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AUGUST CLUB PICNIC

The club's summer potluck picnic will be held on Saturday August 2nd this year. Our event will take place at Sugar Grove Nature Center as part of the public observing session held that evening. Duane Yockey and Carl Wenning will give a talk dealing with their February 2008 trip to Chile to conduct observations of the Southern sky. This potluck picnic is for club members and their guests only.

Reservations have been made for the SGNC picnic shelter. The picnic will begin with arrival around 6:00 p.m. The club will provide a lighted grill that will be ready by 6:30 p.m., and the meal will be served at around 7:00 p.m. As has been the tradition, the TCAA will provide the charcoal and lighter fluid for the grill, as well as a variety of refreshments in 2-liter bottles.

As this is a potluck, please bring a dish to share. Be crea-

tive, and avoid the urge to bring that bag of potato chips! Also bring your own entrée (fish, steaks, burgers, hotdogs) and table service (cups, plates, utensils, napkins, condiments). We have plenty of tablecloths, so no need to bring those.

The picnic and the Chilean travelogue will be presented at 8:15 p.m. independent of the condition of the sky. The public observing session program will held starting at 9:00 p.m. but only if the sky is clear. The POS for that evening will feature Dan Miller presenting *Black Hole Survival and Cygnus X-1*.

This picnic will be a great time for the whole family, and TCAAers will not want to miss it. Should you have any questions, don't hesitate to contact the event's organizer, Carl Wenning, at (309) 830-4085 (cell).

TCAA BOOTH AT 4-H FAIR

Thanks for the efforts of Terry Lee Wright and Lee Green, the TCAA will have a display booth at the McLean County Fair from August 1-3. This is going to be one of our biggest outreach events of the year, and we expect to talk with 1,000 people there. We need volunteers to help us at the booth that will be inside the Interstate Center from 12:00 to 9:00 p.m. each day. If you can help out, please let Lee Green know as soon as possible so he can arrange for free parking and entrance passes for you.

FIRST IN STARLIGHT NIGHTS DISCUSSION SERIES AUGUST 19TH

TCAA President Lee Green has scheduled a series of *Starlight Nights* programs this summer and fall with the Bloomington Public Library. He coordinated these efforts in response to Brett Nafziger at the BPL who had requested a "discussion" series. The format of each night's events will be to start with a discussion period to talk about current events in astronomy. This might include current NASA missions and celestial events, as well as any other topics we'd like to address. Following that, we have time to present materials from the Night Sky Network.

Lee noted that he'll be happy to take the lead on any or all of these discussions but that TCAAers are more than

welcome to jump in on any of these dates. Note that the listed times for all events are 7:00 to 9:00 p.m., and all dates are the third Tuesday of each month.

- August 19 – *Explorer's Guide to the Solar System*
- September 16 - *How Telescopes Changed the World*
- October 21 - *The Search for another Earth*
- November 18 - *Our Galaxy, Our Universe*
- December 16 - *How to Survive a Black Hole*

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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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

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INCA ASTRONOMY, RUINS AND CULTURE IN CUZCO, THE SACRED VALLEY AND MACHU PICCHU WRITTEN BY MILLIKIN PHYSICS STUDENT BOBBY ARN FACULTY-TCAA MEMBERS DAN MILLER & JOHN WERNER



What could be more exciting than traveling halfway across the globe to see one of the forgotten wonders of the world while learning about an ancient civilization under incredibly dark skies? From May 31st to June 8th, Dr. Dan Miller, chair of the Department of Mathematics and Computer Science, and Professor John Werner, Physics Adjunct teamed up with the Maya Exploration Center (MEC) and took a group of 9 students to Peru to learn about the Inca culture.

Once everyone met up in Cuzco, Peru, the adventure started. After an introduction to professors from the MEC, in an effort to acclimatize to the 11,000+ feet elevation, the first day in Cuzco involved two lectures. The first one was about Inca Quipus—ropes knotted in a specific way in order to keep track of events, transactions, and history. While researchers have been studying these devices for several years, the full translation of over 1/3 of the remaining 600+ known quipus is still unknown. If these can be translated, a greater understanding of the Inca culture can be known.

