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MINUTES OF THE FEBRUARY 7TH ANNUAL MEETING

President Lee Green called the membership attending the 49th Annual Meeting of the TCAA to order at 6:50 p.m. Twenty-five members and guests were present for the event that took place at ISU's Turner Hall, room 104. The business meeting was preceded by a brief social and a nice banquet prepared by the ISU Catering Club. The business meeting began at 7:50 p.m.

Lee started off the meeting by welcoming our guest speaker for the evening and thanking the Catering Club for their efforts. A moment of silence was held in memory of deceased members. He then gave a brief President's report telling of the year just past. He noted that the club hosted more than 50 public events in 2008 that served 1,469 people. He also noted that 2009 is the IYA, and that we are looking forward to the NCRAL 2010 meeting. This past year the club has made valiant efforts to see that these upcoming events will be successful. Lee pointed out that the club had made capital expenditures consisting of a laptop computer and a video projector made possible in part by an anonymous donor. He finished his report asking TCAAers each to recruit a new member in the coming year, and to more regularly participate in club events.

Treasurer and ALCOR Duane Yockey then gave his reports. Wearing his treasurer's "hat" he noted a balance in excess of \$4,700, and a slowly declining membership with a strong core nonetheless. He asked SGO key holders to renew by paying their \$5 annual fee. He noted as ALCOR that the 2009 NCRAL meeting will be held in Cedar Rapids, IA, May 1/2, and that at least four TCAAers plan on attending. He further noted that nominations for the NCRAL regional award were due soon, and reminded everyone that our own Carl Wenning received this award in 2007.

Lee then noted that Duane Yockey is the official registered agent of the TCAA residing at 508 Normal Avenue in Normal, IL. Lee then moved ahead to the proposal for an amendment to the club's Bylaws. He noted the reason for the change dealing with a recent resignation of a Board member. Carl Wenning made a motion and Dan Miller seconded that Article IV, Section 4, should read as follows:

Removal/Replacement of Directors

Any Director may be removed from office in accordance with ARTICLE XV of these Bylaws. In the event of removal or resignation of any Board member, that Board member shall be replaced by an election with remaining Board members and officers serving as electors.

The floor was opened for discussion but none ensued. A vote was then called and the amendment as proposed passed unanimously. Attention was then directed to electing a 2009/2010 Board of Directors. A slate was proposed at the last Board meeting in January and consisted of the following: **Brian Barling, Carl Wenning, Dan Miller, Dave Osenga, and Lee Green.** There were no additional nominations following a call for such. Duane motioned and John Werner seconded that the nominations be closed. The slate was then elected unanimously by acclamation. Lee then called for additional new items of business. Hearing none, he moved on to the awards presentation.

Lee summarized the club's various awards and conferred the following:

- *G. Weldon Schuette Society of Outstanding Amateur Astronomers* – **Michael Rogers**
- *Eugene & Donna Miller Family Award* – **Daniel & Paulette Miller**
- *John & Bertha Kieviet Founders Award* – **Carl J. Wenning**



Michael Rogers



Daniel & Paulette Miller

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Membership Dues

Individual Adult/Family \$40
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Electronic Newsletter \$25

To join the TCAA, send your name, contact info and dues payment to

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MINUTES OF THE FEBRUARY 7TH ANNUAL MEETING (CONT.)



Carl J. Wenning



Brian Barling

(Continued from page 1)

Duane then summarized the various Astronomical League awards and presented the following in recognition of 2008 observing accomplishments:

- *Herschel 400 Club* (certificate and pin) – **Carl J. Wenning**
- *Lunar Club* (certificate and pin) – **Brian Barling**
- *Southern Sky Telescope Club* (certificate and pin) – **Duane Yockey & Carl Wenning**
- *Asteroid Club* (regular, certificate only) – **William Carney**

William’s award was presented in absentia following the note that William is only the 32nd AL member to receive this award. Duane also noted that TCAA observers had also earned a number of additional awards but that their pins and/or certificates had yet to arrive. These will be presented at a later date.

