Desert Skies

Tucson Amateur Astronomy Association

Volume LII, Number 8 **August, 2006**

Jupiter Dominates the August Night Sky

- Learn the latest about comets at the monthly meeting
- Star party for U of A students
- Object of the Month
- Constellation of the month
- Grand Canyon Star Party Report

Cover Photo: Imaged by Rik Hill using a C14 and a ToUCam. It's a stack of about 3600 images taken in 3 minutes time. The stacking was done with Registax 3 and the final processing with GIMP.

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Membership in the TAAA

Annual Fees

Individual membership $25.00
Family (includes two adults plus minor children)..... $30.00

Youth under 18 years must join as a family upon parental or guardian acknowledgement of participation in TAAA events. Ask the Treasurer for the required form.

Discounts (one discount allowed, subtract from above rates)

Seniors (over 60 years) $2.00
College Students, Teachers (K – 12)..... $8.00
Youth under 18 yrs (form required, contact the treasurer) $13.00

Options (add to above membership rates)

Tucson society of the Astronomical League (TAL) fees $ 5.00
Sky & Telescope Magazine 1 year (12 issues)..... $32.95
Astronomy Magazine 1 year (12 issues)..... $34.00
2 years (24 issues) $60.00
Postage for New Member Pack ..... $ 4.05

Donations are accepted for the following funds: SA-IDA/Light Pollution, TIMPA, Education, 30" Telescope & Land, and General/Undesignated.

Renewal Information

- Your membership expires as indicated on your mailing label.
- TAAA members may join the Tucson society of the Astronomical League (TAL) at the time they join or renew.
- Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at anytime. Rates are given above. Allow 3 months for processing. Subscriptions must be sent through the TAAA. *Do not send money directly to the magazines.* To change an individual subscription to the group rate, pay the subscription amount to the TAAA treasurer. Include your magazine renewal notice.
- Please include a note explaining what you are paying for. Credit cards are not accepted. Write one check or money order for fees plus any options or donations. Make it payable to TAAA and send to:

Tucson Amateur Astronomy Association
PO BOX 41254 Tucson, AZ 85717

Mailing Address or Email Changes - Send to address above or email the treasurer.

TAAA Mission Statement - The mission of the Tucson Amateur Astronomy Association is to provide opportunities for members and the public to share the joy and excitement of astronomy through observing, education and fun.

Desert Skies Publishing Guidelines - All articles, announcements, news, etc. must be submitted by the newsletter deadline. Materials received after that date will appear in the next issue. The editor retains all submissions unless prior arrangements are made. Partial page submissions should be submitted in Word compatible files via e-mail or on a floppy disk. Full-page articles, artwork, and photos can be submitted camera ready. We will not publish slanderous or libelous material! Send submissions to:

George Barber
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President's Message

Dear TAAA Members:

I hope everyone is making it through the monsoon season all right and not feeling too deprived of opportunities to observe. Knowing that many of our members will create opportunities when few may exist, there is probably some observing going on.

Things continue to move on several fronts with the club. We are starting to work on the redesign of the web site, and the star party program is falling into place well. We hope to move the construction of the 16' dome at TIMPA along soon, but there is still work to do on that. The club's telescope loaner program will have a new home in the next month or so. Our two special interest groups, the Astrophoto SIG and the Beginners' SIG, continue to be very active. The plan is to spend some time at the September meeting to review and update everything that is going on with the club, so we will have more news for you then.

We learned during July that Thom and Twila Peck will be moving to Albuquerque in the early fall. They will be greatly missed. They say they will continue their membership in TAAA, so let's hope they will find their way back to Tucson often.

I am sure we all agree that we need rain badly, so we should not regret it too much if we miss some observing time during August.

Bill Lofquist

Meeting Information and Calendar of Events

TAAA MEETING DATE: Friday, August 4, at the Steward Observatory Auditorium – Room N210

ASTRONOMY ESSENTIALS: 6:30 pm
Title: Optical Aberrations in Telescopes
Speaker: Dr. Mary Turner

A question often heard at a star party, from someone looking to get involved in the hobby, is "What is the best type of telescope to get?" There are two stock answers: a) The best telescope to buy is the one you will use; or b) Start with binoculars and a chaise lounge. That is all you really need. Personally, I consider both of those to be non-answers. So let's get to the crux of the matter: What is the best type of telescope to have?

