

The OBSERVER

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AUGUST 2011

RECENT AND UPCOMING E/PO EVENTS

The first E/PO of July took place on Saturday, July 9th, with the POS. The theme of the event was *Galactic Travelers: Globular Clusters*. Lee Green coordinated the event in the absence of Carl Wenning who was called away by family events that weekend. According to reports, we had some 50 people show up. Many were very enthusiastic according to Lee. He reported, "I gave the presentation on globular clusters and I believe it went well. We had several excellent questions. I was waylaid with additional questions before I could start the sky tour, but I saw that John did a short impromptu tour". In addition to Lee and John Werner, Duane Yockey, William Carney, Tony Cellini, and Tom Weiland represented the TCAA. All of them also brought out scopes. Bob Finnigan was also in attendance and demonstrated astronomical imaging at the SGO. The globular clusters were washed out due to the 8-day-old moon. Open clusters showed well, and Saturn was clearly visible. A few were able to see the Ring Nebula.

Near the end of the month, the following E/PO events took place:

- ☆ On July 18th, Lee made a presentation to a class of twenty 2nd and 3rd graders at the Milestones Early Learning Center. They had been studying the solar system and had a trip to the ISU Planetarium scheduled. Lee gave an introduction to astronomy talking about the solar system and showing pretty pictures. The kids asked many questions and especially liked the graphic that showed the planets' size next to the Sun. Afterwards, they got a chance to see a telescope that was set up in the lobby.
- ☆ Lee was at it again on Thursday, July 28th – twice actually. He started off the morning, from 7:10-7:20 a.m., live on WJBC Radio with hosts Scott Laughlin and Colleen Callahan speaking about Cassini at Saturn and previewing his evening talk. That evening Lee – as a NASA Solar System Ambassador – gave an hour-long talk at Heartland Community College's Challenger Learning Center as part of the series *Inspiring the Next Generation*. Some 70 individuals were present for the talk including club members Dave Osenga, Tom Wieland, Carl Wenning, Larry Leetzow, Nancy Sultan, Paul Pouliot and his granddaughters Eve and Amber.
- ☆ John Werner and Lee Green hosted a soiree for major donors of Millikin University in Decatur on Saturday, July 30th. Assisting was Chris Miller. The event included an open house at the observatory.

The main event to start off August will be the regularly scheduled public observing session on Saturday, August 6th. Dave Osenga will present *Small Bodies – Large Impacts* as part of a Vesta Fiesta. There will be a 8-day-old moon in the sky, so special attention will be focused on star-like points of light – the asteroids. The coordinator for the evening will be Dave Osenga assisted, undoubtedly, by NASA Solar System Ambassador Lee Green. See the following article for details.

VESTA FIESTA TO BE HELD BY THE TCAA

By Lee Green

The Twin City Amateur Astronomers will host a Vesta Fiesta at 8:30 p.m. on Saturday, August 6th, to celebrate the beginning of the NASA Dawn mission's year-long visit to the large asteroid Vesta. Dawn is the second scientific mission to be powered by an advanced NASA technology known as ion propulsion and is the first NASA mission to orbit two major objects.

Our Vesta Fiesta will feature a presentation about the Dawn mission, a laser guided sky tour, and observing Vesta and a variety of other celestial objects through telescopes. The event will be held at the Sugar Grove Nature Center. Please join us for a fun filled educational experience.

The asteroid Vesta orbits the sun every 3.6 Earth years, has an oval, pumpkin-like shape, and an average diameter of approximately 330 miles. Dawn's visit to Vesta will be the first prolonged encounter with a main belt asteroid. Observations will help us understand the earliest chapter of our solar system's history.

The study of Vesta is only half of Dawn's mission. The spacecraft will also conduct a detailed study of the structure and composition of another asteroid Ceres - which, because it is larger and rounder, also meets the requirements to be a "dwarf planet." Vesta and Ceres are two of the most massive objects in the main asteroid belt between Mars and Jupiter. Dawn's goals include determining the shape, size, composition, and internal structure of both objects, and the mission is expected to reveal the conditions under which each of them formed. For more information about the Dawn Mission, visit <http://dawn.jpl.nasa.gov/>.

The *OBSERVER* is a monthly publication of the Twin City Amateur Astronomers, Inc., a registered 501 (c) (3) non-profit educational organization of amateur astronomers interested in studying astronomy and sharing their hobby with the public.

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Submission deadline is the first of each month.

Membership Dues

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

To join the TCAA, send your name, contact info and dues payment to
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MINUTES FROM JULY 5 BOARD OF DIRECTORS MEETING

The TCAA Board meeting was held at the office of Duane Yockey on July 5, 2011. Vice President Tom Weiland called the meeting to order at 6:32pm. In attendance were Tom, Brian Barling, Dan Miller, William Carney, Duane Yockey, Carl Wenning, Lee Green and Bob Finnigan. The minutes of the previous meeting were unanimously approved.

Duane distributed the current Treasurer's report and noted that our active membership had dropped from 41 last year to 27 current members. The Treasurer's report was unanimously approved. As ALCOR, Duane related that John and Joyce Werner had attended ALCON 2011 at Bryce Canyon National Park. Robert Arn was a speaker there and John won the Nebula Astrophotography competition. ALCON 2012 is scheduled to be held in conjunction with NCRAL 2012 to be hosted by the Chicago Astronomical Society.