Three door prizes were then distributed in a drawing, followed by announcements. Lee introduced a new member, Nate Hahn. Lee then pointed out that leaders are needed for BPL and MOOS presentations, and that sign-up sheets were available. Mike Rogers agreed to conduct the February 28th BPL presentation as both Lee and Carl will be unavailable. Dan Miller pointed out the he had brought in for examination the three latest *Night Sky Network* toolkits. The meeting was adjourned at 8:24 p.m. at which time the membership moved to Turner 204 for Dr. Linda French’s presentation “What’s in a Name?”

Dr. French addressed the IAU’s problems associated with the re-classification of Pluto and other celestial objects in orbit around the Sun. The theme of the talk was “limits on the language of science” and how the re-classification of Pluto in 2006 “caused so much consternation.” The talk drew to a close after about 40 minutes at which time Dr. French fielded a number of questions. She then spoke for about 10 minutes about her proposed sabbatical work at York, England, dealing with the research of amateur astronomer John Goodricke (1764-1786) who observed variable stars even though he was nearly blind. The events for the evening drew to a close at 9:40 p.m.

Respectfully submitted,
Carl J. Wenning, Secretary



Dr. Linda French



Carl J. Wenning & Duane Yockey

AL OBSERVING PROGRAM STANDINGS

Below is a listing of the status of observers pursuing AL observing programs reported as of December 31st. If you would like to have your information included in next month's listing, be certain to forward your observing totals to Carl Wenning before the end of the month.

AL Award	Brian Barling	William Carney	Lee Green	David Hahn	Dave Osenga	Carl Wenning	Duane Yockey
S. Skies Binocular 50						50*	50*
S. Sky Telescope 50						(52)	50*
Telescope Messier Prov70/Hon110	(110)	(110)	92*	101*	48	(110)	31
Binocular Messier 50		(100)	42			71*	16
Herschel I Club 400	240	391	400*			(400)	
Urban Club 100		(100)	89			100*	
Comet Club Silver12/ Gold30		(23)				4	
Double Star Club 100	17		7			100*	
Visual Planetary Nebula Club Basic60/ Advanced110						37	
Globular Cluster Club 50						47	
Lunar Club 100	(100)	(100)	87			100*	
Lunar II Club 100		2					
Asteroid Club Reg25/ Gold100		(40?)					
Outreach Award Basic10/ Stellar60/Master160 hours					60 ^{h+} hours* **	31 ^{h-} 06* 26 ^{h-} 07 44 ^{h-} 08**	

* Program or first award level now complete. ** Second award level now complete. Both * and ** will receive AL recognition (certificate and pin) at the next general membership meeting if available. Numbers in parentheses (#) indicate that award has been both earned and

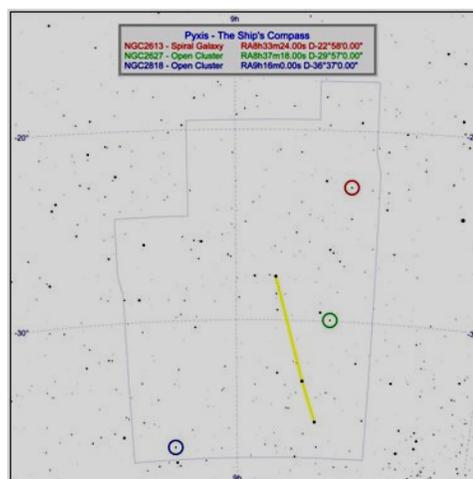
CONSTELLATION OF THE MONTH: PYXIS—THE COMPASS

Pyxis is a small, dim constellation the lies south of Hydra and east of Puppis. Pyxis was invented by LaCaille to commemorate the magnetic compass.

Pyxis has no mythology associated with it and none of its main stars are named. The stars of Pyxis were originally seen to be the mast of the constellation Argo Navis before that constellation was split into its present components, Puppis, Carina and Vela.

Pyxis is the 65th largest constellation covering 221 square degrees. It is the 69th brightest constellation and reaches opposition on January 30.

Pyxis lies at the edge of the Milky Way and contains both open clusters and galaxies. NGC2627 and NGC2818 are both notable open clusters. Planetary nebula NGC2818A is a bright spot in the cluster. NGC2613 is a bright spiral galaxy.