If you had an unlimited budget to purchase a telescope, the performance of this telescope, as with all others, would be limited by the aberrations inherent in the design. A well-manufactured system cannot improve the performance of the system. Unfortunately, a poorly made system can significantly impair the working performance. We will take a look at several common telescopes and discuss their advantages and disadvantages from the perspective of optical performance, considering the aberrations that occur as a function of the design.

GENERAL MEETING: 7:30 pm
Title: New Insights in Cometary Science
Speaker: Dr. Nalin Samarasinha (NOAO and PSI)

Historically, every appearance of a bright new comet has stirred the human curiosity not only about comets, but also how they may affect humans. Now we know that comets are the most pristine objects in the Solar System leftover from its formation era. Furthermore, they may have played a significant role in the early evolution of the Earth's biosphere.

During the last ten years, there were a number of bright comets providing opportunities both to professional as well as amateur astronomers to thoroughly investigate these objects using new and/or affordable technologies. In addition, during this period, there were a number of flyby space missions to comets (Deep Space 1 to Borrelly, Star Dust to Wild 2, and Deep Impact to Tempel 1). In this talk, Dr Samarasinha will discuss some of the results and new insights in cometary science based on recent observations.

Dr Samarasinha is an Associate Scientist at National Optical Astronomy Observatory and a Senior Scientist at Planetary Science Institute. He has studied comets for nearly 20 years starting with comet Halley in 1986.

BOARD OF DIRECTORS MEETING: Wednesday, August 2. The meeting is held at Steward Observatory Conference Room N305.

STAR PARTIES AND EVENTS:
07 Aug - AstroImaging SIG at China Rose
19 Aug – U of A Optical Sciences at Kitt Peak
19 Aug – TAAA Star Party at Las Cienegas
23 Aug – TAAA Beginner's SIG at China Rose
26 Aug – TAAA and BSIG Star Party at TIMPA

NEWSLETTER SCHEDULE: Deadline for articles: Sat, Aug. 19. Printing: Mon, Aug. 21. Folding Party: Tues, Aug. 22. Mailing: Wed, Aug. 23. The newsletter is mailed at least one week prior to the following month's General Meeting.

Club News

Member News

We welcome these members who have recently joined the TAAA: Bill & Anne Marie Fisher, Michael Gatto, and Randy Gruss. Glad to have all of you join! New members should pick up a members pack at a meeting if they didn't request it by mail. Hope you'll make it to our star parties or meetings so we can all get to know you. (Updated membership lists are available online at either Yahoo Groups list server website under Files, or at most meetings.)

Astro-Imaging SIG Meeting

Monday, August 7, 7pm
China Rose, NE corner Speedway/Rosemont

Our presentations feature CCD images, planetary webcams, and film. Come see some of the state of the imaging art over some Chinese food. Just show up and enjoy the show! For more information, contact Steve Peterson.

TAAA Apparel

Looking for a special gift, or a way to make that fashion statement? Try on something from our fine line of club apparel. We've got hats, T-shirts, denim shirts, and patches. We take cash and checks.

BSIG in August

As it was in July, monsoon or no monsoon the BSIG will try to follow its usual monthly pattern as much as possible. We will at the very least hold our Wednesday night dinner meeting at China Rose (Speedway and Rosemont) on August 23, starting at 6:00pm. Weather permitting, we will gather the following Saturday night (8/26) out at TIMPA- plan to arrive about half an hour before sunset - for some observing. Because the summer rains can be so unpredictable our Wednesday night talks/presentations will be determined as we come closer to the meeting date and see what we have to work with, although something on objects to observe in August is sure to be on the agenda (just in case.) Join us for dinner the night of the 23rd, and hope for the best for the 26th!

Telescope Loaner Program

We welcome Richard Dougall as the new Equipment Loan Coordinator. Richard will take over for Jerry Penegor who has recently moved out of the Tucson area. Thank you to Jerry for giving of his time to the program and to Richard for stepping up to this important role. Members currently borrowing telescopes should coordinate with Richard when it comes time to return telescopes. See page 2 of the newsletter for Richard's contact information.