Discussions turned to old business. Recent discussions about a possible new plaque were resumed when Carl distributed a draft recommendation for a new Distinguished Service Citation. We discussed the rationale for the plaque and some of the considerations behind the recommendations. Carl questioned the need for such an award in light of our reduced membership and the active role played by many members. He recommended that we table the issue and that of an Honorary Lifelong Member plaque and all agreed.

The next topic was SGO improvements and allowing access to members. Bob reported good progress and that the observatory had achieved a "turn-key" operational status for observing and for astrophotography. We reviewed the agreed upon guidelines that all Board members and officers should hold keys and listed additional members who should be eligible for keyholder status, including Brian Barling, John Werner and Josh Lindsey. William agreed to make keys available for those who did not already hold them.

Lee reported that he held a training session on the use of the CGEM for observing on Sunday May 29 and that Paul Pouliot, Larry Leetzow and Josh Lindsey all successfully completed that. Carl reported that his telescope training, held on June 28, went well with Josh Lindsey, Don Cooper, Mark Honzell and Larry Leetzow participating. Carl questioned the need for continued scheduling of our monthly Members-Only Observing Session (MOOS) in light of the regular attendance by so many core members. The consensus was that these dates should be maintained with focus placed on continuing training opportunities for members. Carl suggested that we call these sessions to be Member Training Sessions and agreed to write an article for the Observer to highlight our new focus.

Improvements at the Sugar Grove Nature Center's shed have been proceeding apace. Lee has helped a few times and related the progress of the group. Several members will join the effort, including Tom and Dan. We discussed the possibility of making a monetary contribution to the project to help defray the costs of the additional materials for the club's space which has been called the "astronomers' poker room" and Lee agreed to query what the appropriate amount might be.

We revisited the need for fire and casualty insurance for the observatory in light of the many improvements. It was noted that with our declining membership, cost was a concern and that such an expenditure would require some kind of revenue stream to defray a drain on the general club treasury. Lee reported that he had discussed this issue of joint insurance with the Nature Center and that the suggested course of action was to obtain coverage from the agency that provided our liability insurance. He agreed to finalize the collection and preparation of the information needed, and to forward this to Duane so we can obtain a firm quote. We further discussed that the best steps we can take are to maintain a high level of diligence in the operation of the observatory, including unplugging electrical equipment. William noted that our observatory fire extinguisher should be replaced.

Lee reported that he had contacted Ash Dome for the purpose of obtaining replacement costs for the dome, and that he had also gotten a quote for materials to replace the gaskets. William and Dan strongly suggested that this was appropriate and this expenditure was approved. Dan and Lee will examine the side slots to see if those could be replaced too. William noted that the eye-bolt used to open the dome was getting worn and suggested that we obtain two of these for replacement.

Bob raised the idea of motorizing the dome. Dan was enthusiastic about the idea, but said he spoke with Ask Dome several years ago and they suggested that such an improvement would be unlikely to be successful.

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CORRECTION

It was incorrectly reported in last month's issue of *The OBSERVER* that Dan Miller was in attendance at the ALCON 2011 meeting at Bryce Canyon along with John & Joyce Turner and Bobby Arn. That was incorrect. Dan did not attend the meeting.

ALCON 2011 JUNE 29-JULY 2, 2011

Presented by The Astronomical League and The Salt Lake Astronomical Society Daily Reports by John Werner

Report for Wednesday, June 29, 2011: TCAA members in attendance were John and Joyce Werner along with Bobby Arn, former TCAA member, now attending Colorado State University.

The host society for ALCON 2011 was The Salt Lake Astronomical Society. Unique to the venue was the host society teaming up with the staff at Bryce Canyon National Park, holding its 11th Astronomy Festival concurrent to ALCON this year.

Three hundred sixty attended at least one day of ALCON this year. From what Joyce, Bobby Arn, and I witnessed, the ALCON committee has done an outstanding job of putting the program and activities together. What is so unique is the coordination with the National Park Service staff in their presentations, such as "The First Star people", a sponsored presentation from NASA's Solar System ambassador Patrick Wiggins, and several talks by the Park's "Dark Ranger".

Over 40 telescopes were set up for Wednesday night's, park-sponsored, public observing session (held Weds. through Sat.). Several hundred visitors were in attendance throughout the 10:00pm to 12:30am session. Twilight ends around 11:00pm. The Astronomy League has coordinated with the Park to setup a private Star Party observing location at Rainbow Point's 9,000 foot parking lot each night of the conference. Bobby Arn and I photographed from this location Thursday and Saturday nights.

And speaking of Bobby Arn, he is a sought-out "celebrity" at the conference. As you may know, Bobby has four APODs to his credit. (The record is 38.) He spoke Thursday at the conference on the topic "Inexpensive Astrophotography for the Beginner." Bobby reports that he had an excellent night Wednesday night with his sky and landscape photography and we look forward to seeing his results.

And by the way, the dark sky is spectacular! The Milky Way has a 3-D appearance with its dense and very bright star clouds.

Report for Thursday June 30th: Because of the late night observing, public and private, conference speakers begin at 11:00am (and run through 5:00pm). Joyce was off for a bus tour of Bryce on this morning. The landscape is breathtaking with the park located at 8,000 to 9,000 foot plateau, with multiple canyon areas filled with rock-topped "Hoodoo" pillars with shades of pink, salmon, and yellow. Under some conditions Bryce's limestone appears to glow in its own light.

Bobby was successful in capturing a brief but impressive lightning storm against the background of a bright Milky Way Wednesday evening. John visited the vendor area in the morning and had conversations about automating his observatory for remote observation, visited with DAYSTAR filters specializing in solar observing, and Moonglow Technologies which features an all sky cam for meteor observing. Other vendors displaying included Software Bisque, Explore Scientific, and Celestron.

