

# THE OBSERVER

OF THE TWIN CITY AMATEUR ASTRONOMERS



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March 2014

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## EDITOR'S CHOICE: IMAGE OF THE MONTH

This image by Craig Prost shows the Rosette Nebula, a large, circular HII region located near one end of a giant molecular cloud in the Monoceros region of the Milky Way. Craig notes, "This was a sentimental journey of sorts." He combined data from his first narrowband image taken about a year ago with FSQ-106ed and H $\alpha$  data from his AP-130. He then added narrowband data he collected this past fall with the CCA-250. The field of view and image resolution are limited to what he had with the AP-130/reducer and QHY-22. See page 9 for details.



The TCAA is an affiliate of the [Astronomical League](#). For more information about the TCAA, be certain to visit our [club website](#).

*The OBSERVER* is the monthly *electronic* publication of the Twin City Amateur Astronomers, Inc., a registered 501(c)(3) not-for-profit educational organization of amateur astronomers interested in studying astronomy and sharing their hobby with the public.

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Submission deadline is the end of each month.

#### Membership Dues

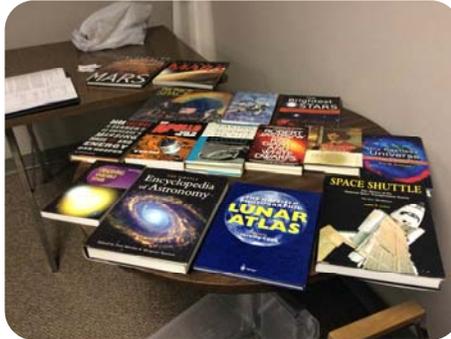
Individual Adult/Family \$40  
 Full-time Student/Senior \$25

To join, send your name, contact info and dues payment to Duane Yockey, TCAA Treasurer, 508 Normal Avenue, Normal, IL 61761

## PHOTOGRAPHS FROM THE FEBRUARY 1<sup>ST</sup> ANNUAL MEETING



Brian Barling (L) and Carl Wenning (R) receiving their AL awards from Tom Weiland



Door prizes donated by Brian Barling and our 54<sup>th</sup> anniversary cake



## A NOTE FROM PRESIDENT TOM WEILAND

The wonder of the night sky has been a faithful companion since the dawn of civilization. It has inspired countless generations, poets, scientists and dreamers. Today this natural wonder is threatened by the careless use of artificial light.

As individuals, and as an organization, I believe it is imperative that we take up the cause to protect and preserve the night sky for future generations. At our own dark sky site at Sugar Grove Nature Center (SGNC) we can see the impact of artificial light pollution. We can easily see the light dome produced by Bloomington/Normal as it lights up the northeastern horizon. We have taken measures over the years to address this problem as it directly impacts our viewing of the night sky, and the availability of dark skies for all who live in Central Illinois.

If we enjoy viewing the night sky with our own eyes, or through binoculars or a telescope, if we enjoy looking at the wonderful photographs taken by our dedicated astrophotographers, if we enjoy pointing out constellations and sharing the stories behind them, then we need to up our game to do what we can to protect what is rapidly disappearing.

Several opportunities have been presented via email recently to provide input on this issue as it impacts us here in Illinois. I hope to provide other opportunities for our members to learn more about improper lighting and to share their concerns around this issue. Along with providing opportunities for viewing, and informative presentations, I also believe it is essential that we communicate the importance of this issue with those we interact with regularly.....especially those who attend our Public Observation Sessions (POS) and other organized events.

If you haven't had a chance already, I would encourage you to learn more about maintaining dark skies and reducing unnecessary and mis-directed artificial lighting. More information about this critical issue is available from the International Dark-Sky Association (IDA) at <http://www.darksky.org>. IDA is actively engaged with government, volunteers and other organizations to raise awareness of the value of the night sky and to gain allies in an effort to protect our heritage of a natural night sky.

Clear Skies...Dark Skies!!

## MINUTES OF THE 54<sup>TH</sup> ANNUAL MEETING

The annual meeting of the Twin City Amateur Astronomers was held on February 1, 2014 at the Normal Township Hall. In attendance were 28 members and guests. After a social hour and dinner, we held the business meeting.

President Tom Weiland called the meeting to order at 7:15pm. He asked for a Moment of Silence to honor past members. He gave a brief review of the club's activities during the last year and noted another successful year of outreach efforts where we interacted with over 2100 people. He recalled some of the highlights of the year including a joint meeting with the Peoria and Champaign clubs, our August POS that had drawn 130 people, and the opening of the Prairie Sky Observatory. Moving on to the Treasurer's report, Tom, in Duane's absence, noted that we had 43 members, and that the club's funds currently had a sufficient balance.

We opened the floor to nominations for the next Board of Directors. Six people were included on a slate of candidates by the current Board, including Robert Finnigan, Dave Osenga, Craig Prost, Tim Stone, Tom Weiland and Carl Wenning. Three times Tom called for additional nominations. Nominations were then closed by unanimous consent of the members. Ballots were distributed and all members were invited to vote for 5 candidates. The results were tabulated and the new Board is comprised of the following people, Robert Finnigan, Dave Osenga, Craig Prost, Tim Stone, Tom Weiland, and Carl Wenning.

Discussion then turned to a proposal to change delivery of our monthly newsletter *The OBSERVER* to electronic delivery only and to simplify the dues structure. This proposal had been approved for consideration by the Board and notice of the change twice published in the newsletter. The proposal was approved unanimously.

Tom then declared our Registered Agent to be Duane Yockey, 508 Normal Avenue, Normal, Illinois 61761.

Astronomical League Awards were recognized. Brian Barling received the Herschel 400 award. Carl Wenning received the Planetary Nebula Advanced, Herschel II, and Carbon Star awards.

