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A NOTE FROM PRESIDENT TOM WEILAND

I trust this finds you all recovering from the hectic month of December. I certainly hope that all of you had an opportunity to enjoy time with family and friends however you chose to celebrate the holiday season.

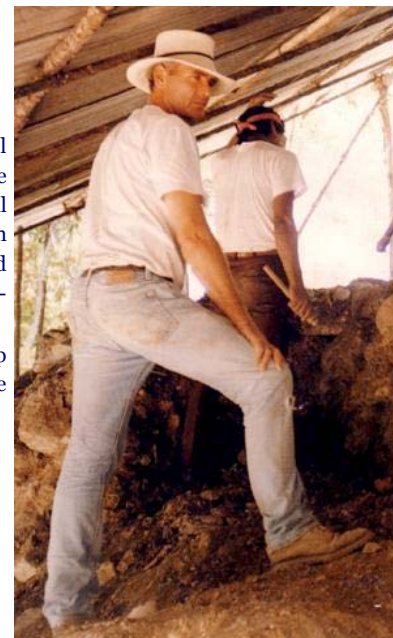
January always brings with it a chance to look back at the past year and forward to the next. TCAA had an exciting year with our Venus Transit event....just one of the many outreach experiences we make available to the public. I hope all TCAA members will join in as we prepare for another exciting year of activities that will allow us to share our "hobby" with others. A great opportunity to become more active as a member is available next month at the TCAA annual meeting on February 23. More information will follow, but I want to again remind you of this date so that you can make sure it is on your calendar. This is our annual business meeting with dinner and an invited guest speaker. This year's guest is Dr. Christopher Powell, an engaging speaker who has a dozen years of experience conducting archaeological excavations at the Mayan ceremonial centers in Belize, Honduras, and Mexico. All TCAA members are encouraged to attend.

Finally, you might remember that last month I wrote about my disappointing experience viewing this year's Leonid Meteor shower, seeing only one meteor in thirty five minutes. However, I also wrote about the endless optimism of astronomers and how I was looking forward to the Geminid Shower. I'm happy to report that optimism again paid off! A twenty seven minute period during the cold early morning hours of December 14th provided me with a view of FIFTEEN very nice meteors....well worth slipping out of a warm bed at 1:30 in the morning! Clear Skies!!

SPEAKER SET FOR ANNUAL MEETING

Dan Miller has arranged for the appearance of Dr. Christopher Powell at the 2013 Annual Meeting on February 23rd. Dr. Powell has over twelve years of experience conducting, supervising and directing archaeological excavations at the Mayan ceremonial centers of Cerros in Belizé, Copan in Honduras, and Palenque in Chiapas, Mexico. He also has conducted anthropological investigations in the Yucatan, Honduras, southern Mexico and the highlands of Guatemala.

This year's 52nd Annual Meeting will be held in Normal Township Hall as we have done so the past few years. Stay tuned for details to be reported in the February issue of *The OBSERVER*.



The *OBSERVER* is a monthly publication of the Twin City Amateur Astronomers, Inc., a registered 501 (c)(3) non-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 first of each month.

Membership Dues

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

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

CALL FOR NOMINATIONS

Each year, at the club's Annual Meeting, the membership elects a Board of Directors to serve for the next 12 months, and members are recognized for their service to the club. This coming February it will be no different.

Nominations are needed for the Board. The TCAA membership is hereby reminded that nominations are needed for the 2013-2014 Board of Directors. An election for the next Board will be held at the club's Annual Meeting on February 23rd. It will be held at the Normal Township Hall. As an incorporated entity operating under the laws of Illinois, a Board of Directors (consisting of 5 members) manages the operations of the club. When elected, these 5 individuals select from among themselves the next president and vice president of the club. The group then appoints or re-appoints major officers (secretary and treasurer) and minor officers (ALCor, official registered agent, historian, property manager, etc.)

Nominations are being accepted for the John and Bertha Kieviet Founders Award. This award is conferred upon a TCAA member to recognize demonstrated leadership to the club. Those so recognized need not have been a president of the club. If leadership is interpreted in terms of service to the membership, this is as close as the TCAA comes to having a distinguished service citation. Lee Green received this award last February.