Afternoon presentations included John Dobson who answered questions about his Dobsonian design and Tyler Nordgren, PhD in astronomy from Redlands University who provided an overview of his new publication "Stars Above, Earth Below: A Guide to Astronomy in National Parks" a product of his university sabbatical relating astronomy to the National Parks, and Bobby Arn, who did a great job with his presentation and received many questions regarding inexpensive approaches to astrophotography.

John Dobson, at 95 years of age, was very sharp. He joined us via a taped presentation, responding to prepared questions. He graduated with a degree in chemistry and worked on the Manhattan project recovering uranium from irradiated carbon. One question asked was did he like his name being used for defining a telescope design. His response was that there was nothing wrong with your name being used if for public service (he started sidewalk astronomy in San Francisco, which is now worldwide.) He began making telescope mirrors with salvaged porthole glass off of decommissioned navy ships (tons of glass were obtained). He built a 24 inch telescope for \$300 and has brought affordable astronomy to the masses.



Bobby Arn presenting



Hoodoos at Bryce

(Continued on page 8)

OBSERVERS' LOG FOR JULY 2011

AUGUST SKY GUIDE

- | | | |
|----|--|---|
| 01 | The Moon passes 1.5° south of Mercury,
6 A.M. |  |
| 04 | The Moon passes 8° south of Saturn,
9 P.M. |  |
| 05 | Asteroid Vesta is at opposition,
5 A.M. |  |
| 13 | Perseid meteor shower peaks |  |
| 14 | The Moon passes 6° north of Neptune,
11 A.M. |  |
| 16 | Venus is in superior conjunction, 7 A.M.

Mercury is in inferior conjunction, 8 P.M. | |
| 17 | The Moon passes 6° north of Uranus,
8 A.M. |  |
| 20 | The Moon passes 5° north of Jupiter,
7 A.M. |  |
| 22 | Neptune is at opposition,
6 P.M. |  |
| 25 | The Moon passes 3° south of Mars,
9 A.M. |  |
| 27 | The Moon passes 3° south of Mercury,
8 P.M. |  |
| 31 | The Moon passes 7° south of Saturn,
6 P.M. |  |

The pleasant clear nights of late June gave way to oppressively hot and humid evenings in early July that ran their course through the week ending July 24th when it was dangerously so. Daytime heat indices were typically near 110 or above from July 18-24. Despite these fact, Bob Finnigan and Paul Pouliot spent time observing at SGO on July 2nd, the night of the MOOS. Only these two were present that evening due to the hazy sky. Bob tutored Paul into taking his first astronomical photograph. The topic was M27, the Dumbbell Nebula. Paul proudly (and justifiably) displayed the resulting image on his Facebook page the following day. Bob then spent additional time working on the Veil Nebula.

July 4th brought an exceptionally dark and clear sky. Taking advantage of this unusual circumstance by observing from SGNC were Bob F., William C., Carl W., and Lee G. Bob spent the evening gathering more images of the Veil; he is working on a mosaic of the entire nebula that spans several degrees. William spent time checking out a few things with regard to the mount problems he has had recently. It appears that he has concluded that the motherboard on the Orion mount that he is using is going bad. Carl spent the evening observing 26 additional Herschel II objects – mostly galaxies. Bob spent his evening working on the AL's Open Cluster Club. William left by midnight, Carl and Bob around 1:45 a.m., and then Lee – having taken over imaging work from Bob – departed around 4:00 a.m. Starting around midnight, members were at times startled by the huffing of a deer in the bird feeding enclosure just east of the nature center.

One night shy of the full moon, on July 13/14, SGO saw activity from sunset to sunrise. Tony C. started the evening by taking a number of "dark" images so he could continue with his image processing. As Tony was departing, Bob F. and Carl W. showed up to do some imaging of NGC 2610, a small planetary nebula in Hercules. Carl left around 11:30 p.m. and Bob continued working on the Veil Nebula in Cygnus. As he prepared to leave around 12:30 a.m., Lee G. showed up to do some imaging of dark nebulae in the Milky Way. Bob stayed until around 1:30 a.m. and Lee continued observing until dawn.

On the night of July 15th, Bob took a series of photographs of NGC 6888, the Crescent Nebula, using the 11-inch telescope. As Bob mentioned, if the night is even tolerably clear, he will be out imaging or otherwise working on the telescopes.

On the night of July 16th, Bob and Lee cooperated to take an amazing image of M17 – the Omega Nebula. (See Image 1.) It is also known as the Swan Nebula, Checkmark Nebula, Lobster Nebula, and the Horseshoe Nebula. This nebula is an H II region in the constellation Sagittarius. An open cluster of 35 stars lies embedded in the nebulosity and causes the gases of the nebula to shine due to radiation from these hot, young stars. The Omega Nebula is between 5,000 and 6,000 light-years from Earth and is about 15 light-years in diameter. (Exposure: 90-90-15-5-5-5 H-alpha/OIII/LRGB)

Starting that same day, a strong high-pressure dome moved in across the Midwest and brought with it a week of high temperatures (mostly in the mid 90s) and high humidity (heat index reached 117 one day). This would appear to have put a kibosh on observing, but not so! Despite the high temps, Bob and Lee took advantage of a beautiful night on July 20/21 – until the third-quarter Moon rose fully into view. They worked until 2 a.m., all the while taking images of M8 M16, M51 and the asteroid Vesta.