The second lecture was a fascinating talk on Inca cosmology (and astronomy). The Inca culture based their faith around the stars and heavens. Most of their temples and structures are positioned in alignment with the sun or other stars on given days of the year. Also included in the lecture was how the Milky Way (the galaxy we are currently living in) was perceived by the Incas. From the latitude Cuzco is located at, it is possible to see the galactic center. Within the galactic center, the Inca people made constellations within the dark parts (or dark nebulae). The professors from MEC pointed out different Inca constellations with a Powerpoint that accompanied their lecture. But as they say, nothing beats hands-on experience, or in this case, eyes-on experience.



Milky Way Galactic Center Photo Credit: Robert Arn

Seeing the dark clear skies

Dr. Miller and Professor Werner took the students outside of Cuzco that night with telescopes and astronomical cameras to view and image what the Incas saw in the night sky. Students were entertained once more about Inca cosmology and views of the Milky Way. Being underneath the stars, students got a much deeper appreciation of what is in the night sky, not only ancient views, but current scientific knowledge. Through telescopes, views of globular clusters, nebulae, galaxies, and open clusters were magnified to produce a sight not visible with the naked eye.

The following day brought a tour around the city of Cuzco, exploring various museums, temples, cathedrals, and then various ruins outside the city. Wandering around the Coricancha Temple, it was evident of the alignment of the facility to the summer and

INCA ASTRONOMY, RUINS & CULTURE IN CUZCO, THE SACRED VALLEY AND MACHU PICCHU (CONT.)

(Continued from page 2)

winter solstice, two of the most important holidays in the Incan, and now Peruvian culture. A visit to the Sacsayhuaman Ruins above the city gave an introduction to the architecture the Incas used in building towns and fortresses. The stones that comprised the ruins were huge. Some individual stones have been measured to weigh over 120 tons! And all the stones fit together so tightly, not even water could get through. An amazing feat for a civilization 500 years ago!



Left: Inside the Coricancha Temple



Right: Ruins at Sacsayhuaman

The next stop on this adventure was Aguas Caliente, a small city at the base of Machu Picchu. This city would serve as a place to stay over nights while day trips were organized to Machu Picchu. From the city, a 30 minute bus ride up many switch backs took the group up to see and explore the ruins of Machu Picchu. The city's purpose, still unknown to scholars took two days to explore. The first day in Machu Picchu involved exploring the city, while the second day proved to be more interesting.

There are several structures within the city that the purpose is unknown. It is thought that such objects named, the hitching post, or the windows, had something to do with the solstice and the shadows cast at sunrise. One of the professors from the MEC is currently doing research on this event, and since we were there only a week before the winter solstice, the position of the sun was only 1.6 degrees from its position on the solstice. On the second day we were at Machu Picchu, we got there before sunrise to help collect data for his research. Students were split into teams and sent to various locations thought to be of significance and recorded the sunrise, shadows cast by the rising sun striking artifacts, and other details about the place.



Left: Machu Picchu



Right: Hitching Post of the Sun

After recording the various sites, the students and professors split up to explore Machu Picchu on an individual basis. Some took the trail to visit Winu Picchu, the temple of the Moon, others took the Sun trail, the path that the Inca King would enter the city from Aguas Caliente, while others explored their artistic talent by making drawings and painting of the ruins.

The fun and excitement of the day did not end with Machu Picchu. Later that night, after sunset, we hosted a Public Observation Night (PON) for the town of Agues Caliente. Setting up two telescopes, a pair of binoculars, and a green laser pointer in the middle of a soccer field was enough to bring 700+ people from the town of under 1,500 to view the night sky and learn about Inca star lore. People stayed for several hours to experience this community event.