Nominations are being accepted for the Eugene and Donna Miller Family Award. This award acknowledges the strong efforts by a family to participate in the club as a unit. One or more parents are recognized for their efforts to instill within their children interest in and dedication to amateur astronomy. No one received this award last February.

Nominations are being accepted for Lifelong Honorary Membership. This designation is reserved for those TCAA members who have provided exceptional meritorious services to the club in terms of contributions of time and resources. This signal honor has been conferred only five times in the 50-year history of the TCAA.

Please note that G. Weldon Schuette Society of Outstanding Amateur Astronomers has been discontinued by a prior vote of the TCAA Board of Directors.

To see who has previously been recognized with such awards, be certain to check out the club's historical volume *History of the Twin City Amateur Astronomers 1960-2010* available online at http://www.tcaa.us/Download/TCAA_History.pdf (139-pages) as well as the March issue of *The OBSERVER* for 2011.

Please e-mail your nomination(s) to President Tom Weiland at tomcea52@yahoo.com. If recommending candidates for the Kieviet or Miller awards or lifelong membership, a short description explaining why you feel the nominee(s) deserve(s) the award(s) is required. The current Board of Directors and appointed officers will make decisions about the awards during the January 8th Board meeting, so be certain to get your nominations in at least a day before.

BYLAWS AMENDMENT PROPOSED FOR CONSIDERATION AT ANNUAL MEETING

In compliance with bylaw requirements, the TCAA membership is hereby put on notice that one or more amendments to the bylaws will be brought up for a vote at the February Annual Meeting. One proposed amendment redefines the duties of the position of Property Manager that will allow for delegation of responsibilities for ordinary property (e.g., observatory building, loaner telescopes, library) and specialized equipment (e.g., permanently mounted telescopes and associated equipment such as astronomical cameras, filter wheels, and computers.) More details about the proposal will appear in the February issue of *The OBSERVER* after the Board of Directors approves the proposals at their January 8th meeting.

2012 REVIEW

By Lee Green

What a year we've had! Between our outreach efforts, the many donations we've received and the cooperation of the heavens, 2012 was certainly an outstanding year for the TCAA!

We had a record number of people with whom we interacted throughout the year in our busy calendar of 32 outstanding public events. Many thanks are due to the members who brought their telescopes to these events. We had at least 85 telescopes set up at our 32 events, for an average of nearly three telescopes for each. We interacted with over 2000 people throughout the year! 2012 was certainly one of our best years for our outreach and education activities.

In April, we had an excellent presence at the ISU Family Science Day where we had several displays and had a steady stream of solar observers. The Venus Transit of the Sun on June 5 saw 400 people turn out for this last-in-our-lifetime event. And the Sugar Gove Nature Center's Autumn Celebration saw over 400 people visit the observatory.

Our Public Observing Sessions had better results than usual, with only 2 events cancelled due to weather. Our decision to hold these events in spite of overcast skies paid off with three of our sessions being well attended for the program only. We had over 250 people visit us at these sessions.

In addition, we participated in a variety of events for schools, scouts, churches and other groups, both at the Nature Center and at other venues. We interacted with over 300 people at the Nature Center and another 300 at other locations.

We have been blessed with a number of outstanding additions to our capabilities this year. We have some fabulous equipment installed at our observatory including a new precision mount, a large optical instrument and a wonderful solar telescope. These items, generously donated to the club, have greatly expanded our capabilities and our members have provided some fantastic images taken with this equipment. In addition, we have made significant progress in planning for a new facility that will further extend our capabilities at performing advanced astronomical observations. Indeed, the future of the club looks bright and we have much to be thankful for.