On the evening of Thursday, July 21st, Carl spent about an hour sharing views of representative celestial objects to two teachers and one TCAAer – Debby Voorhees (a former Bloomington high school physics teacher), her sister Karen who was visiting from California, and Josh Lindsey. Despite the constant flashes of lightning from a passing thunderstorm to the north and the high temperature and humidity, they were able to observe Messier objects 13, 27, 57, 51, 94, 101, 3, 8, 11, 31, and the double star Alberio. Bob, Lee, and William were also present for some viewing but all shut down within about an hour or two.

On Friday evening, July 22nd, Tony and Bob spent additional time imaging. William spent time working on his mount, and was able to obtain one good picture. William reports that his mount is now "ok". Tony reported that the Milky Way was clearly visible despite the high humidity, and was able to get a good shot of the very difficult object IC1396 – the Elephant's Trunk Nebula in Cepheus. On Sunday evening Tony returned to SGO to capture a few more shots.

On Monday, July 25th, William, Bob, Carl, Tony, and Lee headed out to SGNC to observe and the sky was clear. Upon arrival at SGNC a smattering of clouds appeared above the northwestern horizon. By the time it got dark, the sky had become almost completely overcast. Carl left around 10 p.m. due to a dental appointment the next morning. Around 10:30 p.m. the sky finally cleared and the remaining observers were able to get some work done. William and Tony left not too long thereafter; Lee left around 1:30 a.m.; Bob stayed until about 3:00 a.m.

July's second MOOS was held on Saturday, July 30th. (That's right, a second MOOS during July. Because the moon's lunation period is 29.5 days long and July has 31 days, this allowed for two MOOS sessions - one at the beginning and the other at the end of the month. This situation occurs only "once in a blue moon".) Though the

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OBSERVERS' LOG FOR JULY 2011 (CONT.)

(Continued from page 4)

heat index was up there, William Carney, Bob Finnigan, Tony Cellini, Carl Wenning, Mark Honzell, and Brian Barling were at SGNC. Bob, using the recently re-installed SGO refractor, provided training for Carl about how to do astrophotography with the new camera. Mark spent time practicing with his newly acquired Meade 16-inch Dobsonian telescope. Tony and Brian did basic visual observing with their 12-inch Dobsonians. William continued addressing the problems with his computer/software in an attempt at imaging. After Carl departed around 10:30 p.m., Bob continued to image NGC 6888 – the Crescent Nebula – with great success. (See Image 2.)

Bob, Brian, Carl, Tony, and Lee were present on the last evening of July for additional observing under fairly clear skies. Lee, Carl, Brian, and Tony focused on visual observations, and Tony took some time out to share views of Comet Garradd (C/2009 P1) that was passing very near M15 in Pegasus. Lee worked on his open cluster club program and Carl on the Herschel II. Brian continues to work on the Herschel 400 club, and Tony was just making casual observations. Brian and Tony left by around 11, Bob by 12:30 and Lee and Carl by 1:45 a.m.

Most assuredly there have been others who have been out observing at different places and times during July, but these are the events of which the author had first-hand knowledge or had been reported to him. To get you observing record in the Observers' Log, be certain to always send you observing reports to Carl by the end of each month.



Image 1



Image 2

THOUGHT ON POS AND MOOS

At the July Board of Directors meeting it was agreed that several changes should take place with POS and MOOS due to the “morphing” character of the club and the needs of the general public. Carl Wenning was asked to provide some explanations and thoughts about these two topics. Here they are:

MOOS – There doesn't appear to be much interest among less experienced members in joining the more experienced members during these sessions to view the heavens using member telescopes. Over the past several years, novice members have rarely attended these sessions. Besides, there isn't much need for established members-only observing sessions when on almost any clear night it's not unusual to find up to a half dozen members viewing and imaging at SGNC. As a result, future MOOS events will be held primarily for the purpose of members-only training. Lee and Bob will take the lead in introducing members to astronomical imaging using the resources of SGO including the portable CGEM mount and 11-inch SCT, and Carl will take the lead in introducing novice observers to astronomical viewing with the use of the club's two 10.1-inch Coulter Odyssey loaner scopes as well as his CPC 11-inch “goto” telescope.

POS – With the continuing drop in membership as revealed at the last Board of Directors meeting, there is a growing need to promote more in-depth interest in amateur astronomy and membership in the TCAA. To this end the public observing session coordinators will henceforth be encouraged to set out a display of free astronomy materials for those attending scheduled public events. Free items might include programs and membership brochures, but might also include unwanted astronomical materials that seem to clutter our homes. It is now recommended that members bring unwanted back issues of *Astronomy* and *Sky & Telescope* magazine, books, videotapes, and so forth for free distribution at the display table. Speakers are also encouraged to promote membership in the TCAA. It might be useful to develop a “master” PowerPoint template that can be used for all future talks so that critical membership information and such isn't left out.

SGNC VOLUNTEER APPRECIATION EVENT HELD

Despite a temperature index in excess of 100°F, Sugar Grove Nature Center hosted *An Evening at the Grove* to honor volunteers on Thursday, July 21st. Events started at 7 p.m. and lasted for more than two hours despite the high temperature and humidity. TCAAers in attendance were Carl Wenning, John & Joyce Werner, Lee Green, William Carney, Josh Lindsey, Tom and Carolyn Weiland, and Bob Finnigan. About 75 SGNC volunteers attended this casual reception enjoying drinks, hors d'oeuvres, games, and musical entertainment by singer James M. Holland. The SGO was informally opened for a few interested guests, and both Bob and Lee entertained visitors with live photographic images of Saturn, as well as recent photographs of deep-space astronomical objects.