(Continued on page 6)

AUGUST SKY GUIDE

01	Total solar eclipse, 5 A.M.	
03	The Moon passes 4° south of Saturn, 9 A.M.	
04	The Moon passes 4° south of Mars, 7 A.M.	
05	Venus passes 1.1° north of Regulus, 3 P.M.	
10	Mercury passes 1.1° north of Regulus, midnight	
	The Moon passes 0.4° south of Antares, 2 P.M.	
12	Perseid meteor Shower peaks	
13	The Moon passes 3° south of Jupiter, 9 A.M.	
	Venus passes 0.2° south of Saturn, 2 P.M.	
15	Neptune is at opposition, 3 A.M.	
	Mercury passes 0.7° south of Saturn, 7 P.M.	
16	The Moon passes 0.8° north of Neptune, 2 P.M.	
	Partial lunar Eclipse, 4 P.M.	
18	The Moon passes 4° north of Uranus, 9 P.M.	
23	Mercury passes 1.2° south of Venus, midnight	

OBSERVERS' LOG FOR JULY

Duane Yockey, William Carney, and Carl Wenning took advantage of excellent viewing conditions on July 1st to spend time under the stars of SGNC. According to the trio, the sky was as dark and as clear as any of them could remember in recent memory. William took the opportunity to look for comets, and both Duane and Carl spent time working on their Binocular Messier observing programs. William was unable to view any additional comets due to equipment difficulties, but Duane and Carl were able to spot a few Messier objects. Duane had an early morning meeting, and so had to depart by 10:30 p.m. Carl observed a total of 37 Messier objects by 11:30 p.m. bringing his count up from 23 to 60, netting him yet another Astronomical League observing award (50 observations are required for this award). Carl finished his Southern Sky Telescope award the night before, and he is now only one object away from completing his Herschel 400 program. Earlier this year, Carl – along with Duane – also completed the Southern Sky Binocular Observing award. It looks like there will be an extended awards ceremony at next February's Annual Meeting.

Chrystian Vieyra and Carl Wenning took advantage of the clear pre-dawn sky on Sunday, July 13th, to make observations for the Urban Club and Double Star Club. Carl added 18 Urban Club objects (bringing his total to 73 of the required 100) and 5 double stars (bringing his total to 61 of the required 100). They took time out, too, to make observations of Jupiter, Uranus, and Neptune, and a few additional binary stars and Messier objects. Carl took advantage of the clear sky on Sunday evening to start the AL moon observing project and, most fortuitously, was able to observe an unanticipated occultation of the 6.59 magnitude star V952 Scorpii. He completed 17 of the required 100 observations for the lunar award.

Carl again took advantage of the clear if not somewhat hazy morning sky (oh, the benefits of retirement!) on Tuesday, July 15th. Observing from about 3:15 – 3:50 a.m. he was able to view and record an additional 11 double stars bringing his observing program total to 72. He also observed one additional Urban Club object bringing that total to 74.

JULY POS A SUCCESS

By Lee Green

We had 50 guests join us on July 5th for an evening that was blessed with clear dark skies and cool comfortable temperatures. I started the program by welcoming everyone and passing out the current sky map from skymaps.com and describing the content and how to read the chart. Duane entertained us with his presentation, *Mighty Hercules and his Treasure – M13*, where he described the constellation, globular clusters and showed us highlights of the jewels found there. Dave Osenga did his usual excellent job during the sky tour, pointing out many of the sights visible during the summer with his laser pointer. We had six telescopes set up and over a dozen members who

joined us! Thanks to each of you for this making this a fun and successful session.

One big hit was having Mark Cabaj show us his impressive setup. His dual telescope system projected images to a monitor that let us all enjoy the views of many objects he showed including Saturn, M13, M51, M8, M20, M16 where we could clearly see the pillars of creation! Mark was able to quickly adjust his system on the fly by adding focal reducers and filters. We all crowded around for several hours to see the impressive images and appreciated his graciousness as many requests were made. It was a pleasure to watch a master in action. Thanks Mark!

POS and MOOS COORDINATORS

For the record, here is the list of the 2008 Public and Members-Only Observing Sessions at Sugar Grove Nature Center. Two coordinators per session are preferred. Please add your name to the list if you are willing to co-host one of these Saturday sessions. See the POS brochure available through the TCAA website for details about times.

