **May 14**, 1.7°; **May 15**, 1.8°; **May 16**, 2.0°; **May 17**, 2.2°; **May 18**, 2.4°.
- **May 13**: (−4.6, 48”, 12”, 0.35 AU, 156m) Venus’ phase is 12.5% illuminated. Through a telescope it is an evening crescent, 48” across.
- **May 19**: (−4.4, 52”, 7%, 0.32 AU, 118m) Venus sets at the end of evening twilight, nearly 2 hours after sunset. Forty-five minutes after sunset, Venus, 11° up in the west northwest, is 2.7° from β Tauri. As this celestial pair descends toward the western horizon, Mercury emerges from the sun’s glare for its evening apparition. This evening. Venus is 4.8° to the upper left of Mercury (m = −0.8). Watching Mercury’s rapid movement during the next several evenings, you will see it move from Venus’ lower right to its upper left.
- **May 20**: (−4.4, 53”, 6%, 0.32 AU, 111m) Venus’ elongation is 20°. The Venus – β Tauri gap is 3.0° and Mercury (m = −0.7) is 2.8° to the lower right of brilliant Venus. During the next few evenings, the Venus β Tauri gap continues to widen: **May 21**, 3.4°; **May 22**, 3.8°.
- **May 21**: (−4.3, 53”, 6%, 0.31 AU, 105m) Venus, in the west-northwest, is 1.1° to the upper right of Mercury (m = −0.6), a conjunction. The Venus – β Tauri gap is 3.4°.
- **May 22**: (−4.3, 54”, 5%, 0.31 AU, 98m) Venus, Mercury (m = −0.5), and β Tauri make a compact triangle. Venus is 1.6° to the lower right of Mercury; Venus is 3.8° below β Tauri; and the Mercury – β Tauri gap is 3.4°. Tomorrow evening the moon enters the scene.
- **May 23**: (−4.2, 54”, 4%, 0.31 AU, 90m) At 45 minutes after sunset, Venus, about 8° up in the west-northwest, is 4.7° to the upper right of the crescent moon (1.3d, 2%). The Venus – β Tauri gap is 4.2°. Mercury (m = −0.4) is 3.6° to the upper left of Venus and 3.1° to the lower left of β Tauri.

May 24, 2020: Venus, Mercury, and Beta Tauri make a triangle with the crescent moon nearby.

- **May 24**: (−4.2, 55”, 3%, 0.30 AU, 82m) Venus, Mercury (m = −0.3), Moon (2.3d, 5%), and β Tauri are near each other. The planets and the star make a triangle. Mercury is 5.5° to the upper left of Venus, nearly midway from Venus to the moon that is nearly 12° to the upper left of Venus, although Mercury is above a line that connects Venus and the moon.

β Tauri is 4.6° above Venus and 3.5° to the upper right of Mercury. Venus' elongation is 15°

- **May 25**: (−4.1, 56", 3%, 0.30 AU, 74m) Forty-five minutes after sunset, Venus is 4° up in the west-northwest. The planet continues to make a triangle with Mercury (m = −0.2) and β Tauri. Venus is 5.1° to the lower right of the star, while Mercury is 4.5° to the upper left of β Tauri. Venus sets at Nautical Twilight, over an hour after sunset. The observing window is rapidly closing to see Venus. The gaps of the two planets and star continue to grow as Venus disappears into brighter twilight.
- **May 28**: (−4.1, 57", 1%, 0.29 AU, 49m) Thirty minutes after sunset, Venus is less than 3° up in the west-northwest. The planet's elongation is 9°, setting only 49 minutes after sunset.
- **May 30**: (−4.1, 57", 0.5%, 0.29 AU, 32m) Venus sets at Civil Twilight, 32 minutes after sunset.
- **June 3**: Venus is at inferior conjunction, 12:44 p.m. CDT, when it is 0.5° north of the sun and 58" across.

