

**IN THIS ISSUE:**

MINUTES OF THE TCAA GOLEDEN ANNIVERSARY ANNUAL MEETING	1
TCAA EVENTS FOR MARCH	1
MINUTES OF THE FEBRUARY 9, 2010, BOARD MEETING	2
MINUTES OF THE FEBRUARY 9, 2010, NCRAL PLANNING MEETING	2
AL OBSERVING PROGRAM STANDINGS	3
SAS MESSIER MARATHON	3
FEBRUARY EDUCATION AND PUBLIC OUTREACH	4
FEBRUARY OBSERVERS' LOG	4
TCAAer SELECTED BY JPL	4
MARCH SKY GUIDE	4
2010 PUBLIC OBSERVING SESSIONS	5
CONSTELLATION OF THE MONTH: CANIS MINOR—THE LESSER DOG	5
CHEMISTRY ON FOREIGN WORLDS	6
TCAAers AT NCRAL	6
THE LIFE AND TIMES OF GALILEO, PART 7 (CONCLUSION)	7
NASA MISSION UPDATES	9
TREASURER'S REPORT	11
APRIL SKY MAP	

## MINUTES OF THE TCAA GOLDEN ANNIVERSARY ANNUAL MEETING

The TCAA held its golden anniversary Annual Meeting at Ewing Manor in Bloomington on Saturday, February 6, 2010. This event is the club's 50<sup>th</sup> anniversary celebration, was attended by 29 members, prior members, and guests.

The evening started off at 5:30 p.m. on the Manor's main floor with a social accompanied by the strains of piano music provided by Mr. Kerry Meyer, a friend of Dave Osenga. Those attending the social hour enjoyed a wide variety of hor d'ourves and punch.

At 6:30 p.m. registrants reconvened in the banquet hall down the spiral staircase for dinner. At 7:45 p.m. President Lee Green called the membership to order for the annual business meeting. The first order of business consisted of introductions of selected audience members: Barry and Carol Beaman, David William, Bill and Marie Blunk, Sharon MacDonald, and Vernelle Armour – the son-in-law of TCAA founders John and Bertha Kieviet. A short memorial service consisting of the reading of the names of many of the club's more prominent members was followed by a moment of silence.

The next order of business was the annual report of the officers. President Green Lee noted that TCAAers had been part of E/PO programs over 200 times in 2009 – the International Year of Astronomy – and that had provided services to some 1,350 members of the general public despite the fact that 5 of 8 public observing programs had been cancelled during the year as a result of overcast skies. Treasurer Duane Yockey noted that the club's fiscal status was good, and that holdings had increased to more the \$5,000. He noted, too, that the membership number was trending downward as has been the situation for the past few years. He further noted that the club should consider some sort of membership drive. Historian Carl Wenning reported that the 50<sup>th</sup> anniversary historical volume of the TCAA is approaching 100 pages not counting pictures. He noted that he now has good reason to believe that the club's two historical scrapbooks were destroyed in 2000, but did not go into detail. He read aloud the minutes of the club's first meeting on February 4, 1960, from the original record retrieved from a trash heap following the death of Weldon Schuette. Lastly, he ran a 15-minute slide show showing 223 historical photographs from the club's first 50 years.

Attention was then turned to the Bylaws amendment listed in the December and January issues of *The OBSERVER*. The amendments – designed to address the transition between election and the next Board of Directors meeting – were approved as a group without objection. The amendments merely brought the Bylaws into alignment with current practice. Lee then called for nominations for the 2010-2011 Board of Directors with the following names put forward: Dave Osenga, Dan Miller, John Werner, Duane Yockey, and Lee Green. No additional nominations were put forward. The nominations were closed and the nominees were unanimously elected. The club's official Registered Agent was announced: Duane Yockey, 508 Normal Ave., Normal, IL.

Presentation of TCAA, Astronomical League, and Night Sky Network awards then followed. Astronomical League observing award were presented by ALCor Duane to the following individuals:

- ☆ Herschel 400 Club – Lee Green
- ☆ Binocular Messier Club – Carl Wenning
- ☆ Lunar Club – Carl Wenning, Lee Green, and Dave Osenga
- ☆ Messier Club (Honorary) – David Hahn
- ☆ Planetary Nebula Club (Basic) – Carl Wenning
- ☆ Comet Observers Club (Gold) – William Carney

(Continued on page 8)

## TCAA EVENTS FOR MARCH

TCAA events for March are below. TCAAers are encouraged to attend and participate in all these events.

March 4, TCAA Board of Directors meeting, LYB, Inc., 6:30 p.m.

March 4, NCRAL 2010 planning meeting, LYB, Inc., 7:30 p.m.

March 13, Members-only Observing Session, SGNC, dusk, no coordinator

March 20, Public Sky Viewing Session, 7:30 – 9:30 p.m., Crescent Moon and Mars.