SGO: READY TO GO

By Lee Green

Bob Finnigan, Tony Cellini and I have been working all year to bring the SGO to its current state, and we are proud to announce that the SGO is ready for a new level of operation. The observatory offers club members a wide variety of facilities to help advance your interest in astronomy.

For visual observing, we have a variety of telescopes available for use at the SGO, including several Dobsonian telescopes and the computerized go-to Celestron CGEM with an 11" tube. The Dobsonian scopes allow you fast access to the heavens for manual operation. The CGEM provides excellent performance with a minimum investment in setup time; I have often used this scope to start observing within 20 minutes of arrival, including the time to setup and align it. That is much less than the time it would take for me to load and unload my equipment, so it is a joy to "drive and observe" and it saves time and effort.

We have a new permanent mount installed in the observatory. The mount has nearly perfect go-to capability and lets you select objects from the handset using the built-in 40,000 object database, or from the planetarium program of your choice using the ASCOM-standard interface. It supports up to 90 pounds of equipment, letting you decide which equipment you'd like to load. The mount is connected to a laptop computer that lets you login to use your favorite programs to control the scope. Just enter your personalized registration information and you're good to go.

For astrophotography, we have resolved many issues associated with taking high-resolution, long duration deep sky images. With our recent calibration to correct periodic error, we can take arbitrarily long exposures using a variety of cameras and optical combinations and maintain a high degree of tracking precision. Members can supply their own optics or cameras or use those owned by the club to obtain stunning astronomical images.

Scheduling of observatory time is still informal and assigned on a first-come, first-serve basis. Use of the equipment is currently performed on an ad hoc basis with qualified members available to assist you. To qualify for unassisted time on the various instruments, you need to demonstrate a sufficient level of proficiency in your area of interest, but that is fun and is not hard, so come join in.

So whatever you interest in astronomy, the TCAA is here to help you succeed and excel in all your endeavors.

CONSTELLATION OF THE MONTH: SCUTUM—THE SHIELD

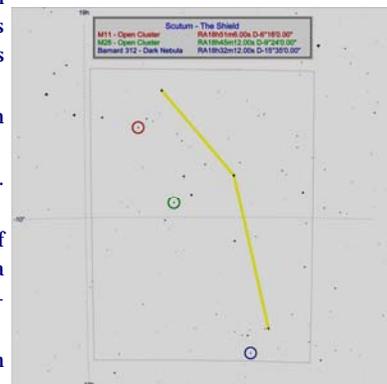
Scutum is a small rectangular constellation the lies north of Sagittarius between Serpens Cauda and Aquila. Scutum lies in the Milky Way and contains some of the skies densest star fields. The Great Rift, a series of dark lanes in the plane of the Milky Way is particularly prominent here. Scutum is best seen during the summer.

Scutum as no prominent stars and was named by Hevelius to commemorate Polish King Sobieski's victory over the Turks in 1683. It is depicted as a coat of arms or a shield.

Scutum is the 84th largest constellation (4th smallest) covering only 109 square degrees. It is the 79th brightest constellation. Scutum reaches opposition on July 11.

None of the main stars in Scutum are named. Delta Scutii is the prototype for a class of variable stars that have a short periods and a small change in magnitude. R Scutii is a variable yellow supergiant in the class known as RV Tauri stars which have regular pulsations but have occasional secondary magnitude variations.

Among the open clusters in Scutum are M11, also called the Wild Duck Cluster which contains over 200 stars, and M26. The northeast area of the constellation, the Scutum Star Cloud is one of the brightest sections of the Milky Way.



VOYAGER UPDATE

By Lee Green

I had the pleasure to listen in on a teleconference with the Voyager team. Yes, that Voyager. The twin space probes that were launched to explore the planets are still operating! They are near the furthest reaches of our solar system and still taking new scientific data.

Dr. Ed Stone, Project Scientist, Suzanne Dodd, Project Manager, Merav Opher, Staff Scientist, and Jefferson Hall, Mission Operations Manager presented various aspects of the ongoing mission.

If you recall, Voyager 1 and Voyager 2 launched in 1972 on their twin flyby missions to Jupiter and Saturn. Voyager 1 passed through the rings into a trajectory below the solar system, heading appropriately in the direction of the constellation Telescopium. Voyager 2 used Saturn's gravity to fly by Uranus in 1986 and Neptune in 1992, making the "grand Tour" of the solar system and is now heading towards Ophiuchus.

The Voyager 1 spacecraft has now travelled farther from the Earth than any other. At over 100 AU from the Sun, they are reaching the limits of the Sun's influent and approaching interstellar space. As Voyager travel outward, they have continued measuring the speed of the solar winds. That speed has been diminishing as they progress.

The heliosphere describes the region of space where the Sun is the dominant body. Solar winds speed away from the Sun until it reaches a "termination shock" where the wind slows dramatically but continues outward through the heliosheath. In the heliosheath, the Sun's magnetic field is bent back from its direction of movement and serves to shunt interstellar materials around it. At further distances, where the weak solar magnetic field begin to interact with local interstellar matter and the galactic magnetic fields, the winds slow and eventually stop at a boundary called the heliopause. The twin Voyager craft are nearing the heliopause and should "soon" reach that region and continue into interstellar space.