This evening apparition of Venus has several exciting conjunctions with planets and stars. As with every evening appearance, Venus slowly moves into the sky. As the evening ecliptic takes a more favorable angle as the weather warms and daylight grows, the planet reaches its latest setting time and greatest brightness as Spring arrives. At this time, it has a spectacular conjunction with the Pleaides and a near-conjunction with β Tauri before it seemingly dives between our planet and the sun to reappear in the morning sky. Early during the next apparition, Venus has a double conjunction with Aldebaran and a traverse through the Hyades in a fairly dark sky. It also passes several bright stars near the ecliptic including Regulus and Spica. Appearances of Venus with the moon provide broader views of the sky. As noted in the daily descriptions, Venus has conjunctions with Saturn and Jupiter, but they occur during bright twilight. When the Venusian cycle repeats its motions in eight years, Venus goes into the Pleiades appearing nearly between Merope and Alcyone.

Dr. Jeffrey L. Hunt

About the Author: *Jeffrey Hunt has had a life-long interest in astronomy and astronomy education. He has taught astronomy at all levels from preschool students to university courses. Jeff is a former director of the Waubonsie Valley High School Planetarium in Aurora, Illinois. Dr. Hunt holds several degrees including a master's degree in planetarium education from Michigan State University. He writes an astronomy blog (http://jeffreylhunt.wordpress.com) showing easily-seen sky events. Currently he is retired with his wife and cat in Northern Illinois.*

ADD YOUR EMAIL ADDRESS TO THE NCRAL MEMBER DATABASE

Did you know that only about 375 of some 1,850 NCRAL members are receiving this newsletter via email? That's only 20%! Please help NCRAL get its newsletter out to the membership by encouraging fellow club members to add their email address to the NCRAL member database.

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

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 at-large membership) 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: https://goo.gl/gsS8SF

CALL FOR 2020 NCRAL NOMINATIONS:

REGIONAL REPRESENTATIVE/REGION AWARD/NEWSLETTER EDITOR AWARD/MINI GRANTS

As was mentioned in the Chair's message, the Region did not elect a Regional Representative to a new 3-year term at NCRAL 2019. Bill Davidson (former Regional Rep.) is now filling that position on an interim basis. An election will be held at NCRAL 2020 to fill the remaining two-years of the unexpired term. Please send your nomination to NCRAL Chair Carl Wenning at carlwenning@gmail.com

It's never too early to start thinking about nominations for the NCRAL Region Award. Do you know someone who has dedicated his or her time and energy to promoting astronomy? Wouldn't you like to let them know they are appreciated for their hard work? This is your chance! This award recognizes exceptional individual effort and meritorious service to amateur astronomy through the member's local astronomy club, public outreach, the NCRAL, or the Astronomical League.

The Regional is now calling for nominations for the 2020 Region Award. Using the guidelines and submission forms below, we have made it easier than ever to nominate someone you feel deserves this award. This award will be presented in a ceremony concluding the dinner banquet of the next Regional convention, NCRAL 2020, to be held at Port Washington, WI, the first weekend of May.

The Rules for nomination are set as follows:

1. The individual must be a member in good standing, either through an AL/NCRAL-affiliated club, association, or society or as a current member-at-large in the North Central Region.
2. The three current regional officers and the regional representative are NOT eligible for this award. Past winners are also ineligible for this award.
3. The regional officers are the voters and will base their decision on the information provided. Past winners of this award will be asked to assist in the case of a tie vote. Each member votes independently and will use his/her best judgment. All decisions are final.
4. The winner will be contacted not less than 21 days in advance of the NCRAL meeting at which the award will be presented. The winner will not be publicly revealed until the time of the presentation. Those nominated but not selected will not be revealed.
5. All non-winning nominations will be kept on file for two years after initial submission. After such time, a new nomination needs to be competed. Nominations for 2020 MUST BE RECEIVED by the date of the March 31st. Any nominations received after this date will be kept on file for 2021.

There are many deserving candidates within NCRAL. We look forward to receiving your nomination(s) by March 31st. If there are any questions, please contact Vice Chair Bill Davidson via phone or email using the contact information found on the Submission Form below.