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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## MINUTES OF THE FEBRUARY 9, 2010, BOARD MEETING

The club's major officers and newly elected Board members met at LYB, Inc., at 6:41 p.m. In attendance were President Lee Green, Treasurer Duane Yockey, Secretary Carl Wenning, 5<sup>th</sup> Director Dave Osenga, and John Werner. Vice President Dan Miller was unable to attend due to hazardous driving conditions. Due to the fact that a Board meeting was held in January and the Annual Meeting only three days earlier, this was a short Board meeting. The following items were addressed:

- ☆ Minutes of the last Board meeting were approved.
- ☆ President Lee Green congratulated those who worked so hard to make the Annual Meeting successful. On a personal note, he indicated that his telescope mount was back at Celestron for additional repairs.
- ☆ The Secretary noted that he will update the Bylaws to take into account the recent amendments.
- ☆ The Treasurer indicated that nearly all bills for the Annual Meeting have been paid, but is awaiting the billing from Ewing Manor that will be sent to him soon. He noted that while he has applied for a tax-exempt "e number", he still has not heard back from the state of Illinois. As ALCOR he noted that addition AL observing club awards will be arriving sooner or later.
- ☆ John noted that he had sent out a fifth copy of the Clyde Tombaugh DVD that he had distributed to four guests at the recent Annual Meeting.

Due to the recent Board and Annual meetings, there was no old business to address. Under new business, the election of officers was held with the following results:

- ☆ President – Dave Osenga
- ☆ Vice President – Dan Miller
- ☆ Secretary – Lee Green
- ☆ Treasurer – Duane Yockey
- ☆ 5<sup>th</sup> Director – John Werner
- ☆ Historian – Carl Wenning
- ☆ Property Manager – William Carney
- ☆ Registered Agent – Duane Yockey
- ☆ Newsletter Editor – TBA pending conversations with Erin Estabrook
- ☆ Web Master – Lee Green

Under announcements, Lee asked if anyone could fill in for him for the March 20<sup>th</sup> public observing session as he might well have a schedule conflict. Carl tentatively agreed to do so.

It was agreed that the 2010 Board meetings would continue on odd-numbered months. This year they will be on the first Tuesdays of the month at 6:30 p.m. at LYB, Inc., unless announced otherwise. March 2 (later changed to March 4) will be the next meeting date. The meeting was adjourned at 7:15 p.m.

Carl Wenning, Secretary

## MINUTES OF THE FEBRUARY 9, 2010, NCRAL PLANNING MEETING

Immediately following the TCAA Board of Directors meeting, the NCRAL 2010 planning team was called to order at 7:15 p.m. by Chairman Carl Wenning. In attendance were John Werner, Dave Osenga, Lee Green, and Duane Yockey. Neither Dan Miller nor William Carney were able to be in attendance. William's mother had recently taken ill, and he was assisting with her care. Also absent was Brian Barling.

While the planning meeting lasted for 70 minutes, there were a few things to report in addition to the fact that our planning team is doing a great job in each of the leadership areas. Each in attendance addressed his responsibilities and answered questions that were directed to that leader. Near the start of the meeting Ed Duran stopped in momentarily to offer his assistance at the conference wherever needed.

Carl spoke on behalf of the positions of registrar and speaker coordinator. He noted that NASA had finally confirmed receipt of our request for an astronaut speaker. We expect to hear within the month if one will be available. He noted that he had not heard back about the Webb Telescope speaker. John recommended (Charles) Tony Keyes from STScI as a possible back-up speaker. (John reported the next day that he had spoken with Tony and that he will keep his schedule open on this date for the next month.) John noted that if we did get Tony, we'll likely have to pay an honorarium. Carl noted that honoraria for "national speakers" are typically \$500 in addition to travel expenses. Carl also noted that he'll need electronic documents from each leader per minutes from the November and

*(Continued on page 10)*

## AL OBSERVING PROGRAM STANDINGS

Below is a listing of the status of observers pursuing AL observing programs reported as of February 28<sup>th</sup>. If you would like to have your information included in next month's listing, be certain to forward your observing totals to Carl Wenning by the end of this month. Keep in mind that the next observing awards will be conferred at the summer picnic at SGNC. Be certain to get your completed observing records to our ALCor, Duane Yockey, as soon as the observing program is complete so that you might be appropriately recognized on a timely basis.

<b>AL Award</b>	Bobby Arn	Brian Barling	William Carney	Lee Green	David Hahn	Chuck Mosier	Dave Osenga	Carl J. Wenning	Duane Yockey
S. Skies Binocular 50								(50)	(50)
S. Sky Telescope 50								(52)	(50)
Telescope Messier Prov70/ Hon110		(110)	(110)	108*	(110)		70*	(110)	31
Binocular Messier 50			(100)	60*	22	8		(78)	22
Deep Sky Binocular 60			60*						
Herschel 400 Club		268	(400)	(400)				(400)	
Urban Club 100			(100)	100*				(100)	
Comet Club Silver12/Gold30			(31**)					4	
Double Star Club 100		17		51				(100)	
Planetary Neb Club Basic60/ Adv110			1					(63*)	
Globular Cluster Club 50				20				65*	
Lunar Club 100		(100)	(100)	(100)			(100)	(100)	
Lunar II Club 100			34						
Asteroid Club Reg25/Gold100			(52)						
Earth Orbiting Satellite 28			5		13			3	
Outreach Award Basic10/ Stellar60/Master160	*, **, ***			(*, **)				31 <sup>h</sup> -06* 26 <sup>h</sup> -07 44 <sup>h</sup> -08** 43 <sup>h</sup> -09	

\* Program or first award level now complete. \*\* Second award level now complete. \*\*\* Third award level now complete. AL recognition (certificate and 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 received.