NASA certainly held up their end of the bargain in providing an outstanding year in planetary sciences. The twin GRAIL probes – Ebb and Flow – mapped the Moon's gravity field and internal structure in their yearlong mission. The Dawn spacecraft completed its investigation of the asteroid Vesta and started on its continuing journey towards Ceres. The Nuclear Spectroscopic Telescope Array (NuStar) successfully launched in June and will study high-energy X-rays found in black holes, supernovae and active galaxies. The August 30 launch of the Radiation Belt Storm Probe (RBSP) was the first time a pair of satellites will be used to study the Earth's radiation belt.

Among the most exciting milestones for the year, the Curiosity rover made a pinpoint landing in Gale Crater on Mars, starting a multi-year chemical and geological investigation of the Red Planet.

SpaceX completed two cargo missions to the International Space Station, first in February where it became the first commercial provider to supply the ISS, and a second mission in October. With Orbital Science scheduled to extend in 2013 the number of private companies involved with launch services, the future of America's presence in space looks bright.

This has been a great year for the TCAA. It is because of members like you that have helped us to achieve so much together. Thank you and let's make 2013 better still!

TCAA WINS SUNSPOTTER!

The TCAA is among four astronomical societies that have won a Sunspotter this season. The four astronomy groups were the Astronomy Club of Asheville, the Northern Colorado Astronomical Society, the Twin City Amateur Astronomers, and the Warren Rupp Observatory. Thanks and a tip of the hat to Lee Green who entered our 2013 POS events on the Night Sky Network web site, qualifying us for a drawing.

These four Sunspotters were donated by SOFIA, NASA's airborne infrared observatory. SOFIA is dedicated to contributing to enhancement of science, technology, engineering, and mathematics literacy, and public appreciation of the value of scientific research, in communities across the country.

The Sunspotter – a solar telescope – was won thanks to 83 qualifying clubs that posted over 1,500 events on the 2013 Night Sky Network calendar. This makes the NSN calendar premier place in the United States for finding astronomy events. The national calendar is listed on many web-sites, in mobile apps, and is accessed through the NSN widget.



TCAA AT ISU PLANETARIUM JANUARY 19TH

Mark your calendar now for the evening of Saturday, January 19th. The TCAA, in cooperation with the ISU Planetarium, will host of showing for the membership as well as those who have attended our public observing sessions this past year. Because 2013 might turn out to be the year of the comets (see the following article), this program will feature a live constellation talk by Carl Wenning that will include information about Comets PANSTARRS and ISON.

Planetarium director Tom Willmitch will provide a feature program, the topic of which has yet to be determined. President Tom Weiland has asked Carl to coordinate this event. Carl will be posting additional information on the TCAA listserv shortly, and will also email the 58 individuals who gave us their email addresses during the August and September POS programs at Sugar Grove Nature Center.

PSO AND MEO UPDATES

Tom W., Dave O, Bob F. Tony C., and Carl W. had a 50-minute meeting with FGCA President Linda Bristow the evening of December 6th. Topic of the discussion was the draft memorandum of agreement (MOA) for the proposed Prairie Sky Observatory (PSO). The discussion focused on clarification of statements within the agreement, and it was agreed that two contracts should be drawn up based upon much of the wording in the draft MOA. The first contract will deal with construction of PSO; the second contract will deal with a 5-year renewable lease agreement that will include PSO and SGO. Revisions are now under way, and the TCAA board will discuss and vote on the two contracts at their January 8th meeting.

Some of the TCAA's key astrophotographers are awaiting the opportunity to train IWU students in the use of the Celestron 11" telescope, CGE Pro mount, and the QSI 583 digital color camera with guider that in Mark Evans Observatory. As you will recall, the instruments were installed and aligned in late November, too close to the end of the IWU autumn semester to allow much time for training. It is expected that training will begin with the start of classes this month.