Brian Barling and several others donated door prizes. These were distributed through a drawing.

Our Keynote Speaker was Dr. Linda French, a professor and chair of the IWU Physics Department. She spoke about The Greek and Trojan Observational Survey (GATOS): How amateur astronomers are helping to test a leading theory for the formation of the Solar System.

The business meeting then adjourned at 8:45pm.

Respectfully submitted,  
Lee Green, Secretary

## MINUTES OF THE FEBRUARY 10, 2014 BOARD OF DIRECTORS MEETING

The meeting was called to order at 6:32 p.m. at the Coffeehouse & Deli in uptown Normal. In attendance were Dan Miller, Bob Finnigan, Craig Prost, Bob Finnigan, Tim Stone, Dave Osenga, Tom Weiland, Carl Wenning, Brian Barling, and Brad Welch. The first item of business was for the Board to appoint major and minor officers with the following decisions made contingent upon approval of those not present at the meeting:

1 <sup>st</sup> Director and President, Tom Weiland	Secretary, Lee Green
2 <sup>nd</sup> Director and Vice President, Dave Osenga	Treasurer, Duane Yockey
3 <sup>rd</sup> Director, Tim Stone	Web Master, Lee Green
4 <sup>th</sup> Director, Carl Wenning	Property Manager, Tim Stone
5 <sup>th</sup> Director, Bob Finnigan	Editor & Historian, Carl Wenning

The following items of old and new business were addressed:

- Bob motioned for the installation of tie down connectors between trusses and rafters as the first of several steps to strengthen the ability of PSO to withstand strong winds. Tim seconded the motion. In the subsequent discussion, Bob mentioned that he would arrange for installation, and that the connectors would be installed using screws. He noted that an improved set of hurricane tie down straps and connectors (running between trusses and floor) must be addressed in the near term. The motion to install tie down connectors was unanimously approved.
- Recommendations from the ad hoc committee for SGO improvements (Tim Stone, Carl Wenning, Bob Finnigan, and Dave Osenga serving as chair) were then addressed. The committee recommended that 1" circular electrical conduit be installed for the current EAST pier and any future WEST pier. The conduit would run several inches above the floor east and west walls (so as not to hinder floor cleaning), to the corners beside the doors to the observing room, up over the observing room's south wall, and then come down "in an appropriate location" inside the observing room *based upon drawings* to be provided by Dave Osenga. Bob agreed to arrange for materials and installation. The recommendation was approved.
- Tim and Bob mentioned that the UPS (universal power supply) formerly housed in SGO (where it had minimal usefulness) was moved to PSO and connected to the roll-off-roof motor. Bob motioned and Carl seconded that the UPS be installed on a shelf in order to keep it off the floor. Following a discussion, it was agreed that Dave would include drawings to specify the location of the shelf. Bob again mentioned that he would arrange for installation of the shelving. The recommendation was approved.
- Bob moved that a WEST pier be installed in PSO primarily for visual use (and occasional photographic use) where the telescope would be returned to a visual configuration at the end of an observing session. Bob noted that a 36" pier is now available, and is currently being outfitted with a mounting ring for an Astro Physics 1100 mount, and that the club has a suitable 11" Celestron telescope for mounting thereon (along with the solar telescope, and a smaller wide-field apochromatic refractor). Tim amended the proposal to include reference to the 48" EAST pier that will soon support the Paramount ME mount that previously served to hold the CCA 250 photographic telescope. Tim moved that the EAST pier serve variable use for visual as well as photographic purposes consistent with the recommendation of the ad hoc committee on observatory utilization. Dave seconded the motion as amended. A consensus was reached that the EAST telescope should be available for use over several days with the use of a reservation system to be determined. The motion – as amended – was passed unanimously.
- At this point the discussion turned to Craig's suggestion that PSO be a photographic facility only and that SGO be returned to visual use only. The idea met with resistance for four reasons stated briefly as follows: (1) SGO was intended by the primary donor to be a "mixed-use" facility, (2) the TCAA "sold" the PSO to SGNC on the basis that members of the public would be invited in to view through the observatory's telescopes, (3) the concrete column in SGO that holds any telescope is prone to shaking which is more of a visual problem than it is a photographic problem, and (4) recent supernova imaging would not have been possible from within the confines of PSO due to the 7-foot-high walls. The Board unanimously agreed to maintain the PSO as a mixed-use facility.
- The discussion then returned to policies for the use of the EAST telescope position. The fundamental concern was that an individual observer might monopolize the EAST pier unless appropriate policies to prevent it are in place. Tim noted that a single observer monopolizing the EAST pier would, in fact, send the not-so-subtle message that the position is not available for others to use. Craig mentioned that there is little – if any – competition for the EAST position currently. Tim

suggested that observers be restricted to “4 or 5 days” of continuous use. Carl suggested that the observing run might be continued if there is no other request for use. Carl suggested that he, Dave, and Brian serve as an oversight committee to develop policies for the use of the EAST pier. Dan suggested that this committee have sole charge of any computer-based reservation system for this telescope, and that Lee be consulted to create a reservation system on the TCAA website giving only Carl, Dave, and Brian access to this part of the reservation system. Carl suggested a temporary “gentleman’s agreement” for the use of the 10”, 17”, and 20” telescopes while policies for the use of the EAST position are worked out. Carl, Dave, and Brian agreed to find a workable solution for the reservation process and use of the EAST telescope position. This seems to have been the general consensus of how things should proceed. There was no formal motion or vote on these matters.