## SAS MESSIER MARATHON

The Sangamon Astronomical Society has invited us to join them for a Messier Marathon on Friday and Saturday, March 12 and 13 at Jim Edgar Panther Creek State Fish and Wildlife Park. It's a great location, plenty of room to set up and they will have a warming area with hot drinks. They have secured the two group campsites in the same location as the IDSSP. The cost is \$5/night. It's bring your own food, and an extra dish if you'd like to participate in the potluck. For more information, contact Ray Watt, SAS Secretary: raywatt@hotmail.com.

## MARCH SKY GUIDE

**02** The Moon passes 8° south of Saturn, 4 A.M. 

**13** The Moon passes 4° north of Neptune, 10 A.M. 

**14** Mercury is in superior conjunction, 8 A.M.

**17** Uranus is in conjunction with the Sun, 2 A.M.

The Moon passes 7° north of Venus, 7 A.M. 

**20** Equinox (northern spring/southern autumn begins), 1 P.M. 

**21** Saturn is at opposition, 8 P.M. 

**25** The Moon passes 5° south of Mars, 9 A.M. 

**29** The Moon passes 8° south of Saturn, 1 P.M. 

## FEBRUARY EDUCATION AND PUBLIC OUTREACH

Lee Green's adult education course at Heartland Community College concluded. The first class session was on Thursday evening, January 28<sup>th</sup> and continued in the classroom for two additional weeks. The fourth session, to be held at SGNC, has been postponed due to the incessant cloudy sky. Lee previously noted that there are four individuals enrolled in this course, and that Dave Osenga had helped out.

## FEBRUARY OBSERVERS' LOG

David Hahn observed a series of unusual vertical ice pillars on Sunday evening, February 7<sup>th</sup> around 9 p.m. and later. Despite the fact that the sky was covered with patches of thin clouds, he was out observing taking advantage of what clear sky availed itself. He managed to take several pictures of the ice pillars, one of which is shown here. In the original photograph the colors were clearly evident as red and blue and possibly green.

These streaks of light are not artifacts of photography but are related to the reflection of foreground lights. Ice pillars can be formed even when the lights that produce them are hidden from view by the distant horizon and the curvature of the earth. Ice pillars form when sheets of thin clouds containing hexagonal plates of ice reflect light from the ground back to the observer.

David noted, "I hustled out of there when I saw a pack of coyotes run by. More creepy with their howls than anything."

Brian Barling has managed to squeeze in a few more observations of Herschel 400 objects during the past month. His total count is now up to 268. All of Brian's observations are made without the use of a "goto" telescope that increases the amazing nature of his work.



## TCAAer SELECTED BY JPL

Lee Green has been selected to participate in the Solar System Ambassadors program for 2010. As part of his duties, Lee will be conducting education and public outreach programs to highlight the progress we have made in space exploration.

"50 years after the beginning of the Space Age, there are many exciting missions underway that are expanding our understanding of the Solar System. The Ambassadors program provides extensive training on those planetary missions and it has been a great help in improving my understanding and my ability to share this information."

The Solar System Ambassadors Program is a public outreach program designed to work with motivated volunteers across the nation. These volunteers communicate the excitement of JPL's space exploration missions and information about recent discoveries to people in their local communities.

There are almost 500 Ambassadors in 50 states, Washington DC and Puerto Rico bringing the excitement of space to the public. Ambassadors are space enthusiasts from various walks of life who are interested in providing greater service and inspiration to the community at large.

The Solar System Ambassadors Program builds on and expands the outstanding efforts undertaken by the Galileo mission since 1997. Because of the success of the original Galileo Ambassadors program, JPL missions exploring Jupiter, Saturn, Mars, Asteroids, Comets, Earth, the Sun and the Universe now come together to expand the program's scope to the Solar System and beyond.

The Solar System Ambassadors Program is sponsored by the JET PROPULSION LABORATORY in Pasadena, CA, an operating division of the California Institute of Technology (Caltech) and a lead research and development center for the National Aeronautics and Space Administration (NASA).