We also thank Dick Hoye for donating the most recent addition to the telescopes that are available. Dick donated a Meade 8" f/4 Schmidt-Newtonian telescope with AutoStar control. This telescope is on a German Equatorial mount and has an aluminum tripod. Some training will be necessary since the telescope is under electronic control. It has one 26mm eyepiece (can't use 2" eyepieces). It can run on AC, battery (8 "D" cells), or can be plugged into a 12-Volt cigarette lighter outlet.

Upcoming Lecture Schedule

Below is our upcoming lecture schedule. The September Astronomy Essentials Lecture is open so if you want to present an appropriate topic or can make a suggestion, contact Terri Lappin at treasurer@tucsonastronomy.org or 977-1290. Astronomy Essentials lectures are usually 30 minutes long and about basic astronomy.

Sep 1	*Astronomy Essentials*	OPEN
	Invited Lecture	TAAA Project Status Report
Oct 6	*Astronomy Essentials*	Seasonal Objects
	Invited Lecture	OPEN
Nov 3	Members Night begins at 6:30pm - No AE Lecture	
Dec 1	*Astronomy Essentials*	OPEN
	Invited Lecture	Dr Fulvio Melia

Old Laptop Available

The TAAA was donated an old Texas Instruments TravelMate laptop, manufactured about 1996. It has a 133MHz Pentium CPU, 16 Mbytes RAM, 1.4 GByte hard drive, and runs MS-DOS Version 6.22. This is limited by today's standards but someone with a computer background might find a use for it (telescope control and/ or image acquisition). There are no USB ports, of course, but it has a serial and a parallel port. It comes with a computer case. Free, no charge – first come, first serve basis. If you can use it, contact Terri Lappin at treasurer@tucsonastronomy.org or 520-977-1290. The laptop will be disposed of on August 31st unless someone takes it.

Items of Interest

Volunteer Opportunity at Flandrau Science Center

The Flandrau Science Center at The University of Arizona has volunteer positions open for "Telescope Operator", operating our 16-inch f/11 Cassegrain telescope. The 16-inch telescope is the only free public telescope in Arizona open to the public on a regular weekly schedule. The telescope and observatory have been refurbished and improved over the past 12 years. The mirrors were refigured by Bob Goff during this time, and the telescope gives impressive images of the planets when conditions allow.

Flandrau needs good people with good people skills who know astronomy and are comfortable around telescopes as telescope operators. Advanced knowledge of astronomy is not required, and we love to train beginners. Basic computer skills, a basic knowledge of astronomy and the night sky, a phone with answering machine or voice mail, and a working e-mail address are required. Also needed are the abilities to explain astronomical concepts to the public and answer questions, along with dependability and punctuality. This is an unpaid volunteer position but provides some University privileges (such as UofA library and Student Recreation Center access).

For more information on Flandrau Science Center, the observatory, and the future of Flandrau at Rio Nuevo, visit the Flandrau web site: http://www.flandrau.org. If interested in volunteering, please contact Michael Terenzoni, Astronomy Coordinator at (520) 621-3646, fax: (520) 621-8451, e-mail: miket@ns.arizona.edu.

Digital Astrophotography workshop

With Robert Reeves, author and imager

Hosted by NOAO at the downtown offices on Saturday, September 16th, from 8:00 AM to 5:00 PM.

This workshop serves as a guide for using any digital camera to get good results (within the limits of that camera) and as an introduction to using various programs for processing those results.

For reservations please contact the Kitt Peak Visitor Center at 318-8726. Price: $250.00, $230 for members. Deadline for registration is September 1st. Limit 20. Visit http://www.noao.edu/outreach/kpvc/imaging.html for additional information.

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Member's Events

TAAA Star Party at Las Cienegas (Empire Ranch)

Saturday, August 19

Las Cienegas (formerly Empire Ranch) has been our normal dark-sky observing site for quite a number of years. Please try to arrive before sunset. Stay as long as you like, but let everyone know when you are ready to leave; someone may be taking astro-images. Bring a telescope if you have one, but you don't need one to attend. Any member would be glad to let you look through their telescope. And, there are now restroom facilities at the site.

Las Cienegas is at 4000 feet so be prepared for cool temperatures after sunset. It's also a good idea to bring insect repellent. Attendees should park their vehicles either perpendicular to the airstrip facing toward the center of the strip, or parallel to the airstrip along either side facing west. That way, when you are ready to leave, you will not have to back up and turn on your bright white backup lights. See the directions to Las Cienegas on the outside flap of this newsletter.