- The meeting was then brought rapidly to a close when it was noted that the Coffeehouse & Deli had closed 30 minutes before and that we needed to finish our business quickly. Tom mentioned a concern about battling light pollution, and referenced a recent email from Chicago Astronomical Society’s Audrey Fischer concerning the Illinois Conservation Congress & Starlight Conservation. It was agreed that the TCAA would recommend natural areas (state and regional parks, as well as nature preserves) be protected by law from light pollution to the greatest extent possible. It was agreed that Tom would forward our concerns to Audrey and others who might need to hear of our concerns about light pollution. The meeting drew to a close at 8:00 p.m.

The next regularly scheduled Board of Directors meeting will occur on March 11<sup>th</sup> in the offices of Lewis, Yockey, & Brown in downtown Bloomington beginning at 6:30 p.m.

Respectfully submitted,  
Carl J. Wenning, Secretary Protem

## CALENDAR OF CELESTIAL EVENTS – MARCH 2014

**EVENING STARS** (MIDMONTH): JUPITER & URANUS

**MORNING STARS** (MIDMONTH): MERCURY, VENUS, MARS, SATURN, & NEPTUNE

**Question:** You have used “UTC” in the past and below. What is UTC? The answer can be found at the conclusion of this column.

**01** Moon will pass roughly between the Earth and the Sun and will not be visible from Earth. New Moon occurs at 08:00 UTC.

**09** Daylight Saving Time begins at 2:00 AM on Sunday. Set your clock ahead one hour when you go to bed on Saturday evening.

**14** Mercury will be at greatest elongation west of the Sun as seen from Earth and this will be the ideal time to view it. It will be visible in the pre-dawn eastern sky and exhibit a “quarter moon” phase at this time.

**16** The Sun and the Moon are roughly opposite one another in the sky so the Moon will be fully illuminated as seen from Earth. Full moon occurs at 17:08 UTC.

**20** Spring begins in the northern hemisphere and autumn begins in the southern hemisphere. The precise time is 16:57 UTC.

## NEW AND RENEWING MEMBERS

The following individual have paid dues for new or renewing memberships as of February 28, 2014. (Others who paid after that date will appear in the April 2014 issue of *The OBSERVER*.)

Dennis Readey plus many others. See the February Treasurer’s Report for details.

## DUES BLUES

Members whose membership expired at the end of February or earlier are the following (along with year and month of membership expiration):

Don Cooper (201402)  
Angela Estes (201212)  
Larry Leetzow (201402)  
Dan & Paulette Miller (201312)  
Michael Starasta (201402)  
Allan Timke (201312)

The following memberships expire at the end of March:

Pablo Eves (201403)  
Randy Gleason (201403)

(continued next page)

**22** Venus will be at maximum elongation west of the Sun as seen from Earth. It, too, will be in the eastern pre-dawn sky and will exhibit a “quarter moon” phase.

**30** Moon will pass roughly between the Earth and the Sun and will not be visible from Earth. New Moon occurs at 18:45 UTC.

**Answer:** UTC is an abbreviation for “Coordinated Universal Time” stated in French. UTC is similar to but not quite the same as Greenwich Mean Time (GMT); the two have diverged by several minutes. For all intents and purposes of this column, Central Standard Time (CST) can be taken as UTC – 6 hours (or UTC – 5 hours during daylight saving time).

Roy & Diane Lawry (201403)  
John Mori (201403)  
Libby Norcross (201403)

The following memberships will expire at the end of April:

Bob & Lynn Fearneyhough

Please send dues payments (\$25 senior – for those 60 and over – and \$40 regular) to Duane Yockey, TCAA Treasurer, 508 Normal Avenue, Normal, IL 61761. Please note that **The OBSERVER** is distributed in electronic form only.

## TOPICS FOR 2014 PUBLIC OBSERVING SESSIONS

The 2014 public observing sessions are about to begin. Recall that these events will be held cloudy or clear. Only in the case of active rain will the events be cancelled. The TCAA’s brochure with additional information can be found on the [TCAA public events webpage](#). The dates (all Saturdays), topics, and speakers are as follows:

Date	Topic	Coordinator
Mar 29	A Trip to the Sun	John Mori
April 26	Mars in All its Glory	John Mori
May 31	Star Birth and Open Clusters	Craig Prost
June 21	Ringed Worlds of the Solar System	Dave Osenga
July 26	Star Death	Tim Stone
August 30	From Earth to the Edge of the Universe	John Mori
September 27	Globular Clusters	Tom Weiland
October 25	The Andromeda Galaxy	Kevin Brown

A typical POS consist of the following: a **Lecture** about the featured object or topic. This 20-30 minute presentation, held in the SGNC picnic shelter, includes images of and details about the featured sky object or topic as well as information about other interesting objects that might be viewed that evening; a **Sky Tour** where step out under the stars and use a laser to point out the major constellations and planets, and to designate the location of the featured celestial object for the evening if appropriate; and an **Observing Session** where we use a wide variety of telescopes at ground level to observe the wonders of the heavens. The Sugar Grove and Prairie Sky Observatories have an “open house”.

## UPDATE ON THE 10” TELESCOPE

~ BY BOB FINNIGAN ~

Here’s an update in relation to the 10-inch reflector mounted on Prairie Sky Observatory’s SOUTH pier. The Paramount ME mount that has been giving us “thumping sounds” has been replaced. A new Astro Physics 1100 mount with absolute encoders has been installed. A *First Point* alignment has been done so that now the telescope’s axes are pretty closely aligned.

On February 23<sup>rd</sup>, Tim Stone installed an update to *Sky X* software used to control the telescope. During the first years with *Sky X* we told the telescope to go to M 42 and it was close, but not spot on. It was almost always necessary to move the telescope to center the object by doing a manual “plate solve” routine. Last year Tim learned a new plate-solving approach to

entirely eliminates the centering problem. Today we just tell the program to “go to” and it will move to where it thinks M 42 is and take a picture and plate solve it. After the plate solving routine, the telescope will automatically move precisely to the center of M42 all by itself. A year ago this all had to be done manually and, thanks to Tim Stone, it is now done automatically.