For more information about the program, please visit their web site at: <http://www2.jpl.nasa.gov/ambassador/index.html>

## 2010 PUBLIC OBSERVING SESSIONS

From March through October each year, the TCAA holds monthly public observing sessions on the Saturday typically nearest the first quarter moon. All programs are free of charge and open to the public. The sessions are held at Sugar Grove Nature Center. In 2010, we will hold the observing sessions on the dates and time listed below. Each session will focus on a particular celestial phenomenon, though additional prominent sky objects such as planets, nebulae, star clusters, and galaxies are viewed when visible. A typical public observing session includes the following components:

- ☆ *Lecture about the featured object.* This 20-30 min. presentation, held in the SGNC picnic shelter, includes images of and details about the featured sky object as well as information on other interesting celestial objects that might be viewed that evening.
- ☆ *Sky tour using a laser pointer.* We step out under the stars to point out the major constellations and planets, and to designate the location of the featured celestial object for the evening.
- ☆ *Telescope observing session.* We use telescopes at ground level to observe the featured objects and other wonders of the heavens.

Date	Featured Object	Time	Coordinator(s)
March 20	Crescent Moon and Mars	7:30pm - 9:30pm	Carl Wenning
April 24	Gibbous Moon and Saturn	8:30pm - 10:30pm	Carl Wenning
May 22	Variable Stars	9:00pm - 11:00pm	Lee Green
June 19	Virgo Cluster of Galaxies	9:00pm - 11:00pm	Duane Yockey & David Osenga (?)
July 17	Globular Star Clusters	9:00pm - 11:00pm	Duane Yockey & David Osenga (?)
August 14	Planets and the Zodiac	8:30pm - 10:30pm	Carl Wenning
September 11	Stars of Red, White and Blue	7:30pm - 9:30pm	Dan Miller
October 16	Perseus double star Cluster	7:00pm - 9:00pm	John Werner

A detailed brochure dealing with the 2010 public observing sessions can be downloaded from the TCAA website at [www.tcaa.us](http://www.tcaa.us).

Members-only observing sessions usually are held on the Saturday nearest the full moon and are typically held one week prior to public sky viewings. MOOS programs are held throughout the year, but only if the temperature isn't too low and the wind too high during the winter. Because the TCAA Board has agreed to dispense with coordinators for the members-only events, TCAAs should pay attention to monthly reminders that will be distributed electronically through the club's listserv.

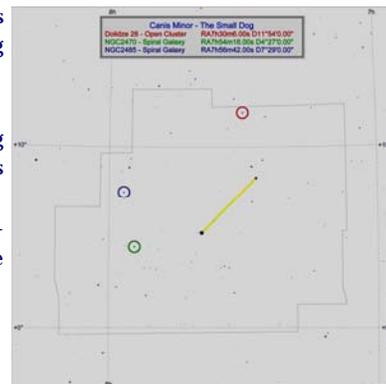
## CONSTELLATION OF THE MONTH: CANIS MINOR—THE LESSER DOG

Canis Minor is a small constellation north of Monoceros, south of Gemini and southwest of Cancer. Canis Minor is best viewed during the winter months. The brightest star in Canis Minor is called Procyon. It, along with Betelgeuse and Sirius, form the nearly equilateral Winter Triangle of bright stars.

Canis Minor was seen to be one of the dogs of Orion the Hunter.

In addition to Procyon, the beta star is called Gomeisa. Canis Minor is the 71<sup>st</sup> largest constellation covering only 183 square degrees. However, due to Procyon's contribution, it is the 31<sup>st</sup> brightest constellation. Canis Minor reaches opposition on January 13.

Canis Minor is located away from the Milky Way and is in a sparse area of the sky with few galaxies or clusters of interest. Dolidze 26 is an irregular open cluster with a few bright stars. NGC2470 and NGC2485 are small faint spiral galaxies.



## CHEMISTRY ON FOREIGN WORLDS

By Lee Green

I recently read a book by Isaac Asimov called **Asimov on Chemistry** and he suggested some answers to questions about which I have often mused. Since our world has the good fortune of orbiting the Sun in the "sweet spot" where water takes liquid form, water has become the primary solvent of life on Earth and makes up a large percentage of all biological lifeforms.

So what solvent might we find on other worlds that exist in different temperature ranges? Asimov suggests that for slightly cooler worlds, ammonia (NH<sub>3</sub>) would be a good candidate since, at 1 atmosphere of pressure, its melting point of -78°C and its boiling point of -33.5°C provides a reasonable range of temperatures for liquid to exist. It has similar characteristics of latent heat and similar chemical properties that allow a wide range of chemical reactions.

Another cold liquid that may be common at lower temperature is methane (CH<sub>4</sub>). Asimov argues that while liquid methane could be appropriate for many biochemical reactions, it has inherently different properties due to its symmetrical, "nonpolar" structure which causes sugars and salts to be insoluble. Since lipids (fats and oils) are soluble in methane, they would need to be the basis for the formation of structures that serve the function of proteins and nucleic acids. At the extreme range of cold liquids, hydrogen would be the ultimate solvent, although its low and narrow range of liquid temperatures might limit the scope of reactions possible.

On warmer planets where water is gaseous, we have sulfur the natural elemental liquid. But since hydrocarbons break down at elevated temperatures, a more stable bond would be needed and fluorocarbons or fluoro-silicones could well fit the chemical bill that allows the formation of complex protein molecules that would surely be necessary in the evolution of life.