POS SCHEDULE FOR 2013

Coordinators have been arranged for the POS schedule during 2013. Dates, time, and topics are listed below. The topics were detailed in the October issue of *The OBSERVER*. If you would like to assist with these presentations, be certain to contact the coordinators noted below.

| Date | Time | Topic | Coordinator |
|-------------|--------------------|---|--------------------|
| Mar 9 | 7:00 pm – 9:00 pm | <i>Jupiter and the Galilean Moon</i> | Dave Osenga |
| Apr 20 | 8:00 pm – 10:00 pm | <i>Our Marvelous Moon</i> | Carl Wenning |
| May 11 | 8:30 pm – 10:30 pm | <i>The Expanding Universe</i> | John Werner |
| Jun 8 | 9:00 pm – 11:00 pm | <i>Astronomical Curiosities of Saturn</i> | Tom Weiland |
| Jul 6 | 9:00 pm – 11:00 pm | <i>The World's Great Telescopes</i> | Tom Weiland |
| Aug 10 | 8:30 pm – 10:30 pm | <i>Meteors, Space Rocks, and Comets</i> | Carl Wenning |
| Sep 7 | 8:00 pm – 10:00 pm | <i>Births and Deaths of Stars</i> | Lee Green |
| Oct 5 | 7:00 pm – 9:00 pm | <i>Our Galaxy, the Milky Way</i> | Lee Green |

AL OBSERVING PROGRAM STANDINGS—QUARTERLY REPORT

Below is a listing of the status of active TCAA observers pursuing AL observing programs reported to Carl Wenning as of December 31st. Here is a summary of some of the recent observing successes:

☆ This column failed to include mention last quarter that Jonah, Logan, and Troy Berg have continued to make progress with each of their binocular Messier observing programs. Their data can be found below.

☆ Brian Barling completed three additional Herschel 400 observing club observations since last report and his total now stands at 363.

☆ Carl W. has decided to include some “negative observations” in his planetary nebula observing program because as diffuse 14th magnitude objects, he really had no chance of viewing them at all with his CPC 11” telescope. Even his 18” Obsession failed to reveal some of these fainter planetary nebulas. His count of observed and unobservable planetary nebulas now stands at 106 – four short of the 110 required to earn the advanced certificate with pin.

If you would like to have your information included in next April’s listing, be certain to forward your observing totals to Carl by the end of March. Be certain to get your completed observing records to our ALCor, Duane Yockey, as soon as an observing program is complete so that you might be appropriately recognized on a timely basis. Our next AL observing award presentation will be at the February Annual Meeting. The next time after that will at the summer picnic.

| Astronomical League Observing Club | Brian Barling | Jonah Berg | Logan | Troy | William | Lee | Dave | Carl | Duane |
|---|------------------|---------------|-------|------|---------|--------------|-------|--------------|-------|
| Asteroid Club Reg25/Gold100 | | | | | (60) | | | | |
| Binocular Double Star 120 | | | | | 116 | | | | |
| Binocular Messier 50 | | 25 | 9 | 9 | (100) | (72) | 59* | (78) | 54* |
| Caldwell 70/109 | | | | | | | | 34 | |
| Comet Club Silver12/Gold30 | | | | | (31) | | | 4 | |
| Dark Nebula Imaging 70 | | | | | | 63 | | | |
| Deep Sky Binocular 60 | | | | | (60) | 60* | | (60) | |
| Double Star Club 100 | 29 | | | | 100* | (100) | | (100) | |
| Galileo Club 13 | | | | | 2 | | | | |
| Globular Cluster Club 50 | | | | | | (55) | | (65) | |
| Herschel Club 400 | 363 | | | | (400) | (400) | | (400) | |
| Herschel II Club 400 | | | | | | | | 397 | |
| Lunar Club 100 | (100) | | | | (100) | (100) | (100) | (100) | |
| Lunar II Club 100 | | | | | 85 | | | | |
| Open Cluster Club B100/25// A125/50 | | | | | | 100* | | 2 | |
| Planetary Nebula Club B60/A110 | | | | | 1 | | | (106)* | |
| S. Skies Binocular 50 | | | | | 9 | | 25 | (50) | (50) |
| S. Sky Telescope 50 | | | | | | | | (52) | (50) |
| Telescope Messier Pro70/Hon110 | (110) | | | | (110) | (110) | 110** | (110) | 71 |
| Master Observer (10 clubs) | 2 | | | | 8 | 9 | 2 | (10) | 3 |
| Urban Club 100 | | | | | (100) | (100) | | (100) | |
| Outreach Award B10/S60/M160 | | | | | | (*, **), *** | | (*, **, ***) | |

* Program or first award level now complete. ** Second award level now complete. *** Third award level now complete. AL recognition (certificate and/or pin) will be given at the next general membership meeting if available. Numbers in parentheses (#) indicate that the associated pin and/or certificate has been conferred on the recipient. Awards are conferred during the summer picnic and the February Annual Meeting.