Last March we upgraded the computer’s *Maxim* software and discovered a new feature that has made life better. It was the “pole flip” button that had made it possible to aim the telescope almost anywhere in the sky without ever having to recalibrate the guider scope.

Having done only one *First Point* alignment with the new mount thus far, the telescope does not go exactly where we want it to the first time. Future alignments will help it to do so. The current point is therefore not 100% accurate; nonetheless, it is still quite good. With a few more tweaks we should have a perfect set up.

## ASTROBITS

- ★ The night after Dr. Linda French’s after-dinner talk at the club’s Annual Meeting, Bob Finnigan went to SGO to use the 20” telescope to image asteroid [\(1166\) Sakuntala](#) that Dr. French suggested as a test object. According to Wikipedia, “1166 Sakuntala is a main belt asteroid orbiting the Sun. Approximately 29 kilometers in diameter, it makes a revolution around the Sun once every 4 years.” The asteroid completes one rotation once every 6.3 hours. Bob took some 50 images and noted a variation in brightness over a short period of time. These images were compiled to show the motion of the 14.6-magnitude asteroid against the background stars. The asteroid appears here as a diagonal streak among the stars of Leo Minor.



- ★ Bob Finnigan, Tim Stone, Jim Meeker, and Carl Wenning worked together on the evening of February 3<sup>rd</sup> to install a 48” tall pier under a new Astro Physics 1100 mount that will hold the 10” telescope in the SOUTH position of the Prairie Sky Observatory. Moving from a 36” to a 48” pier will increase southern sky exposure for the 10” telescope. The 36” pier that formerly held the 10” telescope will be moved to the EAST position to hold a Celestron 11” telescope on a second Astro Physics 1100 mount. This latter telescope will be dedicated to visual observing now that the club has 3 telescopes dedicated to imaging – the 10” and 20” in PSO and the 17” in SGO.

- ★ This year’s Family Science Day will take place on Saturday, April 5, 2014 from 11 a.m. to 4 p.m. at Redbird Arena on the ISU campus. Thanks to external support, this year’s event will be FREE! Family Science Day is a public outreach event to educate and inspire K-8 students in the STEAM fields. It is coordinated by the Center for Mathematics, Science, and Technology. The family-friendly event encourages scientific discovery through hands-on activities, challenges, and demonstrations. In addition, the event helps to raise the awareness of the importance of STEAM in our society. Plan now to attend. The TCAA will have several displays. To learn more, visit the [CeMaST website](#).

- ★ The Paramount ME that formerly held the 10” Takahashi telescope was been returned on February 22<sup>nd</sup> to the manufacturer for repair. The mount has been making some strange noises recently. It is believed that these noises are associated with one or more drive components. Fortunately, the mount will be repaired under warranty.
- ★ TCAAers Libby Norcross, Duane and Carolyn Yockey, Carl and Carolyn Wenning, and former member Sharon MacDonald were present for a by-invitation-only reception celebrating the 10<sup>th</sup> anniversary of the opening of the Challenger Learning Center (CLC) on the evening of February 6<sup>th</sup>. They had a chance to meet NASA astronaut Doug Wheelock. Libby, Carl, and Carolyn joined Doug for dinner after the



early evening event was over.

- ★ On February 7<sup>th</sup>, a number of TCAAers, both current and past, attended *A Night of Discovery* at the CLC when Doug Wheelock gave a marvelous hour-long presentation dealing primarily with his 6 months as commander of the International Space Station (ISS). Most tantalizing perhaps was his story of the November 3, 2007, “free float” (a space walk without a tether) when making repairs outside the ISS. As he mentioned, “It was the scariest thing I’ve ever done in my life.” He did it not once, but twice! In attendance were Tom and Carolyn Weiland, Mark and Nataya Boulware, Libby Norcross, Carl Wenning, and former club members Mike Miller and Sharon MacDonald. Here Libby and her friend Gloria Lloyd are seen with Col. Wheelock, a.k.a. *Wheels*, following his talk.



- ★ The International Dark Sky Association has new program called *Save Our Stars*. The rollout will coincide with the “reboot” of the classic PBS series *Cosmos*, that will air on the NatGeo Channel and Fox on March 9 and 10.

Episode #4 of the series will deal with the subject of light pollution. There are opportunities for astronomy clubs to coordinate public education and public outreach events. For more information, check out the [official event website](#).



- ★ Despite the long, cold winter, TCAAers are continuing to make use of the SGNC observatories to image the night sky. Hardly a clear evening goes by when at least one or two of our members are working. Bob Finnigan, Tim Stone, Jim Meeker, and Brad Welch are “regulars” with others such as Craig Prost and Brian Barling making periodic visits. Editorial note: It’s great to know that these facilities are appreciated and being used on a very regular basis by the membership. Central Illinois has received some four feet of snow for the season to date. Despite the exceptionally cold weather (many nights reaching sub 0°F temperatures), the club’s die-hard members keep observing...

- ★ [Dr. Patrick McGuire](#) from Freie Universität Berlin (Germany) has expressed interest in touring the observatories of the TCAA when he visits the USA later this month. He contacted Carl W. during February asking to

arrange for a visit on March 24<sup>th</sup>. Patrick, formerly from Bloomington, earned his Ph.D. in astronomy from Arizona State University. He now works for the European Space Agency and is in charge of the high-resolution stereographic camera system aboard ESA’s *Mars Reconnaissance Orbiter* that has been circling the Red Planet since 2003. Perhaps we can get Patrick to give us a brief talk during his visit. Interested? Let Carl know and he will see what he can arrange.