But I found the book interesting and relevant in spite of the fact that it was published nearly 50 years ago. Asimov does an excellent job of describing the history and the "why" of chemistry without losing the reader with too much information.

Substance	Molecular Weight	Melting Point (°C)	Boiling Point (°C)
Water	18	0	100
Ammonia	17	-78	-33.5
Methane	16	-182.5	-161.6
Ethane	30	-172	-88
Hydrogen	2	-259	-252
Sulfur	32	115	444

## TCAAers AT NCRAL

By Lee Green

You have probably heard that next month, April 16-17, the TCAA will host the 2010 NCRAL conference. NCRAL, the North-Central Region of the Astronomical League, includes 30 astronomy clubs from Illinois to North Dakota. Many members from those clubs will be joining us here in the Twin Cities for the annual meeting of the regional clubs.

As part of our conference, the Challenger Center has agreed to run two **Mission to Mars** simulations on evening of April 16 at 6PM and 8PM. We will have space available for TCAA members to participate in this excellent adventure. The cost will be only \$20 per person.

If you have never visited the Challenger Center for Space Science Education, please consider joining us for this exciting event. At the Challenger Center, you can fly simulated space missions, offering the next best thing to actual space flight. They feature a Mission Control room designed after NASA Johnson Space Center and an orbiting space station.

TCAAers can also choose to attend the banquet where we will have an exciting keynote speaker. We have invited STS-125 Commander Scott Altman to join us in that role, however we have not yet received his acceptance of our invitation. You can join us at the NCRAL Banquet, where we are featuring a buffet style food including beef and chicken, at the price of \$30 per person.

To sign up for the conference or for either of these events, you can visit the [www.ncral2010.org](http://www.ncral2010.org) website. The online registration page lets you sign up for these events. You can attend the whole conference, just the banquet, or the Challenger Center mission. If you do not want to attend the conference, simply uncheck the "I will attend the Conference" checkbox on the first page. That will let you choose the optional activities only. If you have any questions, please contact Lee Green at [tcaa@tcaa.us](mailto:tcaa@tcaa.us).

# THE LIFE AND TIMES OF GALILEO, PART 7 (CONCLUSION)

By Carl J. Wenning

*In recognition of the 400<sup>th</sup> anniversary of the telescope's use to view the heavens, I re-present here in multiple parts a review of short biographical sketch of Galileo that I wrote in 1996.*

On April 12, 1633 the trial of Galileo began. Following some initial inquiries regarding the writing and licensing of the *Dialogue*, the matter of the 1616 Qualifier's ruling was brought up. Galileo detailed what Cardinal Bellarmine had related to him and produced the affidavit in support of his case. It was upon this affidavit that he relied for his memory and upon which he believed himself authorized to discuss the doctrine. He believed himself innocent of violating either the letter of the spirit of the decree of 1616. He argued that the *Dialogue* treated the Copernican theory as hypothesis and in no other way. He argued that to the best of his memory he had never received even so much as a personal injunction from the Cardinal to avoid teaching the doctrine in any way.

The prosecutor then asked if anyone else beside himself and Bellarmine had been present at that 1616 meeting to which Galileo replied in the affirmative. The prosecutor at that point produced the unsigned document of the notary which contradicted Galileo and upon which, in part, the Inquisition was basing its case. Galileo clearly heard the words, "nor teach in any way." He was dumbfounded.

Before the first and second meeting of the special commission, the Inquisitors examined the *Dialogue* and found that it did defend and maintain the objectionable doctrine. Because the outcome of the case was in doubt, Galileo was privately advised by the Commissary General of the Inquisition to adopt a more submissive attitude in light of the example provided by Bruno in 1600 who was burned alive for heresy.

Galileo now felt deeply and personally threatened. Had he actually been enjoined to keep from even so much as teaching the sun-centered doctrine? Was his 70-year-old memory failing him? At the second meeting Galileo admitted that perhaps he had been overly zealous in defending and maintaining the doctrine that the earth moved. He even went so far as to offer to make an addition to the *Dialogue* that would refute as completely as possible the Copernican doctrine.

It was impossible for Galileo to defend himself. No questions of science had actually been raised. The charge was "vehement suspicion of heresy." It was sufficient to show that Galileo had disobeyed an official order. On the only substantive issue of whether or not Galileo had indeed done so, Galileo should have won the case in light of the best evidence, but this was not to be.

At his last appearance before the Inquisition on June 22, Galileo was found guilty by a majority of the judges (with at least three notable exceptions) "of believing and holding the doctrines - false and contrary to the Holy and Divine Scriptures - that the sun is the center of the world, and that it does not move from east to west, and that the earth does move and is not the center of the world; also that an opinion can be held and supported as probable after it has been declared and decreed contrary to the Holy Scriptures." In punishment Galileo was required to "abjure, curse, and detest the aforesaid errors." He was then condemned to the "formal prison of the Holy Office" for an undetermined amount of time that would be served at the pleasure of his judges, and required to repeat the seven penitential psalms once a week for three years.