TWO BRIGHT COMETS FOR 2013?

Comet apparitions are notoriously difficult to predict. It's not that we don't know when or where they will appear; it's that predicting their visibility is a guessing game at best. Who among us cannot remember Comet Kohoutek, the supposed "Comet of the Century" that fizzled back in 1973-74?

Granted, we are overdue for a bright comet. To the delight of many amateur astronomers, 2013 might turn out to be the year of the comets, one of which could turn out to be our next "Comet of the Century." This year will be graced with two comets that could really put on a show.

First, Comet PanSTARRS will swing around the sun and be in great viewing position between March 11 and 18. How bright this comet will be is anyone's guess. Current estimates call for the comet to be visible to northern hemisphere observers as a zero magnitude object visible during March.

The comet with more potential is called ISON. It could be incredibly bright when it comes into our view in late November and early December. Some astronomers cautiously predict that it could be considerably brighter than Venus with an amazingly long tail during its period of best visibility that should run from November through January 2014.

Both comets will be very well positioned for northern hemisphere observers. But, remember, comets are notoriously fickle, so watch this newsletter for updates as these events draw closer.

CONSTELLATION OF THE MONTH: ARIES—THE RAM

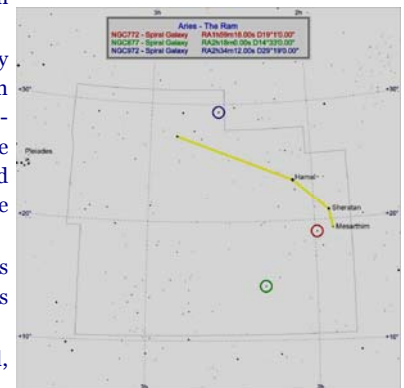
Aries is a zodiac constellation that lies north of Pisces and Cetus and south of Triangulum and Perseus.

Aries is recalled in the story of the ram with the golden fleece provided by Mercury that bore Phryxus and Helle, children of King Athamas and Queen Nephele of Thessaly, away from their evil step-mother. The ram took the children on a wonderful trip through the sky. As they were leaving Eupore, Helle fell into the sea and died at a place thereafter known as Hellespont, now called the Dardanelles. The golden fleece was the object of the quest by Jason and the Argonauts.

Aries is the 29th largest constellation covering 441 square degrees and is the 41st brightest. Aries reaches opposition on October 31. The Sun passes through Aries from April 18 through May 14.

The three brightest stars in Aries are named, in order of brightness, Hamal, Sheratan and Mesarthim. Mesarthim is an attractive double star.

Aries has few dramatic deep space objects and contains mostly small, dim galaxies. Among the best of these are NGC772, NGC877 and NGC972.



ON THE DURATION OF TWILIGHT

Carolyn and Carl Wenning took a brief cruise to the eastern Caribbean from December 16-23. While departing Phillipsburg, St. Maarten, both were amazed how very rapidly the sky darkened following sunset – especially in contrast with the hours-long duration of twilight they experienced in Alaska during May 2011. Later that evening, while at 18 degrees north latitude, the Wennings observed the stars Canopus (-0.7 mag Alpha Carinae) and Achernar (0.4 mag Alpha Eridani) from the deck of the ship *Ruby Princess*. Following their return, Carl decided to perform some calculations about the duration of twilight at low and middle northern latitudes, and these are the results.

From a study of spherical triangles, the hour angle of the setting sun, H_2 , at latitude φ with the sun's declination δ , can be found as follows:

$$\cos H_2 = \frac{\cos 90.83^\circ - \sin \varphi \sin \delta}{\cos \varphi \cos \delta}$$

where 90.83 degrees represents the zenith distance of the sun when its upper limb disappears below the horizon.