- ★ Carl W. received a nice phone call from former members Jim and Pam Wall on February 12<sup>th</sup>. They continued their discussion the following day. Jim wanted to learn more about conjunctions between Neptune and Pluto to check out some information he had seen somewhere. Jim would like someone from the TCAA to hold a planetary observing session at Bickford House in Bloomington where he and Pam reside. Jim is now 78 years old.
- ★ The spring meeting of the Illinois Section of the American Association of Physics Teachers will be meeting at IWU Friday-Saturday, March 28-29. Dr. Linda French has invited TCAA members to consider giving a talk about some of the work of our imaging team. The theme of the meeting is “Laboratory Curriculum in Physics”. The ISAAPT is the same group that toured our observatories last October. Several members of that group have indicated an interest in an informal return visit to see our members at work. Carl W. hopes to bring a handful of astronomy-types that evening if possible.
- ★ The TCAA is prominently featured in photographs taken at SGO and PSO during the ISAAPT’s visit last October. You may see some very nice photographs on the [ISAAPT website](#).
- ★ NEO asteroid 2000 EM26 – the size of three football fields – made a close approach of Earth on Monday, February 17<sup>th</sup>, and several members were able to watch the flyby in a live webcast by the Slooh space group. Cameras in the Middle East tracked the asteroid as it passed by Earth. Scientists estimate that this asteroid is about 885 feet (270 meters) in diameter, and is moving through the solar system at a break-neck speed of 27,000 mph (12.37km/s). During its closest approach, the asteroid flew about 8.8 lunar distances from Earth. To watch a rerun of the “live” astronomical event as they happened, visit the [Slooh website](#) to access their hour-long video. (TCAAers did not observe the close approach telescopically due to the asteroid being inconveniently placed in the pre-dawn sky.)

- ★ Dr. Linda French at IWU has responded to one member's query about possibly teaching a short course for TCAA observers on the use of the Canopus program to do asteroid photometry. She and her employee Dan are willing to do if there is sufficient interest. That have been doing this work under the bright lights of Bloomington with the Mark Evans Observatory's 11" telescope and the color camera we sold them earlier. We have in turn invited them to visit Prairie Sky Observatory to see how me might work together to do studies of asteroids – primarily the study of rotation curves. We certainly have the capacity to do this work as Bob F. showed "proof of concept" several weeks ago when imaging (1166) Sakuntala.
- ★ It turns out that Linda French will be teaching a course dealing with the photometry of asteroids some time during the week of March 10-14. Bob F., Dave O., and Carl W. have indicated interest. If this will be an evening class (with the exception of Tuesday, March 11<sup>th</sup> when the TCAA holds its next Board of Directors meeting), then all three might attend. If a daytime class, then only Bob and Carl will be able to attend. They will share what they have learned with others who have indicated an interest in attending but will not be able to do so due to jobs and travel.
- ★ Tim S. noted that SGO was suffering a bit of water seepage given the recent snowmelt and rain. The observing room's east end is covered with moister as is one of the expansion joints within the telescope room. It is entirely possible that the seepage resulted from snow banking up against the east exterior wall of the observatory. Decisions need to be made how best to prevent water seeping into PSO in the future.
- ★ Carl W. and Bob F. delivered the recently modified 48" WEST pier to PSO on February 21<sup>st</sup> for future mounting. It will hold a new Astro Physics 1100 German equatorial mount that in turn will for now hold the club's Celestron 11" SCT which is intended primarily for visual observing. Bob also received a shipping carton that day for returning the ailing Paramount ME mount to the manufacturer for warranty service. They shipped the ailing mount the same day.
- ★ The Boy Scout astronomy merit badge workshop slated for March 1 and May 24 has been cancelled due to a lack of any Scout signing up. Lee and Carl (who was recently re-certified as a merit badge counselor) will look to reschedule the event during warmer weather.
- ★ Want to name a crater on Mars? It's possible for as little as \$5. Check it out at <http://www.uwingu.com>.
- ★ The Illinois Dark Skies Star Party has been set for September 25-28. Check out the details at <http://www.sas-sky.org>.

### EDITOR'S CHOICE: IMAGE OF THE MONTH

This month's image shows the Rosette Nebula in Monoceros the Unicorn, and Craig Prost produced it. According to Craig, this image "is a combination of over 11 hours of data, 8 months of time, and three different telescopes and cameras. I used CCA-250 narrow band data captured last fall and combined it with H $\alpha$  (hydrogen alpha) data from my AP130 and my very first narrow band data taken a year ago with my FSQ-106. Surprisingly, the best SII (singly ionized sulphur) data was from the FSQ.

"Next up for this nebula would be an H $\alpha$ LRGB (hydrogen alpha, luminance, red, green, blue) image. There is no need to collect any more H $\alpha$  data because the club has plenty of that. I just need to focus on getting good color data and this requires a moonless, clear night.

"The most important aspect of this exercise was that it is a proof of concept that if we as a club keep all the data collected from the various scopes, over time we will have the ability to create some first-class images."



### THE POWER OF GIVING

*Editor's note:* During February, two of our club members independently wrote short articles for this newsletter about the power of giving. Both sets of comments are very poignant and might get us all to think about this power that we all have – if but to greater or smaller extents. Remember, no gift is ever too small, and even small gifts can have great impacts. The authors' thoughts are below.

**Dave Osenga** noted the following: Several years ago, my brother, who lives in Oregon, gave a telescope to my younger brother, who lives in southern Florida. He only looked through it once when we visited him and saw Saturn over the Miami lights. This brother asked me during a recent holiday visit if I would be interested in having the telescope. It is a 10" Dobsonian scope with good optics. I told him that I really didn't need it and that he should consider either selling it or

donating it to a local astronomy club in south Florida.