The condemnation of Galileo was published far and wide. His recantation was circulated in Italy and in Roman Catholic circles elsewhere. His book, the *Dialogue*, was prescribed to the Index of Forbidden Works. Galileo was crushed by the verdict as it cut him off from the Church he was so much a part of and because no thought of heresy had ever crossed his mind. He perceived this action to be the second major error that the Church had made, the first being the edict of 1616, which would be used by the world to judge the institution once the truth was known. And not the least of the pains came from the knowledge that the entire work of his life had been condemned.

It is most unlikely that Galileo spent more than three days in the prison of the Inquisition, for on June 23 the Pope changed the prison sentence to house arrest in a comfortable country villa near Rome which belonged to the Grand Duke of Tuscany. Galileo moved there on the 24th. Upon the intervention of Archbishop Piccolomini, Galileo was permitted to move to Siena into the custody of the Archbishop whose understanding and compassion helped save Galileo's sanity and even possibly his life. His condemnation by the Church was deeply felt. He wrote to his daughter, a nun, Sister Maria Celeste, that his name was removed from the book of the living. The Archbishop encouraged Galileo to turn his mind to science once again and prompted him to begin work on his long-planned treatise on motion.

By the end of the year Galileo was given permission to retire to his own country home near Florence on the condition that he not leave the house without permission, while his visitors and communications were carefully watched. Several scurrilous attacks on *Dialogue* were published, but Galileo was forbidden to reply. He was kept from carrying on his studies in the areas he loved most, but he did complete several important works that he had begun much earlier. His telescope was used to study further the motions of the Jovian moons. The observations were cut short, however, by his failing eye sight.

During the final years of his life the now aged Galileo completed work on his book *Mathematical Discourses and Demonstrations concerning Two New Sciences*. In this final work Galileo detailed techniques and strategies for the solutions of various types of mechanical problems covered today in introductory Physics classes. He also enunciated the first real formulation of what is today known as inertia. The work was complete in 1636 but, because Galileo was prohibited from publishing anything in Italy, it was smuggled out of the country. It first appeared in Leyden in 1638.

In that same year his eyesight failed completely. This proved to be the last devastating blow and very difficult to accept. Galileo had demonstrated throughout his entire life, he had a special talent for observation that had led him to make marvelous discoveries in both astronomy and physics. Even with weakened vision, Galileo was deeply insightful with regards to his current predicament.

As both Catholic and scientist Galileo had a clear conscience. On one occasion he wrote despairingly that at times he felt as though he should burn all his works, but never once did he feel as though he ought to reject the faith that nurtured him. He realized that his suffering was not due to the Church, but due to a select few who cloaked themselves with her authority. Indeed, he had found many within the Church who supported him personally. Galileo sought not support for Copernicanism, but only for freedom of scientific inquiry without Church intervention -- something that today's modern scientists all too often find themselves contending with.

Galileo, an outcast, a rebel, died at his country estate on January 9, 1642.

## MINUTES OF THE TCAA GOLDEN ANNIVERSARY ANNUAL MEETING (CONT.)

*(Continued from page 1)*

Unfortunately, Dave and William were unable to be present for the meeting. Carl noted that William had intended on coming, but that his mother was recently hospitalized.

By prior arrangement, Carl inducted Lee Green to the G. Weldon Schutte Society of Outstanding Amateur Astronomers, noting Lee's great many contributions to the both the club and the general public over the past several years. Lee then presented the Eugene & Donna Miller Family Award to Paul Pouliot. Participating in the reception of the award were Pauls' granddaughters Eve and Amber. Paul has worked closely with the girls over the past several years to introduce them to the night sky. Mike Miller, after whose parents the award was named, had hoped to be part of the presentation but was unable to make the meeting due to last-minute work-related problems.

The last award-related presentation was an acknowledgement of Brian Barling who had previously received the John & Bertha Kieviet Founders Award. Brian's name had not been inscribed on the plaque that was created several years after the award was first conferred. The presentation was to acknowledge the earlier oversight.

Lee then presented NASA Night Sky Network awards for public outreach in 2008 went to Carl Wenning, Dan Miller, and Lee Green. NSN awards for 2009 were presented to Carl, Duane, Dan, Bobby Arn, John Werner, and Dave Osenga. In lieu of door prize drawing, John Werner distributed four (and later a fifth) copy of the Clyde Tombaugh DVD that he brought home from the NCRAL 2009 meeting. The DVDs went to the guests.

The meeting concluded with a talk by Barry Beaman. Barry, a TCAAer from 1963-1973, addressed the assembled membership starting around 9:00 p.m. He gave a 45-minute PowerPoint presentation telling how he came to the TCAA and shared both pictures and memories of TCAA members, activities, events, and accomplishments. He described some of his accomplishments since leaving the TCAA and with an eye to the future, telling how anyone who wants to can follow the same path to success. Barry concluded his presentation with a discussion about the AAVSO and some of the opportunities and benefits it offers to amateur astronomers.

The meeting drew to a close at 9:50 p.m. with plenty of words of thanks and congratulations. Everyone departed by 10 p.m.