Now, the hour angle of the sun when its center is 18 degrees below the horizon (H_1 , at a zenith distance of 108 degrees marking the end of astronomical twilight) is found as follows:

$$\cos H_1 = \frac{\cos 108^\circ - \sin \varphi \sin \delta}{\cos \varphi \cos \delta}$$

The difference, $H_2 - H_1$, when multiplied by 1/15 (converting degrees into hours) gives the duration of twilight. Consider the duration of twilight in Illinois and in St. Maarten on December 19th, the date of the observation.

Declination of the sun = 23.4° south (negative)

Normal, Illinois (40.5° north latitude)

Phillipsburg, St. Maarten (18.0° north latitude)

end of astronomical twilight = 1h 38m

end of astronomical twilight = 1h 22m

Though the difference is only 16 minutes, the Caribbean skies appear to darken *much* more quickly there than at home. Perhaps it has something to do with our presence on the deep blue sea that absorbs skylight much better than does the land which tends to scatter it.

GET THOSE OBSERVING RECORDS IN!

Every year during the February Annual Meeting and the Summer Picnic, members receive formal recognition from the Astronomical League for completing observing and service programs. Recognition consists of pins and certificates, as well as a well-deserved round of applause from the assembled membership.

The February meeting typically sees 4 or 5 members receiving such honors. If you have completed an observing or service program recently, be certain to get your records to Duane Yockey, the TCAA's Astronomical League Coordinator (ALCor) so that you can be duly recognized. It typically takes several weeks to receive pins and certificates from the AL, so don't delay if you hope to be recognized at this coming February's Annual Meeting.

This issue of *The OBSERVER* contains the annual report of Astronomical League Observing Club observations. If you have made progress in any of your observing club's recently and haven't reported them, please provide your latest totals to carlwenning@gmail.com by March 31st.

ASTROBITS

- ★ Carl W. had a chance encounter with former TCAA member Jeff Rhodes on December 3rd. They were able to talk a bit over lunch. It appears that Jeff continues to observe from his home in south Bloomington. Carl invited Jeff to join the TCAA some time at SGNC.
- ★ Dave O. joined his son Andy and some of his fellow musicians on a special tour of the Johnson Space Center (JSC) in Houston on December 19th. Andy just released a solo album called *Leonard the Lonely Astronaut*, so that triggered the question to the team about taking a special tour of JSC. He then invited his father to join them, so it was his birthday and Christmas present to fly down and be a part of that event.
- ★ With the holiday “rush” and mostly overcast skies during the month of December, there were no E/PO programs during this past month. That being said, the TCAA provided outreach to more than 2,000 members of the general public during 2012 according to the count maintained by Lee Green. This is a very high number despite the fact that many of our Public Sky Viewing sessions were clouded out last year.
- ★ The nice but somewhat dated Hanson Planetarium framed pictures of famous astronomical objects offered by Carl W. recently were donated to the TCAA on December 6th for hanging in the Prairie Sky Observatory. These six large photographs are currently held in the club’s storage space at SGNC.
- ★ Lee Green and Dave Osenga were both mentioned twice in the December issue of *Reflector*, a publication of the Astronomical League. Lee was recognized for earning two observing awards: Double Star Observing Award # 475 and Open Cluster Award #56. Dave was recognized also for earning two observing awards: Binocular Messier Award #951 and Honorary Messier Award #2602. Congratulations to these fine gents; both should be receiving their observing pins and certificates at the TCAA’s February Annual Meeting.
- ★ NCRAL will hold its annual meeting April 12-13 at the Kahler Hotel in Rochester, Minnesota. Additional information can be found at <http://www.ncral2013.rochesterskies.org>. Watch this site for details.
- ★ For the record, there was no winter solstice party this past month due to an oversight in scheduling such at the last Board of Directors meeting.
- ★ In the event that you haven’t noticed, the end of the world did not occur as predicted on December 21st, the end of the past era of the Mayan calendar.
- ★ Mike Bakich, senior editor and photo manager at *Astronomy* magazine, informed Carl W. recently that two pictures by Bob Finnigan, Tony Cellini, and Tom Stone “are in the hopper”, with publication expected within a few months.
- ★ Arif Hidayat, a member of the mathematics and science faculty at Universitas Pendidikan Indonesia (UPI) of Bandung, will be staying with the Wenning family from January 11th through June 23rd as he studies the physics teacher education program as ISU and works with Carl W. on a number of projects. Arif is associated with the astronomy club at UPI. Be certain to welcome him warmly when you see him.