2008 Date	POS Topics	POS Coordinator(s)
August 2	<i>Black Hole Survival and Cygnus X-1</i>	Dan Miller
September 6	<i>Our Galaxy, Our Universe</i>	Lee Green
October 4	<i>Andromeda and Her "Rock" – M31</i>	Carl Wenning

Members-Only Observing Sessions occur one week earlier than the above POS – on Saturdays nearest the full moon. Two coordinators (one of whom should be an SGNC key holder unless they have their own telescope they can bring along) are desired for all of these Saturday sessions. Please sign up with Carl Wenning (309-830-4085, wenning@phy.ilstu.edu) if you are willing to assist with coordinating any of these events.

2008 Date	Location	MOOS Coordinator(s)
August 30	SGNC (8:18 p.m.)	Dan Miller, Carl Wenning
September 27	IDSSP, Springfield	Details to follow in newsletter (IDSSP)
October 25	SGNC (6:45 p.m.)	William Carney, Carl Wenning

AL OBSERVING PROGRAMS

What follows is a listing of the status observers pursuing AL observing programs reported as of July 20th. If you would like to have your information included in next month's listing, be certain to forward your observing totals to Carl before the end of the month.

	Brian Barling	William Carney	Lee Green	David Hahn	Carl Wenning	Sandy Wolford	Duane Yockey
S. Sky Binocular 50					50*		50*
S. Sky Telescope 50					52*		50*
Telescope Messier 110	(110)	(110)	67	82	(110)	(110)	
Binocular Messier 50		(100)	12		60*		
Herschel Club 400	210	352	397		399	(400)	
Urban Club 100		(100)	63		74		
Comet Club Silver12/ Gold30		22*					
Arp Galaxy CCD Club 100						53	
Dbl. Star Club 100	17				72	(100)	
Lunar Club 100	98	(100)			17		
Asteroid Club Reg25/ Gold100		24					
Outreach Award Basic10/ Stellar60/ Master160 hours					Basic* (31 ^{hrs} in 2006)		

* Program or first award level now complete – will receive AL recognition (certificate and pin) at the next TCAA Annual Meeting in February 2009. Numbers in parentheses (#) indicate that award has been both earned and received.

INCA ASTRONOMY, RUINS & CULTURE IN CUZCO, THE SACRED VALLEY AND MACHU PICCHU (CONT.)

(Continued from page 3)



Public Observation Night



Ruins of Ollantaytambo

The following day, Millikin travelers moved to yet another part of the country to see the ruins of Ollantaytambo, one of the last standing fortresses during the Spanish invasion. This heavily fortified installation, is, for the most part, still intact. Here, another history lesson was given about the Spanish invasion and Inca military tactics.

That night, we stopped at a hotel outside the (small) city of Pisca, where the sky was unbelievable dark and the hotel staff made it possible for really good astronomy and astrophotography by turning off the lights. Since this was the last night the Millikin group would have to do this sort of work in Peru, the most was made out of it. Students and faculty remained under the sky until four in the morning when the last of the batteries died out "a tragedy indeed".

"This immersion was awesome. The professors were very informative, organized, and excited. The sights were amazing. I loved learning about Inca culture. And the nights we spent under the stars learning about ancient cosmology and different objects in the night sky made this trip an event that I will cherish for the rest of my life!" - Peru Immersion Student

Immersion trips are great ways to experience the world and meet new people. They can be great adventures that you will remember for the rest of your life!!!

For more information visit the Center for International Education or: <http://www.millikin.edu/international/>

TCAA TO OFFER AUTUMN ADULT EDUCATION COURSE

Because of its ongoing popularity even as a winter course, the TCAA will now offer an autumn adult education course at Heartland Community College. The course will be offered on four consecutive Thursday evenings from 7 p.m. to 9 p.m. September 11 through October 2. With the pleasant evening temperatures and clear skies of autumn, we are looking forward to a large enrollment.

Join us as we narrow our attention on the constellations and solar system objects. Receive resources to learn constellations, star names, and their associated mythology. Learn how astronomers explain the motions of the sun, moon, and planets. Find out about comets, meteors, and asteroids. In-town observing sessions will be held immediately after the first and second nights' classes if the sky is clear. Includes a scheduled visit to the ISU Planetarium. During an optional fourth session at Sugar Grove Observatory, we will train our telescopes on these objects and more.