Submission Form for the NCRAL Region Award

Nominee's name (as it will appear on plaque) _____

Nominee's email address _____

Street address _____

City _____ State _____ Zip _____

Club affiliation _____

Nominator's name _____

Club affiliation _____

Street _____

City _____ State _____ Zip _____

Phone _____

Email _____

Submission Guidelines

Prepare a *statement of the nominee's accomplishments* in one or more of the areas listed under the criteria described in first paragraph on page 1. This statement should:

- Not exceed 3 double-spaced pages (1,000 words). Length does not necessarily equal strength.
- Include the number of years in office or committee membership.
- Include the dates of said membership.
- Include the length of time participating in public education, number of presentations, etc.

Include *supporting data*

- Any relevant newspaper clippings, photos, and other articles that support the nomination.
- For service to groups such as schools, scouts, etc., it would help the committee if you could obtain a brief statement from the teacher, leader, chair etc. on the usefulness of the presentation.

All nominations must be sent via email to Bill Davidson, NCRAL Vice Chair, at rochesterskies@outlook.com

Let's not forget about the **NCRAL Newsletter Editor Award**. It is expected that the next award will be conferred at the NCRAL 2020 meeting. Submission Guidelines: The president of the club/society/association should email a copy of the designated issue of the associated newsletter in Adobe Acrobat pdf file format to NCRAL Vice Chair Bill Davidson (rochesterskies@outlook.com), along with a cover letter of recommendation in the same file format. In addition, complete contact information of the editor must be included. A photo of the newsletter editor, preferably in an astronomical-type setting, must be received electronically in jpg format to the same email address by March 31st.

Lastly, don't about the two **NCRAL mini grants**. A mini-grant will be awarded following a successful written proposal originating with the president of an NCRAL affiliate. The focus of a mini-grant must be oriented to an increase in either: (1) an affiliate's membership whose mini-grant proposal must focus on both recruitment and retention (Member Recruitment & Retention Mini Grant), or (2) an increase in the number of A.L.-affiliated clubs, societies, or associations within the North Central Region (Non-affiliate Recruitment Mini Grant). A unified online mini-grant application must be completed by the deadline noted below. The application link may be found at the following URL: http://bit.ly/2W2pdeA Deadline: The application deadline for all mini-grants is March 31st. Mini grants, if approved, will be announced at NCRAL 2020.

FUTURE NCRAL REGIONAL CONVENTIONS

Each year at NCRAL's annual business meeting, the Region receives offers for hosting upcoming meetings. The following affiliates have agreed to hosting future conventions. We are still in need for additional hosts, but especially for 2022, 2024, and the years beyond. It's never too early to start planning to host.

- 2020 Port Washington, WI: Northern Cross Science Foundation (confirmed)
- 2021 Green Bay, WI: Neville Public Museum Astronomical Society (confirmed)
- 2022 OPEN
- 2023 Bloomington-Normal, IL: Twin City Amateur Astronomers (confirmed)
- 2024 OPEN

If your club has never hosted an NCRAL Regional convention, please consider doing so. While it 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 guide was developed by experienced hosts of NCRAL conventions in conjunction with one future host who asked lots of excellent questions. Significant contributions were made by Regional members. NCRAL Chair Carl Wenning, served as lead contributor and author.

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 is considered a "living document" that will be updated as new survey information becomes available. The recent NCRAL 2019 post-convention survey was included in the recently updated document. Results from the 2018 NCRAL Convention Preferences Survey are also included. The goal is to increase the benefits of convention attendance, thereby increasing attendance at our Region's conventions.