FEBRUARY EDUCATION AND PUBLIC OUTREACH

MARCH SKY GUIDE

01	Mercury passes 0.6° south of Mars, 2 P.M.	
07	Mars passes 0.8° south of Neptune, 10 P.M.	
08	Saturn is at opposition, 3 P.M.	
10	The Moon passes 6° south of Saturn, 10 P.M.	
12	Uranus is in conjunction with the Sun, 8 P.M.	
17	The Moon passes 0.2° north of Antares, midnight	
20	Equinox (northern spring/southern autumn begins), 7 A.M.	
22	The Moon passes 1.5° north of Jupiter, 4 P.M.	
23	The Moon passes 2° north of Neptune, 9 A.M.	
24	The Moon passes 4° north of Mars, 9 A.M.	
27	Venus is in inferior conjunction, 2 P.M.	
30	Mercury is in superior conjunction, 10 P.M.	

The second class of the adult education course was held on February 5th with all 6 registrants in attendance at HCC as well as Lee Green and Carl Wenning. Attendees learned about the TCAA from Lee, and Carl and Lee both spoke about constellations, star maps, the moon, binoculars, and telescopes. Near the close of the meeting, Lee took participants outdoors to view the sky under the presence of the 11-day-old moon. At the third class meeting on the 12th, Carl provided a “crash course” in astrophysics to the three who were able to attend that class meeting. The sky cleared on the evening of the 19th allowing the class to assemble at SGNC for a viewing session. In attendance were 5 class members, Dr. Linda French and her husband Ron. Assisting were William Carney and Lee Green.

Duane Yockey represented the TCAA when he delivered an address for the Bloomington “Young Men’s Club” on February 17th. Duane gave a 25-minute presentation followed by 5 minutes for Q&A. The talk was a survey of the universe, from solar system to deep space. The presentation was given at Ozark House over lunch. The Young Men’s Club consists of mainly older gentlemen, and around 60 were in attendance.

Michael Rogers hosted the “Classroom for Kids” 2009 IYA event at BPL on February 28th. The event’s theme was *The Solar System*. The reported that 21 non-TCAAs and 3 club members were in attendance. On this same Saturday, Carl Wenning presented twice to 4-H students enrolled in the Clover Clinic at ICC in East Peoria. Carl’s theme was Space Tech. It dealt with spin-offs from the US space program. A total of 23 students attended the two one-hour programs.

FEBRUARY OBSERVERS’ LOG

William Carney and Carl Wenning teamed up to do some observing on January 31st. William helped Carl view three different comets starting him out on his AL Comet Club observing program. While William spent part of the evening observing asteroids, Carl viewed the moon with binoculars and telescope to add three more objects to his Lunar Club observing program. The next evening, February 1st, Carl was able to glimpse two additional binocular objects bringing his total to 99. Just before sunset on February 2nd, he was able to observe with binoculars object #100 – and confirmed it again on the evening of February 3rd. He has now completed a 6.5-month effort that started this past July 13th.

The night of the 19th-20th provided ample observing opportunities despite temperatures in the mid-teens. William observed Ceres and other asteroids from SGO that evening bringing his asteroid total to 40. He has been observing only close approach and opposition asteroids in his observing program. Lee Green continued after the HCC observing session concluded that evening, and was able to re-observe a number Herschel objects and added four additional Messier objects bring that observing program’s total to 92. Carl was able to glimpse Comet Lulin from his home in Normal at 3:50 a.m. He used 15x70 Celestron binoculars to do so.

On Sunday evening, February 22nd, William and Carl observed from SGO. William photographed several asteroids, and Carl focused attention on observing and drawing Comet Lulin. Carl made a drawing of Comet Lulin at 10:32 p.m. bring his AL Comet Club total to 4. He re-observed the comet about 70 minutes later following a run to Dixie Truck Stop with William for a refresher. The comet had moved very substantially from the earlier observation owing to its near approach to earth. Upon returning to SNGC at 11:30 p.m., William

and Carl met Bobby Arn who had just arrived from Decatur to begin imaging the comet to make another movie, one of which he recently shared with club members via the listserv a few days earlier. Carl continued to observe Comet Lulin from his backyard in Normal over the course of the next few days as it passed by the Saturn and stars of Leo the Lion. It was readily observed with the use of 15x70 binoculars despite the urban skies.