Recently, one of my co-workers was telling me about his 10-year-old granddaughter's interest in science and astronomy, and that she was asking her parents to get her a telescope. So, I went into my normal mode of telling him to not let them get a cheap scope at a local retail store, but that they might consider binoculars and a couple of inexpensive star and constellation books just to see if there really was some interest. I then mentioned that my brother was looking to sell his scope and described it to him. He, in turn, contacted his family in Miami and they got pretty excited. We arranged for them to talk, and they then met, and my brother gave the 10" scope to this young lady. She was thrilled! My brother was happy to see her interest and excitement and even gave her another item as a gift just because "she was so cute!" She then told her grandpa – my friend – that she was so excited and repeatedly thanked him for making these arrangements.

I share this because it was so fun to see how all of these events came together, over a number of years, at opposite ends of the country, and via the TCAA, to enable and encourage this young person to pursue her interest in astronomy. We'll have to keep track of this young lady to see how this develops. By the way, the two books are ones that have helped me learn the constellations and the major objects in them, and I've recommended them repeatedly to others. The first one I've used for several years and keep it in my observing kit all the time. It is [The Stars](#) by Ian Ridpath. The other is a book found in the kid's section of the bookstores and was recommended to me by Carl Wenning. It is [The Stars: A New Way to See Them](#) by H.A. Rey, the author of the Curious George book series. Rey has two books like this, but this is the one I have.

**Carl Wenning** noted the following: As was mentioned in Lee Green's minutes for the 54<sup>th</sup> Annual Meeting, Brian Barling donated a number of astronomy-related books from his personal collection for distribution as door prizes. Holding ticket number "666", I experienced bad luck and was not selected to be a winner of a door prize. Nonetheless, my wife Carolyn's number was called, and she surreptitiously picked out a book that she thought I might enjoy. She made an excellent choice by picking the book [Copernicus' Secret: How the Scientific Revolution Began](#) by Jack Repcheck.

After we returned home, I began reading this book and completed it after only 3 or 4 sessions. The book was absolutely captivating; I have never learned so much about Copernicus. Because of reading this history, I was captivated by the idea of reading more about this time in astronomy. Repcheck made a number of suggestions for additional readings, and I subsequently purchased several historically significant works from Amazon. Among them was Arthur Koestler's [The Sleepwalkers: A History of Man's Changing Vision of the Universe](#). Reading this 1959 classic has shown to me why it is often seen as a leading authority on Nicolaus Copernicus, Tycho Brahe, Johannes Kepler, and Galileo Galilei. What an amazingly detailed and enjoyable treatise this book is; I recommend it to anyone who wants to obtain a comprehensive treatment of this amazing era.

The impact of Brian's small gift has been quite impressive in my mind. I now have copies [On the Revolutions of Heavenly Spheres](#) by Copernicus, [Epitome of Copernican Astronomy and Harmonies of the World](#) by Kepler, [Dialogue Concerning the Two Chief World Systems: Ptolemaic and Copernican](#) by Galileo, [Dialogues Concerning Two New Sciences](#) by Galileo, [Sidereus Nuncius or the Starry Messenger](#) by Galileo, and [The Principia](#) by Newton – all of which are in my newly expanded library and on my reading list. Thanks to Brian for the impact of his gift!

## ASK THE EDITOR

The Editor is now answering questions posed by club members. If you have a question about something of interest to you – either about the present day TCAA or its past – please send your question to Carl at [carlwenning@gmail.com](mailto:carlwenning@gmail.com)

**Question:** It is true that the TCAA is not the first group of amateur astronomers in the Bloomington-Normal community?

**Answer:** It is true! Thanks to a bit of help from Bob Finnigan (an accomplished genealogist), I was able piece together the following story back in 2012... The first group of amateur astronomers in Bloomington-Normal (IL) predated the Twin City Amateur Astronomers (founded 1960) by more than six decades. In 1893, and perhaps earlier, the Rev. Henry O. Hoffman of Bloomington established an amateur astronomical society. Such an occurrence was rare at that time because leisure for such pursuits was rather uncommon.

Rev. Hoffman appears to have had a long-standing interest in astronomy. During September and October of 1886 this interest was made clearly evident when he wrote a three-part series titled "A Rational Future State" for a Bloomington newspaper, *The Bulletin*. In part three of that series, while describing life after the second coming, he included tantalizing information about the universe in general and the solar system in particular. H. O. noted that life was likely to exist on all eight known planets, and that their citizens must be very human-like. He captivated his readers by using his oratorical skills

noted years earlier. “[He] is a pulpit orator of marked ability [who] attracted very large audiences. He has been in great demand as a lecturer and speaker.”

During the last decade of the 19<sup>th</sup> century, H. O. was regularly lecturing about astronomical topics in diverse places in central Illinois. He was a regular member of the Astronomical Society of the Pacific, having paid membership dues from at least 1891 to 1894. According to his obituary, “He was a deep student of astronomy, and his talks on that subject were always interesting.”

The Bloomington Astronomical Society likely sprang up from his regular teaching of astronomy classes every Tuesday evening at members’ homes that were conducted during 1893 and perhaps earlier. Meetings generally were restricted to lectures, discussion, and a bit of socializing. On January 30, 1894, a group of prior participants met at the home of Hoffman (612 N. West St.) “for reorganization”. The *Pantagraph* noted the next day that, “A feature of the coming work will be papers read at each meeting by the members. Heretofore the work has been continued to [include] lectures and general discussions.” The Society was a close-knit group of Hoffman’s personal friends, many of who were possibly members of the “Most Worshipful Grand Lodge” of the State of Illinois, Free and Accepted Masons, in Bloomington. Rev. Hoffman served as Grand Chaplain of that group and had an extensive social network at this time.