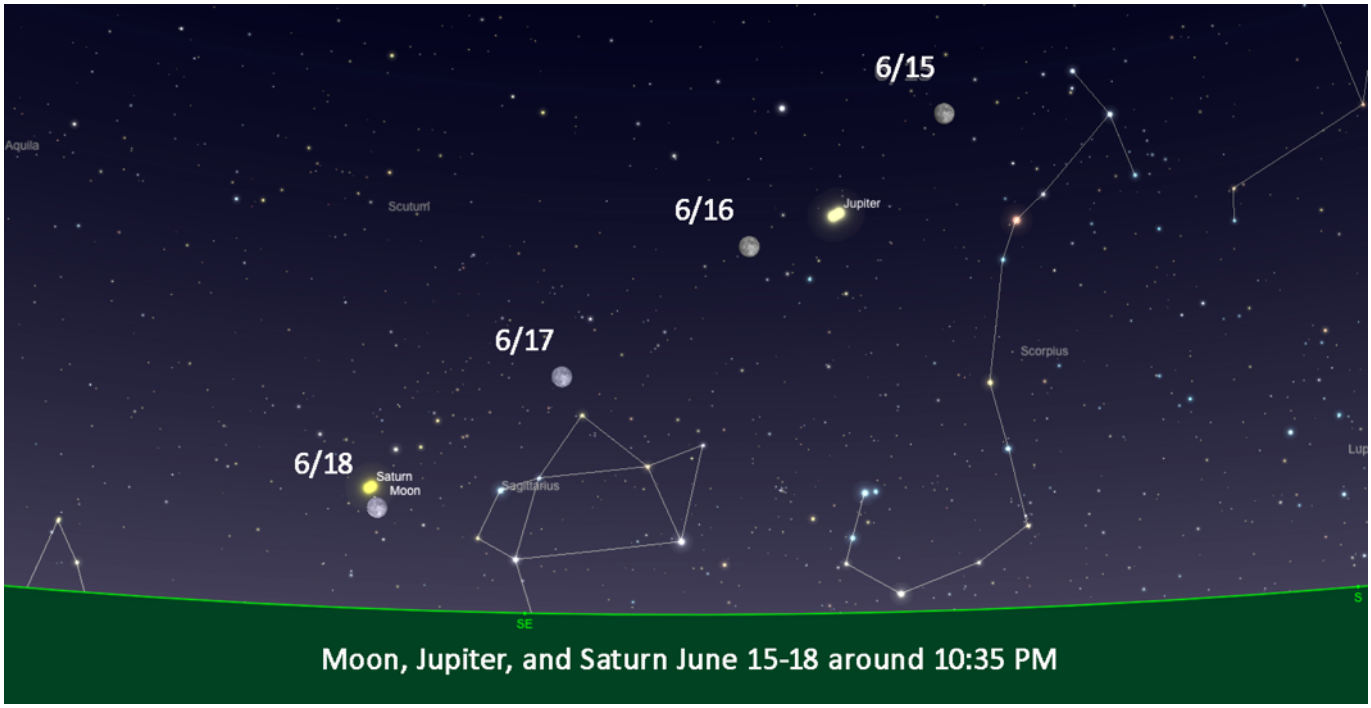
To download and review the planning guide, you may access it through the NCRAL website the following URL: https://ncral.wordpress.com/conventions/. Look for the link at the bottom of the page.

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 & AL ON FACEBOOK

Did you know that NCRAL now has a Facebook page for sharing information about your Region's AL-affiliated clubs? This is also a great way to share observations, notes, images, and any other things you think the NCRAL membership or AL members-at-large living in our region would enjoy. Check us out at: https://www.facebook.com/northcentralregionastronomicalleague/ Also, did you know that the Astronomical League is on Facebook too? It's an active site with lots of good information. Check it out at: https://www.facebook.com/search/top/?q=astronomical%20league

MOON, JUPITER, & SATURN – A RECENT RELEASE ON FACEBOOK



The next several evenings will provide an opportunity to view the motion of the moon relative to planets Jupiter and Saturn. The accompanying diagram shows what the night sky will look like just after 10:30 PM each evening from June 15 through June 18. The view is to the southeast.

During this interval, the moon's orbital motion around Earth will carry it eastward past the background constellations, bright stars, and planets.