Member's Events (cont.)

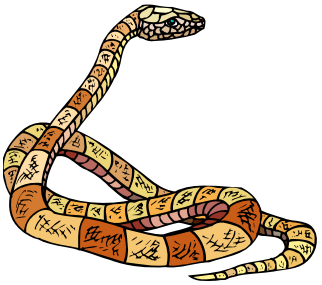
TAAA and Beginner's SIG Star Party at TIMPA

Saturday, August 26

Come on out and enjoy the summer skies! TIMPA star parties are great for both beginners and experienced observers. Our novice members can get help with observing issues or equipment problems, as there are many experienced members there who would be happy to help. If you don't own a telescope, come anyway, because there are lots of telescopes set up and everyone is invited to look through them. This is a great way to check out different telescope designs before you make that all-important decision to buy. There is no scheduled talk for this activity, just come out and enjoy. We'll do our best to get you the answers you need. If you have friends or relatives who are curious about amateur astronomy, feel free to bring them along. The TIMPA site features a large parking area, and full restroom facilities. Be prepared for cool temperatures after sunset. It's also a good idea to bring insect repellent. Directions to the TIMPA site are located on the outside flap of this newsletter.

Rattlesnake Alert!

Be alert for rattlesnakes! Rattlesnakes are generally aggressive only if disturbed. If you see one, keep a safe distance and DO NOT try to interact with it in any way.



Snakes are much faster than our reflexes, and should be handled only by professionals. Wear boots and long jeans. For more information, go to http://www.friendsofsaguaro.org/rattlesnakes.html.

Along with rattlesnakes, other desert critters, such as gophers and ground squirrels, make their home at TIMPA. These residents can leave holes and other potential tripping hazards, so be careful when walking.

Finally, the Tucson water department has declared the water at TIMPA is NO LONGER POTABLE. It is strongly advised that you bring your own water.

Public Star Parties and Community Events

All members of are asked to support the TAAA School Star Party program and other community events listed below. TAAA either sponsors or co-sponsors these events. These are great opportunities for beginners as you may only need to know a few objects in the sky. Even without a telescope, you can be valueable in other capacities. Sign up sheets for many events can be found at the meeting or contact a TAAA officer.

University of Arizona College of Optical Sciences Star Party

Area: Southwest

Saturday 8/19/2006 No. of Scopes: 10

University of Arizona College of Optical Sciences will be holding New Graduate Student Picnic & Star Party at Kitt Peak National Observatory Picnic Area. Take I-10 to I-19 South. Less than 1 mile is Ajo Way/Hwy 86 (Exit 99). Take this exit West (right). Proceed past Ryan Airfield and Three Points. Continue until Junction 386 (Kitt Peak turnoff). Turn left onto 386. Viewing will be at Kitt Peak Picnic Grounds. Contact person Barbara Myers can be reached at 520-621-8418 or email bmyers@u.arizona.edu.

A catered picnic supper will be available for TAAA volunteers and one guest each! Start Time: 6:00pm. End Time: 9:00 pm. Sunset: 7:04pm Dark Sky: 7:59pm. Moon Phase: Crescent.

SAIDA NEEDS MORE HELP FROM MORE TAAA MEMBERS. AFTER ALL, WE WILL ALL BENEFIT FROM DARK SKIES IN OUR AREA !!!

For more information, go to: www.sa-ida.org

Or feel free to contact:

John Polacheck
President of SAIDA
E-mail: jpolach@dakotacom.net
Telephone: 743-1362

SAIDA meets on the second Wednesday of each month from 5:30 to 7:30 PM in the IDA office located at 3225 N. First Ave, just North of Ft. Lowell. And.....

WE USUALLY HAVE PIZZA !!!

TAAA Board of Directors Meeting - July 12, 2006

Attending: TAAA Board Members present: Bill Lofquist, presiding, Ken Shaver, Steve Marten, Terri Lappin, George Barber and Thom Peck. President's Call to Order: 6:42PM

June Minutes. Accepted, Unanimous.

Member Feedback – None

Announcements

- Fall Members Night was discussed.
- Bill Lofquist noted that ad hoc meetings have been effective in assembling facts and resolving conflicts of current projects before BOD meetings where decisions on the projects can be made.
- To avoid schedule conflict with Beginner Special Interest Group events/meetings, BOD Meetings will be moved to the first Wednesday of each month for August through November 2006.
- Thom has been directed to evaluate Losmandy Mount and 60mm telescope offered for donation to TAAA.