Brian Barling has continued observing Herschel objects over the course of the past few months. His count is now 240, up 19 from the last report. This is an amazing accomplishment in light of the fact that Brian is finding all these objects “by hand” using his 12-inch Dobsonian telescope.

Paul Pouliot had several successful observing sessions during February. On February 14th he observed from 8:30 to 11:00 p.m. at a spot near Blackstone, IL, with the temperature in the upper 20s. He used his Coulter Odyssey Compact 10” f/4.5 outfitted with a 21mm eyepiece to observe 17 Messier and NGC objects as well as Saturn. He noted that Patti, Ryan and Kate Hogan stopped by for a little. They looked at M81, M82, M42, and Saturn and asked some good questions. Despite a small amount of haze, he had a good night for observing. Observing from this same location on February 24th and with temperatures in the mid 30s, he observed Comet Lulin and noted, “Lulin was just naked eye visible as a faint smudge. Through the eyepiece, it had a bright, diffuse coma. The tail was easily visible, trailing off to a point. Saturn and its moons provided a great secondary target. Alternating between Saturn and Lulin about every 15 minutes made it easier to see the changes in position of Saturn’s moons and the comet.”

2009 PUBLIC OBSERVING SESSIONS

Throughout 2009 – the 400th anniversary of the invention of the telescope – we acknowledge the astronomical work of Galileo in our Public Observing Sessions. One, and preferably two, coordinators are needed for all Saturday events as illustrated in the table below. Don't hesitate to volunteer to lead a public sky viewing session if you are qualified to do so.

Date	Times	Sunset	Topic	Coordinator(s)
March 28	8:00 PM ~ 10:00 PM	7:17 PM CDT	The Great Nebula of Orion	Lee Green Dave Osenga
April 25	8:30 PM ~ 10:30 PM	7:46 PM CDT	The Rings of Saturn	Dave Osenga Carl Wenning
May 23	9:00 PM ~ 11:00 PM	8:13 PM CDT	Galileo's Universe	Dave Osenga
June 27	9:00 PM ~ 11:00 PM	8:31 PM CDT	Craters of the Moon	Dave Osenga
July 25	9:00 PM ~ 11:00 PM	8:18 PM CDT	Galileo's Telescope	Dave Osenga
August 22	8:30 PM ~ 10:30 PM	7:43 PM CDT	Jupiter and Neptune	Dave Osenga Carl Wenning
September 19	7:30 PM ~ 9:30 PM	6:58 PM CDT	Exploring the Milky Way	John Werner Dave Osenga
October 17	7:00 PM ~ 9:00 PM	6:13 PM CDT	The Pleiades Star Cluster	John Werner Dave Osenga

Additional prominent sky objects such as planets, nebulae, star clusters, and galaxies will be viewed when visible. *When uncertain if an observing session will be held, call one of the following cell phone numbers after 6:00 pm:* 309-830-4085 (Carl) or 309-824-2804 (Lee). The updated 2009 public brochure for these sessions can be downloaded from the club's web site: www.twincityamateurastronomers.org

2009 MEMBERS-ONLY OBSERVING SESSIONS

The club's members-only observing sessions are slated one week earlier than the club's public sky viewing sessions. This ensures club members with a dark night, and a public sky viewing session with typically a crescent moon. Member-only observing sessions begin as soon as the sky grows dark enough for viewing, usually one hour after sunset. Coordinators are needed for each session to ensure that at least one telescope is available for viewing with TCAAers not in possession of their own telescopes.