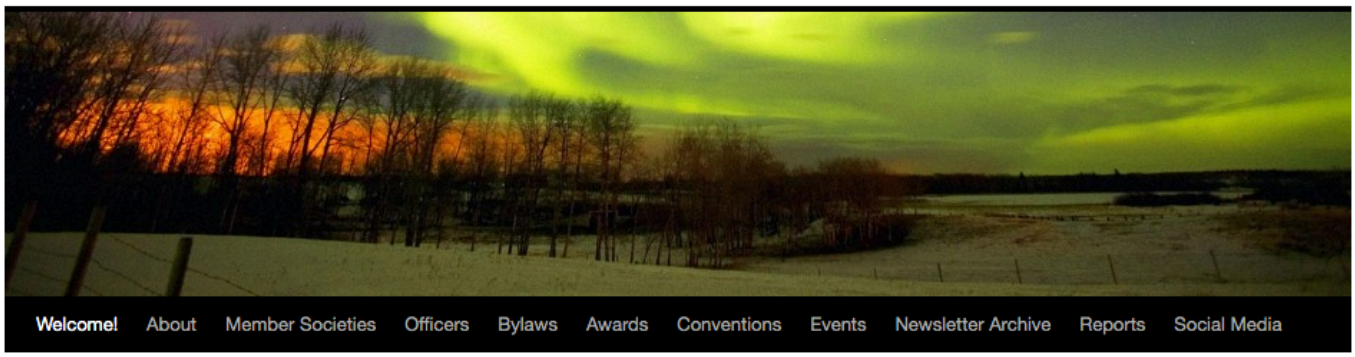
On the evening of June 15th (Saturday), the waxing gibbous moon (looking mostly full) will be located to the upper left of the ruddy orange star Antares which marks the heart of Scorpius, the Scorpion. Jupiter will be to the moon's lower left.

By the next evening, June 16th (Sunday), the moon will be at full phase. It also will have moved past Jupiter, and Jupiter will be found to the moon's upper right. The image of Jupiter in the diagram appears to be a bit elongated because, like the moon, Jupiter is also moving among the background of stars. Because is now near Earth (having passed opposition with the sun on June 10th), it is currently moving ever so slowly to the west among the background of stars - opposite the motion of the moon.

On June 17th (Monday), the moon will be located just above the lid of the "teapot" of Sagittarius, the Archer. The moon, just past full (but still looking full), will be quite bright and this might make it a bit hard to see the teapot.
The "event" comes to an end on the evening of June 18th (Tuesday) with the waning gibbous moon located just over one degree from Saturn as measured from the moon's upper left limb to the center of Saturn. [cjw]

NCRAL Website

~ by Jeff Setzer ~



Did you know that NCRAL has its own website? It's true! 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***, and much, 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

Regional Officer & Leader Contact Information

Chair: Carl Wenning (2-year 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 AL Master observer. He has been a member of the Twin City Astronomers of Bloomington-Normal (Illinois) since 1979. He 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. Carl is a former planetarium director and physics teacher educator who remains actively involved in both astronomy and physics education as well as member education and public outreach events.

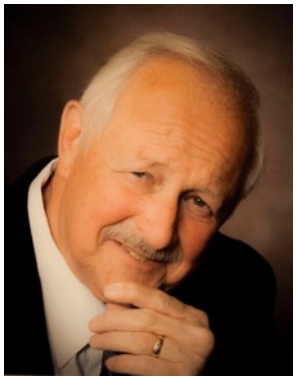
Contact: carlwenning@gmail.com

Vice Chair: Bill Davidson (2-year term expires Spring 2021, in first term)

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 more than 20 years, and serves as editor of the club's newsletter ***Rochester Skies*** for which he won NCRAL's inaugural Newsletter Editor Award in 2019.

Contact: rochesterskies@outlook.com

Secretary-Treasurer: Roy Gustafson (2-year term expires Spring 2020, in first term)



Bio: Roy got interested in astronomy when visiting the Adler Planetarium in Chicago while 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 in 2017 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

Regional Representative to the Astronomical League: Bill Davidson (Interim 2019-2020)

Contact: rochesterskies@outlook.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

Northern Lights **Editor-in-Chief:** Jim Gibbs (appointed)

Bio: Jim has been observing the starry skies since he was 10 years old and on and off ever since. His primary affiliation is with the Twin City Amateur Astronomers (Illinois) where he has been a member for 7 years. He is also a member of the Fox Valley Astronomical Society where he has held several leadership positions. He is an avid amateur astronomer who enjoys observing and especially imaging around the TCAA dark sites and travelling around finding other dark sites. He is a software engineer and currently is concentrating in growing his small consulting business.

Contact: jrgibbs@msn.com