The fee for this course is \$60.00 and will include Terence Dickinson's *Nightwatch* as well as a 10-inch-diameter planisphere. Many other handouts will also be provided. Visit the HCC website to register for this course later this summer. Carl Wenning will serve as lead instructor of this course; feel free to contact him with any questions you might have during the interim at (309) 830-4085 or wenning@phy.ilstu.edu.

CONSTELLATION OF THE MONTH: OPHIUCHUS—THE SERPENT HOLDER

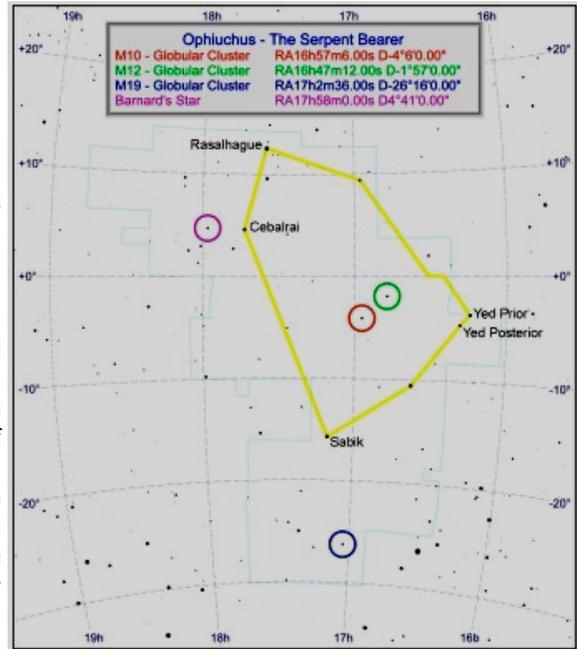
The constellation Ophiuchus is located in the summer skies south from Hercules to Scorpius. The split constellation Serpens is intertwined with Ophiuchus to the east and west.

Ophiuchus is often associated with Aesculapius the son of Apollo who was entrusted to the Centaur Chiron who raised and tutored the boy in the art of healing and medicine. It is said that after Aesculapius killed a snake, another snake brought an herb that restored the first to life. Aesculapius captured the herb and then had the power to restore life. This annoyed Pluto, the god of the underworld, who appealed to Jupiter to destroy Aesculapius. Jupiter sent Aquila the Eagle to destroy Aesculapius with a lightning bolt, but immortalized him in the constellation Ophiuchus. Aesculapius' association with the snakes and with healing are seen today in the caduceus, a staff with two intertwined snakes that is the symbol of the medical profession.

Astronomically, Ophiuchus is the 11th largest constellation covering 948 square degrees and is the 20th brightest. Ophiuchus reaches opposition on June 10. Half of Ophiuchus is above the celestial equator and half is below.

The named stars in Ophiuchus include Rasalhague, the head, Cebalrai, the heart, Yed Prior and Yed Posterior, the left hand, and Marfik, the left elbow and Sabik, the right hand. A small red dwarf star called Barnard's Star, often called the Runaway Star, has the largest proper motion, moving over 10 arcseconds per year towards the north. This star appears to move so fast because it is only 6 light years distant from us.

There are several bright globular clusters in Ophiuchus including M9, M10, M12, M14, M19 and M62. There are also a number of Dark Nebulae which are made of dust and obscure the rich star fields of the Milky Way. The largest of these, the Pipe Nebula, is over 6° in extent.



SAFETY FEATURE ADDED TO SGO

A removable stairwell cover has been built for the dome of the Sugar Grove Observatory. A beveled 3/4-inch thick plywood plank may now be placed over the stairwell opening to keep observers from inadvertently falling down the stairwell while using the dome's computer, observing objects in the northern sky, or just walking around the dome. Installation of this cover was agreed to at the May meeting of the Board of Directors.