Date	Coordinator(s)	Date	Coordinator(s)
March 21	Duane Yockey	August 15	
April 18	John Werner	September 12	Carl Wenning
May 16	Dan Miller	October 10	John Werner
June 20	Carl Wenning	November 14	Lee Green
July 18	Lee Green	December 19 (Saturnalia)	Carl Wenning

DRAFT TCAA LOGOS



Dave Osenga has been working with graphic illustrator Emily Howard to develop draft logos for the TCAA. Her latest efforts are shown below. Dave has given permission for publication of these images in *The OBSERVER* in the hope that our membership will provide input about what they like and don't like about the drafts, and to seek out preferences and recommendations for improvement. These comments will then be shared with the new Board of Directors at their first formal meeting in March. Please send all comments and suggestions to Secretary Carl Wenning at wenning@phy.ilstu.edu by March 15th. The new Board will review and make decisions about the club's new logo at their March 24th Board meeting at the office of Lewis, Yockey, & Brown in downtown Bloomington. TCAA members are welcome to attend.



2009 IYA SESSIONS @ BPL

A 12-month saga into astronomy will commence on Saturday, January 24th, in recognition of the 2009 International Year of Astronomy. Family astronomy workshops for those aged 10 years and above will take place from 1:30 to 3:00 p.m. on the 4th Saturday of each month at Bloomington Public Library. The tentative dates and topics are as follows:

Date	Topic	Possible Activity	Coordinator(s)
March 28	Observing at night... and in the Day	Observing projects; viewing sun	Carl Wenning
April 25	Galaxies and the Distant Universe	The Hubble diagram	
May 23	Our Sun	Eclipses, seeing sunspots.	Dan Miller
June 27	Clusters of Stars	The color-magnitude diagram	
July 25	Black Holes	Building a black hole model	
August 22	Rocks and Ice in our Solar System	Making a comet	
September 26	Planets and Moons	CLC goo activity	
October 24	What is the Fate of the Universe?	Study an explosion	
November 28?	The Lives of Stars	Light and spectra	
December 26?	Discovering Other Worlds		

These events are all intended to include hands-on, minds-on activities. Coordinators are needed for the majority of these events. Please inform Carl Wenning at wenning@phy.ilstu.edu if you are willing to coordinate one or more of these events.

GRANT PRE-PROPOSAL SUBMITTED

The TCAA has applied for a small grant from the Illinois Prairie Community Foundation. A grant pre-proposal requesting \$500 to support current and future E/PO events was sent to the Foundation on February 12th by Secretary Carl Wenning. The Community Foundation's purpose is to bring donors and local needs together. The Foundation manages a variety of philanthropic funds both for unrestricted purposes and for causes in seven fields of interest: arts and culture, community development, education, environment, health and wellness, human services, and youth. The Community Foundation seeks to support programs and projects that:

- offer creative, innovative solutions to address existing or emerging community needs,
- benefit larger rather than smaller numbers of people,
- impact the community beyond the time of funding,
- facilitate cooperation and collaboration among organizations and eliminate duplication of services,
- address prevention, as well as treatment,
- foster individual and family self-sufficiency,
- increase volunteer involvement and commitment to community needs,
- enhancing and expanding leadership in the community, and
- improving the quality or scope of charitable works in the community.

Money was requested to support the Club's E/PO activities, especially those provided as part of the 2009 International Year of Astronomy. The club expects to hear back from the Foundation by March 10th when they will let us know whether we can put forward a fully detailed proposal that will then be due by March 31st. On May 1st grant recipients will be notified. To find out more about the Illinois Prairie Community Foundation, visit their Web site at <http://www.ilprairiecf.org/>.

OPTIMIZING OBSERVATIONS OF DEEP SPACE OBJECTS II

By Carl J. Wenning

Lowest Useful Magnification

As a result of the exit pupil considerations addressed last month, there actually is a lowest useful magnification that an observer can use to achieve the brightest possible image for viewing with direct vision – at least if that observer expects to use the entire aperture of the telescope. It is convenient to express the optimal lowest power eyepiece (OLPE) in terms of its focal length, which happens to depend on a telescope's focal ratio and the maximum diameter of the fully dilated pupil of the observer's eye. The expression is:

$$\text{OLPE Focal Length} = \text{Exit Pupil Diameter} \times \text{Focal Ratio}$$

For example, in my case the OLPE focal length for direct vision will be $(4.2\text{mm} \times 10)$ or 42mm . Using an eyepiece in this range (say a 40mm) will provide me with the brightest views of celestial objects given my telescope's characteristics and my observing eye's maximum dilation. The resulting magnification will allow for the best possible direct-vision views because I am then dealing with the brightest possible image for a given telescope-observer combination. My optimum low magnification with a 40mm eyepiece in my CPC 11" telescope would be 70X.