Sometime between late 1906 and 1907, the Astronomical Society built an observatory behind Rev. Hoffman’s Roosevelt Avenue home in Bloomington. (He resided there starting in 1906 or 1907 according to city records and became terminally ill in 1907.) According to a May 29, 1914 *Pantagraph* article, a “fine telescope” had been installed and “the members of the organization spent many hours there in research and study of the celestial spheres.” According to his obituary, “He erected in his yard a private telescope of much power, thru which he made almost nightly studies of the mysteries of the heavens.”

Hoffman died of “nervous paralysis” on Sunday, June 28, 1908, at 71 years, 11 months, and 12 days of age according to official records. He was interred at Bloomington’s Evergreen Cemetery (Section 12, Lot 35) on June 30.

Shortly after Hoffman’s death, the Bloomington Astronomical Society fell on hard times. The society found that it was unable to maintain the observatory any longer and it was offered for sale along with its telescope. The Bloomington School Board purchased the telescope and observatory. It was agreed that the observatory would remain in location until some of Hoffman’s heirs and legatees should order it removed. The Hoffman home was now in the possession of Hoffman’s younger son Rolland who had returned recently from the gold fields of Alaska.

For a time the observatory and its telescope were used by faculty and students of the nearby Edwards Grade School. Within a very few years, “from the fact that few of the science instructors took keen interest in astronomy, the observatory was of but little use.” The telescope was eventually removed from the observatory and stored at Edwards Grade School.

By early 1914, Rolland Hoffman was desirous of making some improvements on the home property, and requested that the observatory be removed. Consequently the Bloomington School Board offered it for sale, with the intention of selling the telescope “later on.” A 1914 *Pantagraph* article reported, “The sale of this property calls to the minds of many Bloomington residents, especially those interested in scientific matters, the organization of the Astronomical Society many years ago by Rev. H. O. Hoffman and a number of his friends.”

That was the last bit of information made available to posterity. No one appears to know anything about what happened to the observatory or the telescope that it once contained.



Rev. H. O. Hoffman

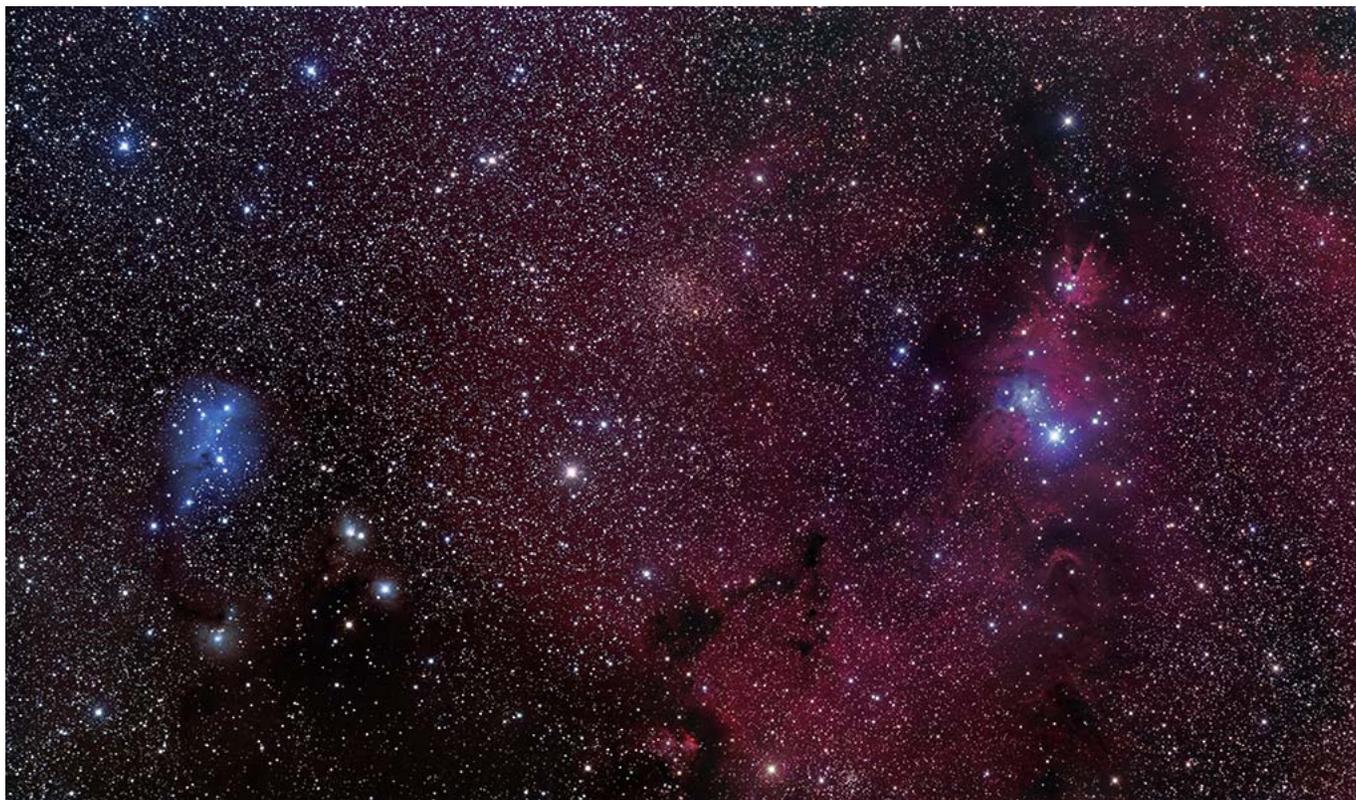
## HOW TIME FLIES

TCAA Historian Carl Wenning provides monthly updates about the history of the club going back to intervals of 50, 25, and 10 years. Details about all mentioned events will be found in either the [Twin City Amateur Astronomers: 1960-2010](#) or in [The OBSERVER archive](#) found on the [TCAA website](#).