The stairwell cover can be slipped into place after entering the dome, and needs to be removed before anyone can enter or leave the dome. The cover will be stored near the doorway entrance to the dome. It was designed, built, and installed by Carl Wenning as a way to improve the safety of SGO, and to help the TCAA avoid any legal liability resulting from an accident. Use of the cover is optional but is encouraged.

ASTROFEST 2008

The Chicago Astronomical Society will hold Astrofest 2008 this year at Vana's Pumpkin Farm near Kankakee, IL, from Friday, September 5 through Sunday, September 7, 2008. The event theme, *Campout with the Stars* will be sponsored by: Astronomy magazine and REI. The pre-registration deadline is Monday, August 11, 2008, and registration is now open! You may register and pay online using PayPal at the following URL: http://chicagoastro.org/af/2008/regform_pp.shtml.

Alternatively, you can download the registration as a PDF, make your checks payable to Astrofest

mail to: CAS PO BOX 30827, Chicago IL 63630-0287. Complete details are available at the following URL: <http://chicagoastro.org/af2008.pdf>.

DAAC JAMBOREE 2008 BY LEE GREEN

The Decatur Area Astronomy Club is holding its 2008 Astronomy Jamboree on October 4 at the Friends Creek Conservation Area seven miles east of Maroa. Carl [Wenning] and I attended this event last year where they had over 125 people show up. It was a great event and very worthwhile. This year, the event is scheduled the same day as our October Public Observing Session so I will not be able to attend. But I wanted to make you aware of this since the DAAC is celebrating their 25th anniversary this year.

HISTORY OF THE TCAA

Beginning with the article, "The Origin of the Twin City Amateur Astronomers" in the May 2007 issue of The OBSERVER, TCAA Historian Carl J. Wenning began chronicling the history of the club. He will continue this series, culminating with the 50th anniversary of the club in 2010.

Changing Gears

1995-1998: Part A

In an effort to get the public more involved with amateur astronomy, regularly scheduled public observing sessions were started in Bloomington's Ewing Park II in 1995. "Astronomy in the Park" consisted of a five-part series running summer through autumn. The events were very well attended with an average of about 50 members of the general public at each session. The number of club members in attendance ranged typically from 2 to 5. The format of the sessions was a short talk and slide show followed by pointing out of the brighter constellations visible from town. Sessions then culminated in views of celestial objects that could be found using finder scopes and star hopping.

These programs had their start with recognition that significant changes in society were having an impact upon the TCAA. The mid 90s was filled with lots of TCAA-related activities – monthly membership meetings at the ISU Planetarium, field trips to locations such as the Adler Planetarium, the Decatur Astronomy Jamboree, the Champaign-Urbana Astronomy Club and Staerkel Planetarium, and Astrofest, open houses at the Downs observatory, Astronomy Day events in local shopping malls, displays at the Bloomington Public Library, and in-town observing sessions. While the turn out of the general public was generally good at public events, attendance by the membership had begun to wane. Meetings at the planetarium especially were poorly attended. In late 1995 the club leadership began to question whether the club should hold monthly meetings. Sharon MacDonald suggested quarterly meetings, but the Board decided on meetings during even-numbered months. The months would interlace with traditional events such as the February Annual Meeting, the June picnic, and the December holiday party. It was agreed by the membership that the club should change its format from being one that is more social, to one that is more observation and education/public outreach oriented. The change for fewer meetings was formally made with the creation of a standing rule at the 1996 Annual Meeting.

Despite successful public events in 1995, a drop in club membership also became a notable concern of the club leadership in 1996. Efforts were made to grow the membership and included such things as holding a second year of Ewing Park II public observing sessions, viewing sessions for two total lunar eclipses (each attended by 140-150 members of the general public) and Comet Hyakutake (attended by about 400 at a public observing session on March 22 at Comlara Park), the creation of club attire with regalia, a club camp out, Skyline – a telephone-based review of monthly astronomical events hosted by the ISU Planetarium, guest speakers at monthly meeting (physicist Dan Holland and planetarian Paul Iutzi), membership brochures, speaking with the Bloomington High School Astronomy Club under the auspices of Mark Cabaj, the production of a club newsletter of exceptional quality, and even a member-paid support for the *StarDate* program broadcast over WGLT-FM radio twice daily (thanks to Mike Rogers and Jean Memken). Nothing that the club leadership did had much of an impact on either member participation or club growth. Something was different from the heydays of spaceflight when so many members showed a high interest in and participation in astronomical events.