A Common Misconception

It is often said that telescopes make celestial objects brighter so the observer can see them. This is a common misconception, and in the vast majority of cases patently false. Almost all astronomical telescopes will *dim* celestial objects rather than make them brighter. Consider that my 11" telescope gathers about 3,500 times more light than my eye (taking into account the presence of the secondary mirror, and the loss of light due to absorption and reflection). Using my telescope at a magnification of 70X will actually *reduce* the brightness of the image by some 4,900 times (70^2). Hence, when observed with this combination of telescope and eyepiece, the image in the eyepiece is about 70% ($3,500/4,900$) as bright as it would be seen with the unaided eye. Only some binoculars with larger apertures (e.g., 50mm) and lower powers (e.g., 7X) will actually increase the apparent brightness of an object – assuming, of course, that the exit pupil criterion is met. Observers see more details in telescopes merely because extended objects appear larger and more resolvable than when observed with the unaided eye.

Two Highest Useful Magnifications

As any experienced observer knows, the best way to view fainter objects is with the use of averted vision. Direct vision is fine if an object is bright enough to stimulate the cone receptors in the fovea of the eye. If an object is very dim, it is best viewed with the use of averted vision. In such situations the observer views a dim object "out of the corner of the eye." This allows light to fall on the much more sensitive rod receptors located outside the fovea of the retina.

From a practical standpoint, there is a highest magnification one might use with averted vision to see the maximum detail in an extended, non-stellar object. Historically, a general rule of thumb has been given that states that the highest useful magnification is about 50X per inch of aperture. This rule is based on the ability of an observer to visually separate binary stars in close proximity to one another, but it does not take into account other limiting factors such as poor atmospheric steadiness, inferior optics, a shaky mount, or getting an eyepiece with adequate eye relief (the distance from the outer surface of the eyepiece and the focal point of the image). In addition, this 50X rule is too "simplistic" to the extent that it does not apply meaningfully to extended deep-space objects such as nebulae, supernova remnants, and galaxies.

Research conducted by H. Richard Blackwell (Contrast thresholds of the human eye, *Journal of the Optical Society of America*, Vol. 36, No. 11, November 1946) showed that there are better ways to maximize the human ability to see fainter objects using averted vision, and this is subject to both illumination and image size. Work using Blackwell's data, represented graphically by Roger N. Clark in *Visual Astronomy of the Deep Sky*, 1990, can be summarized with a simple formula that takes into account the use of averted vision in relation to optimal highest power (OHPE). It is given by the following formula:

$$\text{OHPE} = 6.2 \times \text{Aperture} + 35 \quad (4" \leq \text{Aperture} \leq 16")$$

So, by this criterion the optimal highest power for my 11" telescope will be approximately 103X ($6.2 \times 11 + 35$). Converting this into focal length of the eyepiece using the first equation in this article series, the OHPE focal length for me would be approximately 27mm ($2800\text{mm}/103\text{X}$) when viewing extended objects using averted vision. While this is the highest power for seeing maximal detail using averted vision, it is not necessarily the highest power one might want to use. One may safely double this optimal magnification with a minimal reduction in the averted vision visibility index according to Blackwell's work. The increased magnification might dim the object, but the trade-off is acceptable. It will make extended objects larger and more resolvable to the human eye as a result even with the loss of brightness.

When I'm observing certain planetary nebulae on the AL observing club list, I must push the magnification far beyond the OHPE condition so that I can resolve a nebula's near stellar image. Higher powers will allow me to distinguish the nebula from field stars that do not grow in size with increasing magnification (unless the seeing is poor). Because telescopes, observers, and observing conditions vary so much, it's really up to the observer to decide when a certain magnifying power is too much. When increasing the magnification makes an image worse rather than better, then an observer knows that he or she really has surpassed optimum highest power.