**50 Years Ago:** March 1964 – Twelve members of the TCAA visited Peoria’s the recently opened planetarium at Lakeview Museum. The club’s membership has reached 50.

**25 Years Ago:** March 1989 – The club has begun a series of Mini Messier Marathons, one for each season. The club’s March meeting was held at the ISU Planetarium and the topic was “Peering into Deep Space.”

**10 Years Ago:** March 2004 – The club viewed the ISU Planetarium’s latest offering, *Follow the Drinking Gourd*. Tom Willmitch presented the program. The club held its first public observing session of the season on March 27<sup>th</sup>.



## THE 15 MONOCEROTIS REGION

BY TIM STONE

The above image, 4 degrees wide and 2.5 degrees high, includes the famous Cone Nebula and so much more. It has it all: fluorescing H $\alpha$ , lanes of obscuring dust, reflection nebulae, Herbig-Haro objects, a rich star field that includes three open clusters, and plenty of historical significance. The region was studied by E. E. Barnard and included in his catalog of “dark objects,” and also by Edwin Hubble. Both of these famous astronomers worked together at Yerkes Observatory in Williams Bay, Wisconsin, as their studies of this region progressed.

IC 2169 is the large reflection nebula near the left edge of the image. Also called “Dreyer’s Nebula,” it has the distinction of being erroneously duplicated in the Index Catalog as both entry 2169 and 447. It is accompanied by a trio of smaller reflection nebulae: IC 2167 (also duplicated as IC 446), NGC 2245, and NGC 2247. These all sit on the edge of the inky black nebula cataloged as Barnard 37.

The ancient open cluster Trumpler 5 (Collinder 105) is in the center of the image. Situated 11,000 light years from us, and significantly reddened by interposed galactic dust, it is an exceptionally old open cluster. Based on the metallicity of its stars, the age of this cluster has been estimated at five billion years – an incredible age for open clusters – that normally disperse after some hundreds of millions of years. In this instance, the mass of the cluster is enough to resist dispersion and retain the bulk of its stars which have been unable to gain escape velocity from the gravitational interactions within the cluster. Its yellow color is due in part to the age of its stars as well as reddening from the gas and dust in the region. The brightest member of Trumpler 5 is V493 Mon, a beautiful carbon star.

NGC 2259, a younger and smaller version of Trumpler 5, appears at bottom center. These open clusters are cousins, both approximately the same distance from us. NGC 2259 will not last nearly as long as Trumpler 5. The brilliant star to the left of NGC 2259 is HR 258. At its distance of 127 light years, Trumpler 5 and NGC 2259 are 100 times farther away.

Above and to the right of NGC 2259 is the famous Christmas Tree Cluster region. Shaped like a Christmas tree, it is an H $\alpha$  region powered by the massive 15 Monocerotis, also known as S Monocerotis. It has traditionally been considered the source of much of the radiation that powers the H $\alpha$  emission nebula. NGC 2264 is the cluster of O and B supergiant stars adorning

the boughs of the Christmas Tree. Like a Christmas Star, the Cone Nebula graces the apex of the tree. Its striking shape is the result of radiation pressure eroding the dusty cloud in the area.

There are several Herbig-Haro objects within this nebulosity, the result of jets spewing outward from young protostars. While the jets themselves are typically invisible, as they collide with the surrounding environment, they compress and heat the gasses that then glow. Their graceful and delicate arches are easy to miss, but they tell us that star formation is still very active in this region.

Hubble's Variable Nebula is near the top of the image above the Cone Nebula. It was a favorite of Edwin Hubble for his entire career. He first studied this nebula as a staff astronomer at Yerkes Observatory. Perhaps his most famous image of this object was the first light photograph he acquired with the brand new 200" Hale Telescope. It is a unique object in that it appears to change on relatively short timeframes. The star at its point, R Monocerotis, has clouds of thick dust orbiting it that cast shadows out into the nebulosity. The University of Manitoba has produced striking [animations](#) of the rapid changes in this nebula.

My image is a mosaic of two panels, a total of 81 five-minute exposures with the 10" Takahashi and Aspen Apogee 16M. The right side image was taken as the shakeout of the new pier and Astro Physics 1100 mount. Both images were taken in February 2014 at Prairie Sky Observatory.

### TCAA TREASURER'S REPORT – FEBRUARY 2014

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OPERATING FUND BALANCE – January 31, 2014 -	\$ 2,234.94
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Income

William Carney (Dues) -	\$ 41.00	
Dennis Readey (Sen. Dues) -	\$ 26.00	
Lee Green (Dues) -	\$ 40.00	
Dave Osenga (Dues) -	\$ 40.00	
Tim Stone (Dues) -	\$ 40.00	
Paul Pouliot (Dues) -	\$ 40.00	
Mark Boulware (Dues) -	\$ 40.00	
Brian Barling (Dues) -	\$ 40.00	
Annual Meeting Dinner Receipts -	\$ 500.00	

Expenses

Linda French (honorarium) -	\$ 100.00	
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OPERATING FUND BALANCE – February 28, 2014 -	\$ 2,941.94
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OBSERVATORY FUND BALANCE – January 31, 2014 -	\$ 4,280.41
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Income

None -	\$ 0.00	
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Expenses

None -	\$ 0.00	
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OBSERVATORY FUND BALANCE – February 28, 2014 -	\$ 4,280.41
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INSURANCE ESCROW BALANCE – January 31, 2014 -	\$ 5,274.00
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Income

None -	\$ 0.00	
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Expenses

None -	\$ 0.00	
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INSURANCE ESCROW BALANCE – February 28, 2014 -	\$ 5,274.00
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TOTAL TCAA FUNDS – February 28, 2014 -	\$ 12,496.35
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Respectfully submitted,  
L. Duane Yockey, Treasurer