Both spacecraft have ample fuel to continue their mission and will ultimately be limited by the available electrical power which is supplied by Radioisotope Thermoelectric Generators (RTGs). As the power slowly decreases, instruments will be turned off to compensate, but data collection about low energy charged particles, cosmic rays, magnetic fields and plasma waves should be able to continue until 2020, nearly 50 years after Voyager was launched!

From an astrophotography viewpoint, it was interesting to hear Dr. Stone describe the pioneering technique used to image Neptune's Moons. The cameras were calibrated for light levels at Saturn, but since the Sun's energy at Neptune is so much less, they had to extend their exposures dramatically. To compensate, they executed a slow turn as Voyager 2 passed to reduce blurring due to its movement.

The twin Voyager probes have advanced our understanding of planetary sciences in so many dimensions, it is gratifying to know that they continue on their journeys, expanding mankind's knowledge and understanding of the universe.

MINUTES FROM JULY 5 BOARD OF DIRECTORS MEETING (CONT.)

(Continued from page 2)

Tom reported that he contacted Astronomy Magazine about a sidewalk astronomy program. They provided reprints of several interesting articles which we will distribute at our public events. Carl suggested that we set up a variety of handouts for our public sessions and Lee agreed to help Tom with this for our next event.

John Werner recently hosted club members at our summer picnic at his home. Thanks John for your hospitality; we all had a great time and look forward to other club social events.

The next Public Observing Session will be on July 9. Lee agreed to give the presentation in Carl's absence. Lee noted that NASA was celebrating the Dawn mission's arrival at Vesta by holding public Vesta Fiestas on August. Those assembled thought it would be a good idea to have our August Public Session changed to celebrate the event. Lee agreed to register our event with NASA.

The next Board meeting will be held on Monday September 12.

The meeting adjourned at 7:56pm.

Respectfully submitted,

Lee Green

Secretary

UPDATES ON TCAA STORAGE AT SGNC

Lee G., Tom W., and Dan M. assisted with pouring concrete footers for the redeveloped storage barn at SGNC on Wednesday, July 6th. On Thursday, July 14th, and after a two-hour delivery delay, Lee and Tom and three other non-TCAA workers - Doug, Julian, and Bill - were able to move three pallets of lumber into the storage barn for the loft build. As Tom quipped, "Now the real fun begins." During the hottest days of the summer, work continued pouring additional concrete footers, installing vertical support beams, and building the loft and stalls. Three cheers for our hardy club workers for sharing their time and talents.

ALCON 2011 (CONT.)

(Continued from page 3)

Report for Friday, July 1, 2011: Bobby and I enjoyed a Thursday-Friday all-nighter at Rainbow Point, located at the southern-most location in the park at 9,000 feet. The sky was perfect – high transparency and very low humidity, temperature 55 degrees. One could easily walk around the site using the light from stars and the very bright Milky Way. John's setup was the EQ1, Canon Rebel XT, and Canon telephoto 70-200mm lens. Bobby had the Astro-Trac with Canon XSi, a Sigma 20mm F1.8, and Canon 50mm F1.4 lenses. Our objective was to photograph the Milky Way region around Sagittarius and Scorpius. A couple photos are attached. During exposure runs, we enjoyed the beauty that a dark sky including M31 as an easily visible naked eye object. Bobby claims to have viewed M33, but I'm not sure how realistic that is. Bobby says that "This is likely one of the darkest sites he has ever visited and was amazed that he could see details on the plateau three miles out, illuminated by starlight and the Milky Way." We were back to the motel by 4:00am.

Joyce attended a park-sponsored Thursday evening program entitled "Star Stories". Planetarium educator Dr. Amy Sayle provided an interactive trip through the constellations, using costumes to simulate the legends of the sky. Joyce and I attended the park sponsored presentation "City Dark" by keynote speaker Ian Cheney, where night sky time-lapse photography has been compiled into a film and is augmented by interviews with a variety of individuals advocating for the protection of darkness for reasons such as cancer prevention, ecological health, and of course, astronomy.

Today's program included an interesting talk on all-sky cameras to capture meteor trails by Vern Raben-Longmont Astronomical Society. Cameras placed about 30 miles apart can plot the path of meteors to define potential debris field. I learned from Bobby that there are four clubs around Denver, including Longmont, that collaborate on outreach and observing activities – over 300 members combined strong. I can't say enough for the hard work represented by the activities of the conference.

I had a great chat with the relatively new CEO and owner of SBIG where we discussed the need for amateurs to match CCD specifications to the capabilities of telescope optical characteristics. Probably a good article on the topic is needed.

Report for Saturday, July 2: This report focused on the reports from President Carrol Iorg, Vice President John Goss, and Treasurer Joanne Hailey at ALCON's annual meeting. About 25 members were in attendance.

The decision for ALCON 2012 is Chicago. This is the 150th anniversary of amateur astronomy in the Western Hemisphere founded by the Chicago Astronomical Society (famous for finding the companion star to Sirius). NCRAL 2012 is being merged with ALCON 2012. Highlights for the conference are: field trips to Adler Planetarium, a special presentation on meteorites (the largest collection in the world resides at the Field Museum in Chicago), a visit to Fermi Lab, Dearborn Observatory at University of Northwestern, and Yerkes Observatory. Potentially, music under the stars with the Chicago Symphony is planned. Also planned is an evening boat ride out on Lake Michigan to view the skyline of Chicago and fireworks from Navy Pier.

The venue is Lincolnshire Resort. The cost for this four-star resort will be \$70 per night, about the same as the current venue, \$100 below typical room cost. The contract with the resort requires 400 room nights.