Next month I will provide additional information about other ways of improving views of extended deep space objects. I will touch upon five simple approaches: (1) observing only with well dark-adapted eyes, (2) observing from a location with a darker sky, (3) observing with the use of filters that transmit only certain wavelengths of light while blocking others, (4) observing only when the sky is very transparent, and (5) observing objects only when they are higher up in the sky. Stay tuned!

OBSERVING COMET LULIN

By Bobby Arn

The cold winter months have brought a series of bright (naked-eye and small telescope) comets to the night sky – making the year 2009 one of the greatest comet watching periods in several years. The year started off with the appearance of Comet 144/P Kushida that reached magnitude 7.6 during perihelion. Kushida made for a great wide-field event as it passed through the Hyades just as it reached maximum apparent brightness. Two other notable comets, C/2006 W3 Christensen and 85P/Boethin, graced the early evening sky, though they only reached 9th magnitude during the time they were visible at our latitude.

The real show-stealer of the year, C/2007 N3 Lulin was able to impress even non-astronomers as it became visible to the naked eye during the last week of February. However, the brightness of Lulin is not what makes this ball of rock and ice unique, but rather its orbital path. While most comets' orbits are highly inclined to ours (the Earth), Lulin is almost exactly opposite of that, essentially orbiting backwards compared to the planets' orbits. This also leads to interesting views for us planet-side as we see the comet with not only a tail, but also an anti-tail that appears to be on the opposite side of the comet.

While any celestial event is enough of an excuse to haul out a bunch of equipment and spend the night in freezing temperature either trying to see or record an event, Lulin allowed for this several times. While it approached and passed perihelion this comet started in Virgo, the Virgin, and moved into Leo, the Lion – passing within 2 degrees of Saturn, and then very near the bright star Regulus, again making for some nice wide-field views.

I had the opportunity to use this comet as a testing grounds for a new equipment setup – designed especially for portable wide-field imaging. The Astrotrac TT320X combined with a standard camera tripod makes for the quickest mount set-up (besides for a permanent observatory). The Astrotrac is specially designed for the astrophotographers in mind as straight out of the box (no training necessary) it performs to a tracking accuracy of 5 arc seconds over a 5 minute time period. This mount combined with a camera (in my case a Canon XSi) with LiveView makes the process of achieving focus very easy – and it is not necessary to have a computer or other type of bulky equipment. This is a whole self-contained setup without wires and cords running everywhere – and I am still able to get 4 hours of imaging time running just from a set of AA batteries and the standard camera battery. From the time I reached a dark site – it took only 10 minutes before I had started a series of shots on Lulin.

Since Lulin is moving backwards to us – it appears to be moving very quickly in the night sky, and as such we are able to see it move over the course of only a couple hours. The first night that I was out, I was just going for a combined image of the comet, but once the data was loaded up on a computer later that evening, I first noticed just how quickly it was moving – enough to see substantial movement over just under 2 hours of data collection – more than enough data to make a movie of its movement *(the URL for the movie is at the bottom). From the data and using DeepSkyStacker, a freeware program made available by creator Luc Coiffier combined with a little post-processing in Photoshop, I was able to capture the comet with both its tail and anti-tail.



Comet Lulin will continue to remain visible with small telescopes over the next month – definitely worth a look (or a snapshot). Be sure to check it out!

* <http://www.millikin.edu/physics/astronomy/Multimedia/CometLulin.html>

NCRAL 2009 IN CEDAR RAPIDS

The Cedar Amateur Astronomers (CAA) will be hosting the 2009 NCRAL convention on May 1st and 2nd. Friday afternoon, May 1st, attendees will visit the 82-ft diameter VLBA radio telescope near North Liberty, Iowa, then travel to Optical Mechanics, Inc. in Iowa City. After that, they will go to the club's Palisades-Dows Observatory where three domes are located. Saturday's activities will be at the Clarion Hotel in Cedar Rapids.