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 club history (<http://www.tcaa.us/History.aspx>) or in *The OBSERVER* archive found on the club’s web site (<http://www.tcaa.us/Observer.aspx>).

50 Years Ago

January 1963 – A small group of club members is making observations of two Cepheid variable stars – Eta Aquilae and Delta Cephei. Observers include David Williams, Weldon Schuette, and Hank Janecek.

25 Years Ago

January 1988 – The January club meeting focused on starlight and what it can tell us. The club is working on a long-term schedule of events and its first brochure for public dissemination. Members of the club met with Bill Wasson at Comlara Park to develop a preliminary contract for the possible construction of a public observatory there.

10 Years Ago

January 2003 – A vote to increase membership dues is announced in *The OBSERVER* by then President Sandy McNamara. Several members continue writing regular columns for the club’s newsletter dealing with history (Jim Swindler) and providing reviews of planetariums based on travels (Jean Memken). Monthly membership meetings continue to be held at the ISU Planetarium.

TCAA Treasurer's Report – December 2012

OPERATING FUND BALANCE – November 30, 2012 - \$ 1,213.34

Income

| | |
|-----------------------|----------|
| John Werner (Dues) - | \$ 40.00 |
| Duane Yockey (Dues) - | \$ 40.00 |
| Troy Berg (Dues) - | \$ 41.00 |
| Jill Blair (Dues) - | \$ 41.00 |

Expenses

| | |
|--|----------|
| LYB Inc. (Observer copies & postage) - | \$ 44.22 |
| PayPal (Troy Berg) - | \$ 1.20 |
| PayPal (Jill Blair) - | \$ 1.20 |

OPERATING FUND BALANCE – December 31, 2012 - \$ 1,328.72

OBSERVATORY FUND BALANCE – November 30, 2012 - \$12,587.89

Income

| | |
|-------------------|----------|
| Donation (WCTU) - | \$ 25.00 |
|-------------------|----------|

Expenses

| | |
|--------|---------|
| None - | \$ 0.00 |
|--------|---------|

OBSERVATORY FUND BALANCE – December 31, 2012 - \$12,612.89

TOTAL TCAA FUNDS – December 31, 2012 - \$13,941.61

Respectfully submitted,

L. Duane Yockey, Treasurer

MISSING OUT ON TCAA ACTIVITIES & EVENTS?

If you are missing out on club activities or celestial events, be certain to join the TCAA listserv. Many activities are planned at the last minute, and announced only hours in advance through the club's listserv. Reminders about celestial events are also broadcast to the membership through the club's listserv. To join this free service by Yahoo, send a blank email to TCAA-subscribe@yahogroups.com. Unsubscribing is just as easy. To unsubscribe, just send a blank email to TCAA-unsubscribe@yahogroups.com.

To keep up to date on celestial events not described in *The OBSERVER* or addressed in the listserv, visit Carl Wenning's observing page at www.phy.ilstu.edu/~wenning/observing_page.htm. It has been recently updated to include an extended sky calendar of events as well as additional space weather and satellite viewing links.

The OBSERVER

Newsletter of the TCAA, Inc.

Erin Estabrook, Editor
314 Covey Court
Normal, IL 61761

Are your dues due?



The Dues Blues?

If you see a check in the box above, it means your dues are due. To retain membership, please send your dues renewal to our esteemed Treasurer:

**Duane Yockey
508 Normal Avenue
Normal, IL 61761**