Planners hope to create a documentary for the 150th year event, *so each club is asked to prepare a summary of key events in outreach, new discovery, famous members, other significant accomplishments and club highlights. The club may volunteer to assist with ideas and preparations.*

Vice President's Report

Each ALCON attendee received a copy of the League's Astronomical Calendar which is available for a deep discount price of \$19.95 or is available in bulk for \$18.95. Please reference the June reflector for an article on Club Liability Insurance – A new Agent. ALCON has found an insurance company that provides inexpensive liability insurance for its clubs. Outreach Posters are available for download for a variety of astronomy topics. Ten new Image Clubs are currently under development. Bobby Arn has counseled on this new set of clubs, which will include a scientific component where possible. Some examples include comets and asteroids, constellations and asterisms, eclipses, galaxies, lunar, meteor, nebulae, nightscape, planetary, solar, and video. These clubs are proposed and not finalized.

Presidents Report

Over the next year there will be an emphasis on improved communication between National and the member clubs. A new planetary transit award is planned, given that there is a Venus transit of the sun on June 5th 2012, followed by a couple Mercury transits in the following few years. There was interest by a member to form a radio observing club. Plans are underway to improve the accuracy of club information at the League site, by allowing clubs to go online and edit the information. Those present congratulated the League and host Salt Lake City Astronomical Society for an outstanding conference.

Treasurers Report

The League has \$139,000 in assets. Net loss as of May 31st was \$9,000. A very conservative budget is planned for next year. There is going to be considerable effort to contact non-league astronomy clubs for membership. There are currently 274 clubs and

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ALCON 2011 (CONT.)

(Continued from page 8)

15,000 members. The league's Trust Fund stands at \$89,000. The League applied for and hopes to receive Astronomy in the Park Grant. League is looking for someone to head up grant writing. Outright donations to the League and advertisement revenue have dropped. Donations were encouraged.

The Banquet: The banquet held Saturday night featured award presentations and keynote speaker Carolyn Shoemaker. Ben Clark received the National Young Astronomy Award on his project "The Close Binary Fraction: A Bayesian Analysis of SDSS M Dwarf Spectra". Ben investigated the statistical frequency of close binary stars. The Horkheimer/Smith Youth Service Award went to Courtney Flonta who coordinated many outreach activities for her club, including a beachside "Boardwalk Astronomy Night" and events with local schools. Joyce, Bobby, and I sat at her table and we enjoyed hearing about her interest in astronomy and her plans to get a degree in physics. The 2011 Leslie Peltier Award went to Arne Henden, who has observed hundreds of thousands of variable stars. His bio is included in the June Reflector magazine.

Shoemaker is famous for working with her husband to search for near-earth asteroids and comets. Shoemaker's discovery rate is about 100 search hours of photographic plates per comet find, and to date, she has found more than 300 asteroids and 32 comets. Shoemaker acknowledges that "the discovery of Shoemaker-Levy 9 that impacted Jupiter was doubtless the most satisfying and significant achievement of my life in astronomy." Carolyn has a quiet and humble personality, advocating toward the end of the banquet to allow people to leave and enjoy the evening to observe.

Astrophotography awards were also presented. I was humbled to receive 1st place in the nebula category for my photo of the Antares and Rho Ophiuchi region, composed of reflection nebula and dark lanes.



John Werner image of Antares and Rho Ophiuchi Region

Bobby and I did not receive any official door prizes, but we received the prize of an incredible night sky during the conference. By the way, Joyce is now an expert on Bryce Canyon after multiple tours and hiking.



Bobby Arn Widefield Image of Milky Way

Joyce, Bobby, and I continued the trip from ALCON to Death Valley National Park where both day and night photography was conducted, including sliding rocks on the "Runway" dry lake bed.

HOW TIME FLIES

From now and into the foreseeable future our current historian, Carl Wenning, will provide monthly updates about the history of the club going back to intervals of 50, 25, and 10 years ago. Details about all mentioned events will be found in either the club history (<http://www.tcaa.us/History.aspx>) or in *The OBSERVER* archive (<http://www.tcaa.us/Observer.aspx>) – all of which web master Lee Green has made available online following many, many hours of work.

50 Years Ago

August 1, 1961. David B. Williams published the first edition of an as-of-yet untitled astronomy club newsletter (later titled *The OBSERVER*). The stated purpose of the publication was to document the activities of club members. Newsletters also would include information about meeting dates, astronomical events, observing ideas, and other club news.

25 Years Ago

August 19, 1986. Weldon Schuette passed away unexpectedly overnight and was found in his home on the Monday morning by Carl Wenning with the assistance of the Normal Police Department. He likely died of a heart attack or stroke. Weldon had just completed all 110 observations needed to earn his honorary Messier certificate that would have been awarded at a club meeting shortly thereafter.

10 Years Ago

August 2001. Mike Rogers and Dan Miller revealed their first efforts of astronomical imaging using an STV digital camera made by SBIG. Black-and-white images of M27, M13, and M51 published in *The OBSERVER* were very grainy because they did not include any post processing – a new thing just making its appearance on the scene of amateur astronomy. A new period of digital astronomical imaging had begun.

MY NEW SCOPE

By Mark Honzell

Finally, on July the 14th, my new scope arrived! After several delays and mix ups, the vendor and I came to an agreement and split the cost on upgrading my order from a Zhumell 12" to a Meade 16"! Great bargain! But, in my excitement, I forgot to consider how I was going to move it about. Oh, my! This 16" Lightbridge is big! The base on the new Lightbridge is 32" across and weighs 56 pounds. Not only could I not get it out the front door, there was no way to fit this scope into my Elantra.