The CAA Web site - <http://www.cedar-astronomers.org> - has the convention registration form, reservation information for the Clarion Hotel, a preliminary schedule of events, a description of the Palisades-Dows Observatory, and maps for the locations to be visited.

If any NCRAL member wants to give a talk at the convention on Saturday, please email president@cedar-astronomers.org. (The TCAA will be included in the business meeting agenda when we describe the 2010 NCRAL meeting.) Participants are encouraged to bring astronomical photos, artwork, and measurements, club information, etc, for display at the convention.

TCAA Treasurer's Report – February 2009

OPERATING FUND BALANCE – January 31, 2009 - \$ 2,623.97 *

Income

Dan Miller (dues renewal) -	\$ 40.00
Brian Barling (dues renewal) -	\$ 40.00
Paul Poulliot (dues renewal) -	\$ 40.00
Nate Hahn (dues) -	\$ 40.00
Michael Rogers (dues renewal) -	\$ 40.00
Paul Poulliot (PayPal 2008 dues) -	\$ 40.00
Ginnie Underwood (sen. dues renewal) -	\$ 25.00
Ed Duran (elect. dues renewal) -	\$ 25.00
Lee Green (dues renewal) -	\$ 40.00
Banquet Income -	\$ 345.00
Gary & Linda Fillingham (dues) -	\$ 40.00
Allan Timke (dues renewal) -	\$ 40.00
Heartland College (adult ed program) -	\$ 270.00

Expenses

LYB Inc. (February Observer) -	\$ 27.09
Carl Wenning (Plaques for Awards) -	\$ 60.00
Dr. Linda French (honorarium) -	\$ 75.00
Carl Wenning (Supplies) -	\$ 17.19
FND Club (Banquet expense) -	\$ 375.00
Carl Wenning (books for adult ed. Prog.) -	\$ 219.63

OPERATING FUND BALANCE – February 28, 2009 - \$ 2,875.06

OBSERVATORY FUND BALANCE – January 31, 2009 - \$ 2,119.74 *

Income

Dan Miller (keyholder renewal) -	\$ 5.00
Brian Barling (keyholder renewal) -	\$ 5.00
Duane Yockey (keyholder renewal) -	\$ 5.00
Carl Wenning (keyholder renewal) -	\$ 5.00
Lee Green (keyholder renewal) -	\$ 5.00

Expenses

None -	\$ 0.00
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OBSERVATORY FUND BALANCE – February 28, 2009 - \$ 2,144.74

TOTAL TCAA FUNDS – February 28, 2009 - \$ 5,019.80

Respectfully submitted,
L. Duane Yockey, Treasurer

Sugar Grove Observatory

Listing of Official Keyholders (Paid \$10 deposit/\$5 renewal)

Duane Yockey (renewed through 2009)
Michael Rogers (renewed through 2008)
William Carney (renewed through 2008)
Carl Wenning (renewed through 2009)
Brian Barling (renewed through 2009)
Christopher Franklin (renewed through 2008)

David Osenga (renewed through 2008)
Josh Lindsey (renewed through 2008)
Andrew Morrison (February 2008)
Dan Miller (renewed through 2009)
Lee Green (renewed through 2009)

NEW TCAA WEB SITE

If you haven't seen the latest edition of the new TCAA Web site, now would be a good time to check it out. Lee Green has been working diligently on this site for the past year. The new short address is www.tcaa.us. The old address, www.twincityamateurastronomers.org, redirects to Lee's new Web site. TCAAers are asked to visit the new site and provide suggestions for increasing content and improving appearances. Thanks and a tip 'o the hat to Michael Rogers who single handedly maintained the TCAA's old Web site for many years.

UPCOMING EVENTS

March 21 — MOOS, SGNC, dusk
March 24—Board Meeting, LYB, Inc.,
Downtown Bloomington
March 28—IYA, "Classroom for
Kids," BPL, 1:30-3:00 p.m.
March 28—POS, The Orion Nebula,
SGNC, 8-10 p.m.

WELCOME NEW MEMBERS

Nate Hahn
Gary & Linda Fillingham

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

Visit the Twin City Amateur Astronomers
on the web at
www.twincityamateurastronomers.org/