During 1996 and 1997 the 5-part "Astronomy in the Parks" program continued, but the club's observatory at Downs saw less and less use for a variety of reasons. The poor state of the flooring in the observatory was a growing problem, motivating Avo Villo to take over the lead in establishing a new observatory for the club at Timber Pointe – the former Camp Heffernon – north of Normal. Under Avo's vigorous leadership, monthly meetings were again held for the membership by a decision of the Board at the February Board meeting but, before the year was out, he noted in one of his monthly columns in *The OBSERVER* that the membership was not showing up for these meetings when held at different venues and featuring special topics (planetarium programs and computer demonstrations) and guest speakers (including IWU's Dr. Cynthia Hess and UIUC's Dan Gosha).

Despite expression of this concern, the core members of the club continued to work diligently to fulfill the mandate of the club. For instance, during March and April of 1997 two observing sessions for Comet Hyakutake at Comlara Park each were attended by large crowds, and members were featured in both radio and TV spots. On May 17 of that year, the TCAA held a joint meeting with the Corn Belt Lapidary and Geological Society to visit with Rev. James Cox who discovered the 1938 "Bloomington meteorite" that was also on display, having been borrowed by Carl Wenning from Augustana College where half of the specimen then was part of a meteorite collection. Some five-dozen members were present for this event held at the ISU Planetarium.

Another high point was reached on September 13, 1997, when 11-year-old Rebecca Wenning earned her provisional Messier certificate. Rebecca, according to Astronomical League President and former TCAA member Barry Beaman, was among the very youngest – perhaps the youngest ever – to earn that observing club award. She had used the club's 8-inch Odyssey telescope and completed the observations by star hopping in only 9 sessions, averaging one "discovery" every ten minutes. Bob Cuberly also made his appearance at this time, sporting a 15-inch Dobson telescope, larger than the 13.1-inch telescope once sported by member Dr. Allan Griffith. In addition to observing and talks, Mike Rogers initiated the Astronomy Reading Group to get members together for discussions on a regular basis. Public observing sessions, reading group activities, Astronomy Day events, and special-request talks continued.

TCAA Treasurer's Report – July 2008

OPERATING FUND BALANCE – June 30, 2008 -	\$ 2,397.97
<u>Income</u>	
Bobby Arn (student dues) -	\$ 25.00
<u>Expenses</u>	
LYB Inc. (July Observer) -	\$ 15.54
OPERATING FUND BALANCE – July 31, 2008 -	\$ 2,407.43
<hr/>	
OBSERVATORY FUND BALANCE – June 30, 2008 -	\$ 3,514.69
<u>Income</u>	
Interest (Apr.-June) -	\$ 1.36
<u>Expenses</u>	
None -	\$ 0.00
OBSERVATORY FUND BALANCE – July 31, 2008 -	\$ 3,516.05
<hr/>	
TOTAL TCAA FUNDS – July 31, 2008 -	\$ 5,923.48

Respectfully submitted,
L. Duane Yockey, Treasurer

Sugar Grove Observatory

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

Duane Yockey (renewed through 2008)
Michael Rogers (renewed through 2008)
William Carney (renewed through 2008)
Carl Wenning (renewed through 2008)
Brian Barling (renewed through 2008)
Christopher Franklin (renewed through 2008)
David Osenga (renewed through 2008)
Josh Lindsey (renewed through 2008)
Andrew Morrison (February 2008)
Dan Miller (renewed through 2008)
Lee Green (April 2007, renewed through 2008)

UPCOMING EVENTS

August 1-3—4-H Fair
August 2—Annual Picnic & POS
August 19—*Starlight Nights*
August 30—MOOS

WELCOME NEW MEMBER

Bobby Arn

The OBSERVER

Newletter of the TCAA, Inc.

Erin Estabrook, Editor
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