## NASA MISSION UPDATES

### *SDO Liftoff*

The **Solar Dynamics Observatory** is scheduled to launch from Cape Canaveral on Feb 9. This new mission to study the sun is brought to us by NASA's Goddard Space Flight Center.

The following is excerpted from their website at <http://sdo.gsfc.nasa.gov/mission/about.php> where more information is available.

The Solar Dynamics Observatory is the first mission to be launched for NASA's Living With a Star (LWS) Program, a program designed to understand the causes of solar variability and its impacts on Earth. SDO is designed to help us understand the Sun's influence on Earth and Near-Earth space by studying the solar atmosphere on small scales of space and time and in many wavelengths simultaneously.

SDO's goal is to understand, driving towards a predictive capability, the solar variations that influence life on Earth and humanity's technological systems by determining

- how the Sun's magnetic field is generated and structured
- how this stored magnetic energy is converted and released into the heliosphere and geospace in the form of solar wind, energetic particles, and variations in the solar irradiance.

SDO will study how solar activity is created and how Space Weather comes from that activity. Measurements of the interior of the Sun, the Sun's magnetic field, the hot plasma of the solar corona, and the irradiance that creates the ionospheres of the planets are our primary data products.

SDO will fly three scientific experiments:

- Atmospheric Imaging Assembly (AIA)
- EUV Variability Experiment (EVE)
- Helioseismic and Magnetic Imager (HMI)

Each of these experiments perform several measurements that characterize how and why the Sun varies. These three instruments will observe the Sun simultaneously, performing the entire range of measurements necessary to understand the variations on the Sun.

SDO is a sun-pointing semi-autonomous spacecraft that will allow nearly continuous observations of the Sun with a continuous science data downlink rate of 130 Megabits per second (Mbps). The spacecraft is 4.5 meters high and over 2 meters on each side, weighing a total of 3100 kg (fuel included). SDO's inclined geosynchronous orbit was chosen to allow continuous observations of the Sun and enable its exceptionally high data rate through the use of a single dedicated ground station.

From <http://www.jpl.nasa.gov/news/news.cfm>:

### **Spirit Rover's new Phase**

After six years of unprecedented exploration of the Red Planet, NASA's Mars Exploration Rover Spirit no longer will be a fully mobile robot. NASA has designated the once-roving scientific explorer a stationary science platform after efforts during the past several months to free it from a sand trap have been unsuccessful.

The venerable robot's primary task in the next few weeks will be to position itself to combat the severe Martian winter. If Spirit survives, it will continue conducting significant new science from its final location. The rover's mission could continue for several months to years.

"Spirit is not dead; it has just entered another phase of its long life," said Doug McCuiston, director of the Mars Exploration Program at NASA Headquarters in Washington. "We told the world last year that attempts to set the beloved robot free may not be successful. It looks like Spirit's current location on Mars will be its final resting place."

### **WISE finds Near-Earth Asteroid**

NASA's Wide-field Infrared Survey Explorer, or WISE, has spotted its first never-before-seen near-Earth asteroid, the first of hundreds it is expected to find during its mission to map the whole sky in infrared light. There is no danger of the newly discovered asteroid hitting Earth.

The near-Earth object, designated 2010 AB78, was discovered by WISE Jan. 12. The mission's sophisticated software picked out the moving object against a background of stationary stars. As WISE circled Earth, scanning the sky above, it observed the asteroid several times during a period of one-and-a-half days before the object moved beyond its view. Researchers then used the University of Hawaii's 2.2-meter (88-inch) visible-light telescope near the summit of Mauna Kea to follow up and confirm the discovery.

The asteroid is currently about 158 million kilometers (98 million miles) from Earth. It is estimated to be roughly 1 kilometer (0.6 miles) in diameter and circles the sun in an elliptical orbit tilted to the plane of our solar system. The object comes as close to the sun as Earth, but because of its tilted orbit, it will not pass very close to Earth for many centuries. This asteroid does not pose any foreseeable impact threat to Earth, but scientists will continue to monitor it.

## MINUTES OF THE FEBRUARY 9, 2010, NCRAL PLANNING MEETING (CONT.)

*(Continued from page 2)*

January planning meetings. Carl was asked to assign responsibilities and schedules for various aspects of the program so that nothing gets missed. Tickets will be prepared for the banquet meal and will be required for admission to the dining hall until after the conclusion of the buffet. Nametags will indicate who has paid for the banquet via some form of icon or other statement.

Dave reported that his work with AV was going well, and that he'd have to be careful with the use of extension cords. He indicated that he would be certain that screens and backdrops were in place, as well as backup computers and projectors, and public address systems. He showed the expected layout of the room.

Lee noted that all the additions requested at the January planning meeting had been put in place on the electronic registration website. He noted that he had already received seven pre-paid registrations, and that most were asking to attend one of the CLC missions on Friday evening. Lee was asked to provide hard copies of the registration form for on-site registration. On-site electronic registration will not be done as a time saver for those working the registration table.