Some quick research and a few hours later, I was able to put my other hobby into play and made a new base out of 3/4" birch plywood. Only 22" across and 22 pounds lighter. It fits into the car nicely. While I was at it, I installed a 21" degree circle and a circular level. And, a magnetic digital inclinometer. (Push to Alt/Az) Still needs a moveable pointer for the degree circle. I practiced collimation and setting the viewfinder only to find both pretty easy.

That night, I took the scope out in my backyard (despite the full moon and some clouds) to observe first light. In one word: "WOW!" Is that the Apollo flag waving over there? No, it's not that good, but I was impressed with viewing actual splatter (white trails) from the meteors having struck the moon. Yet, the moon was kind of bright, and shining off every piece of white metal on the scope. Why did Meade do that? Oh well, revision 2... I removed the support rings from the UTA and LTA and painted them black, then covered the shiny metal struts with black 1" pipe insulation. Then, I "painted" the outer edge of the secondary mirror black.

The next night with a full moon, July 15th, and much better contrast, I determined I need a shroud. When the primary mirror is pointed anywhere near the moon, the view becomes rather "whitish". I tried to make one, but it was falling into the line of view. Six struts leaves some big gaps. Lee recommended velcro and bungi cords to provide more support for the cloth. I gave in and ordered a shroud. (Maybe it'll arrive next week.)

Back to viewing... Now that I'm past some of the contrast issues, I took the scope out to SGO for my first dark sky night on July 22nd. As luck of the draw would have it, there was a troop of boy scouts camping on site that night. So, I got to work around young men who wanted to see things while carrying around white flashlights. I'm not complaining, it was actually an amazing event in itself. I got to show a few of the scouts Saturn (I could see the Cassini division and a few moons) before it sunk below the trees and many of them saw M57 in very good detail at about 300x magnification. (I'd just move it back in scope between viewers.) We split Mizar and e Lyrae and talked about the Arabian history behind Mizar and Alcor. For a few scouts and leaders, I used my laser pointer to trace constellations and named a bunch of stars. They were shocked when I said this was my first "official" viewing with a telescope. I had a lot of fun.

As they went to bed, I tried viewing a few things on my own. I know for sure I found M22 (globular) and M23 (open). I was able to look at other objects and then come back to these. The hard part seems to be knowing for sure what you are looking at. (Astro

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TCAA Treasurer's Report – July 2011

OPERATING FUND BALANCE – June 30, 2011 - \$ 1,581.92

Income

James M. Honzell (Dues) - \$ 41.00

Expenses

LYB Inc. (Observer copies & postage) - \$ 36.34

William Carney (Fire Extinguisher) - \$ 35.53

PayPal (James M. Honzell) - \$ 1.20

OPERATING FUND BALANCE – July 31, 2011 - \$ 1,549.85

OBSERVATORY FUND BALANCE – June 30, 2011 - \$ 2,753.33

Income

Interest - \$ 0.52

Expenses

None! - \$ 0.00

OBSERVATORY FUND BALANCE – July 31, 2011 - \$ 2,753.85

TOTAL TCAA FUNDS – July 31, 2011 - \$ 4,303.70

Respectfully submitted,

L. Duane Yockey, Treasurer

MY NEW SCOPE (CONT.)

(Continued from page 10)

cards are a great help but it's still new to me.) Lee pointed me towards M8 since I was pointed at something else still unidentified. It was here I started realizing that M57 was much crisper than these more horizontal views. (Which led to my question on collimation and mirror movement.) I went home quite excited about the night! If Lee had not warned me of the upcoming clouds, I probably would have stayed until I couldn't see anything.

I learned I did not care for the Meade "Advanced 4-Reticle Viewfinder" due to the inability to dim the pointer. (It was washing out the view and making it difficult to determine if I was actually pointed in the right location.) I kind of already knew this from reading up on the scope and had already ordered and received a Telrad for the original order (based on previous use of the 10.1" at SGO under Carl's supervision.) But, I wanted to give it a chance. (One less mod, denied.) So, I removed the Meade viewfinder and installed the Telrad. Now the scope is slightly top heavy. Today, I'll get a bolt and washer to hold a barbell weight (2.5 pound) on the bottom to see if that brings it back in balance.

Overall, I don't think I expected to make so many modifications so quickly. But, they were all pretty easy and have made dramatic improvements over my first viewing with a full moon. I haven't used the Alt/Az setup I made because I want to learn how to find a few things first. I also hope to initially get into the habit of sketching my views so that I can learn to pick out more details.

I'm looking forward to the August event and hoping for clear skies! I think it will be another "Boy Scout" night, but that's quite alright. There is a lot more viewing in my future.

EDITOR'S NOTE: Mark Honzell has provided a review of his new Meade 16" Lightbridge. Due to the volume of information contained in this month's edition of *The OBSERVER*, the review was left without a space. Look for it in the September edition.

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. Unsubscribing is just as easy. To unsubscribe, just send a blank email to 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. It has been recently updated to include an extended sky calendar of events as well as additional space weather and satellite viewing links.

2011 POS SCHEDULE AND COORDINATORS

The remaining 2011 POS schedule is as follows:

- ☆ September 3: Phases of the Moon (7 day old moon) Coordinator: *Carl Wenning*
- ☆ October 1: Jupiter's Moons (4 day old moon) Coordinator: *Tom Weiland*

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**