Duane noted that the buffet meal had not yet been arranged with the conference hotel as no one had gotten back with him after repeated attempts to contact the banquet manager. Dave noted that he probably had to go back to the hotel to check on screens and a back drop, and that Duane might want to join him at this time to get his questions answered and to find a location for the official photograph.

John talked about the promotion that he'd been doing, and indicated that only 10 of 150 US mailings were returned. Most of these were non-NCRAL clubs. He and Lee will work to visit club web pages in order to find updated contact information. The emails will then be resent. Consideration for a repeat US mailing will be determined at next board meeting. The NCRAL announcement is now posted to *Astronomy*, *Sky & Telescope*, and Astronomical League websites. John then asked if Carl might be able to obtain the IDSSP mailing list. He will check with Ray Watt in Springfield to see if this might be possible.

Carl asked if anyone had heard whether Dan had addressed the Peoria Astronomical Society meeting on February 3 or will do so on March 3 as he earlier indicated that he would. No one knew the answer to that question. Lee noted that he has contacted the Popular Astronomy Club in Rock Island following his cancelled November trip, but had not heard back from them.

A brief discussion was held with regard to money making, and Carl brought up the question of two sewn TCAA logos on a black field for gifts for the NASA speakers who may not receive honoraria in excess of \$20 value. John will take care of these having them made so they fit in a display approximately the size of an 8.5 x 11 piece of paper, and Carl will try to find specimen cases at B&B Awards, Hobby Lobby, or Jeffrey Allens.

Dan was not present to speak about the Friday evening field trips. Duane noted that he expects to hear soon from the Normal Theater. Carl noted that he will work with Tom Willmitch at the ISU Planetarium to set the start time for the retro planetarium program following the ending of the 7:30 p.m. showing at the Normal Theater.

Carl relayed a report on behalf of William and door prizes. About a week to 10 days earlier William had sent out the mailing and to date three door prizes had arrived. Lee added to this listing two 16mm Meade Series 5000 wide field eyepieces (68 degree) he had obtained directly from WIASTRO.

The meeting drew to a close at 8:25 p.m. with the next meeting on March 2<sup>nd</sup> following the TCAA Board of Directors meeting.

## TCAA Treasurer's Report – February 2010

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OPERATING FUND BALANCE – January 31, 2010 - \$ 2,751.89

Income

Paul Pouliet (dues) -	\$ 40.00
Ed Duran (elect. dues) -	\$ 25.00
Dan Miller (dues) -	\$ 40.00
Brian Barling (dues) -	\$ 40.00
Lee Green (dues) -	\$ 40.00
Ginnie Underwood (sen. dues) -	\$ 25.00
William Carney (dues) -	\$ 40.00
Polo Shirt Order (Carl Wenning) -	\$ 36.00
Polo Shirt Order (Charles Mosier) -	\$ 28.00
Polo Shirt Order (Duane Yockey) -	\$ 56.00
Annual Dinner Income -	\$ 675.00
NCRAL Registrations -	\$ 658.25
PayPal bonus -	\$ 1.95

Expenses

LYB Inc. (Feb. Observer-	\$ 43.49
Carl Wenning (Ann. Mtg. expense) -	\$ 74.26
Duane Yockey (Ann. Mtg. expense) -	\$ 30.28
Kerry Meyer (Ann. Mtg. entertainment) -	\$ 50.00
Barry Beaman (honorarium)	\$ 100.00
Barry Beaman (mileage) -	\$ 130.00
Times Past Inn (banquet) -	\$ 465.00
ISU Foundation (Ewing Fee) -	\$ 370.00
John Werner (NCRAL expenses) -	\$ 126.90
William Carney (NCRAL expenses) -	\$ 22.00
PayPal Fee. (NCRAL registrations) -	\$ 8.24
OPERATING FUND BALANCE – February 28, 2010 -	\$ 3,036.92

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OBSERVATORY FUND BALANCE – January 31, 2010 - \$ 2,435.61

Income

Keyholder Fee (Brian Barling) -	\$ 5.00
Donation (Barry Beaman) -	\$ 100.00
Keyholder Fee (William Carney) -	\$ 5.00

Expenses

None -	\$ 0.00
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OBSERVATORY FUND BALANCE – February 28, 2010 - \$ 2,545.61

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TOTAL TCAA FUNDS – February 28, 2010 - \$ 5,582.53

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Respectfully submitted, L. Duane Yockey, Treasurer

### Sugar Grove Observatory

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

Duane Yockey (renewed through 2009)	David Osenga (renewed through 2009)
William Carney (renewed through 2010)	Josh Lindsey (renewed through 2009)
Carl Wenning (renewed through 2009)	Dan Miller (renewed through 2009)
Brian Barling (renewed through 2010)	Lee Green (renewed through 2009)
Christopher Franklin (renewed through 2009)	

## 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@yahoogroups.com](mailto:TCAA-subscribe@yahoogroups.com). Unsubscribing is just as easy. To unsubscribe, just send a blank email to [TCAA-unsubscribe@yahoogroups.com](mailto:TCAA-unsubscribe@yahoogroups.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](http://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.

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### 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**