Equipment Storage Update – Thom Peck

Thom arranged for TAAA to rent Shurgard Storage 5' x 7.5' unit located near Columbus and Speedway. The unit will temporarily house all loaner scopes and Meade 10" and 14" scopes and associated equipment for up to three months until Richard Dougall, Telescope Loan Coordinator, can accommodate the loaner scopes at his home.

Website Redesign ad hoc Meeting – Bill Lofquist

Three website design volunteers met with several Board members to consider how they could work together to expedite TAAA website re-design. The three planned to meet with Terri Lappin at a working group meeting. Terri reports that the group discussed programming language and software they could use best for the redesign. Also, the group recommended home page design including category buttons, significant links and artwork. The Board decided on ASP language, as it is readily available, more widely used and serviceable.

TIMPA 16' Dome ad hoc Meeting – Bill Lofquist

John Harris met with several Board and TAAA members, with 16' Dome Project Manager Steve Ratts. The ad hoc group explored alternatives to meet FEMA flood plain guidelines. To gather further information Bill Lofquist, Terri Lappin and John Harris met with Andy Seigar of the Pima County Flood Plain office the next day. The group discovered that they could move the dome site out of the Brawley Wash (FEMA jurisdiction) where a hydrological study would not be required; however, the foundation would still need to be 2' above ground level. Several members will evaluate a suitable TIMPA location outside the Brawley Wash before the August Board Meeting.

Star Party Review – Steve Marten

Steve reported that an ad hoc meeting was held with Claude and Teresa Plymate, Paul Moss and Steve to review current policy, Board suggestions and ad hoc recommendations. Volunteer Coordination Procedures and announcing available star party slots for the school year to teachers were reviewed. The Board requested that Jim and Karen Telewski meet with the Board at the August meeting to update the Board on Public/Library Star Parties.

Adjourn 9:25 p.m.

Respectfully Submitted,
Steve Marten, Secretary

Desert Skies Classified

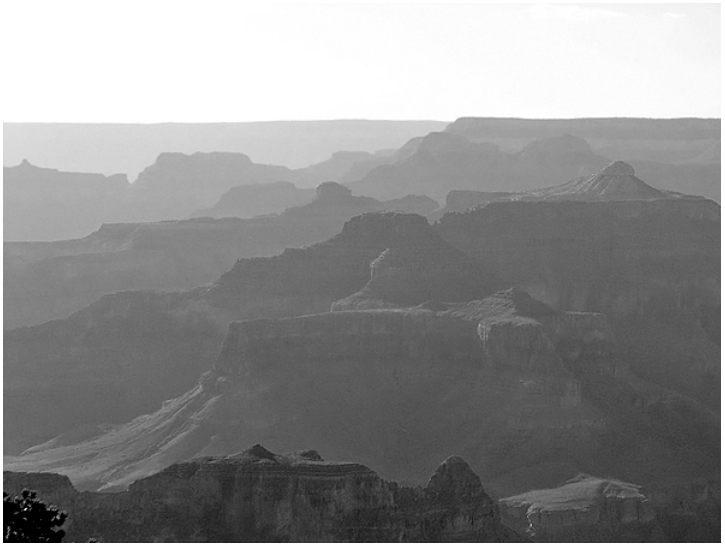
For Sale	Celestron Pixcell255 320x240 CCD, use for guiding or entry imager $450. Meade ETX60 with tripod plate and power supply $100. Vixen LV 12mm eyepiece $75. Orion 7-21mm zoom eyepiece $60. 14mm Ifocus for SBIG 237 $80. Contact Richard Schulze at 721-0694 or email at richard.schulze@cox.net. [09/06]
For Sale	7" Maksutov LX200 GPS UHTC coatings for sale. This is BRAND NEW still in the box NEVER USED. Call Joe if interested, 520-908-3393. [09/06]
For Sale	3 year young Meade ETX 70 scope that has been used maybe 5 times. It has two eyepieces (9mm and 25mm), field tripod, hand-held remote, software, and carrying case (soft-pack). Like new. Asking $275.00. Jim can be reached at 480-947-9904 (Scottsdale)

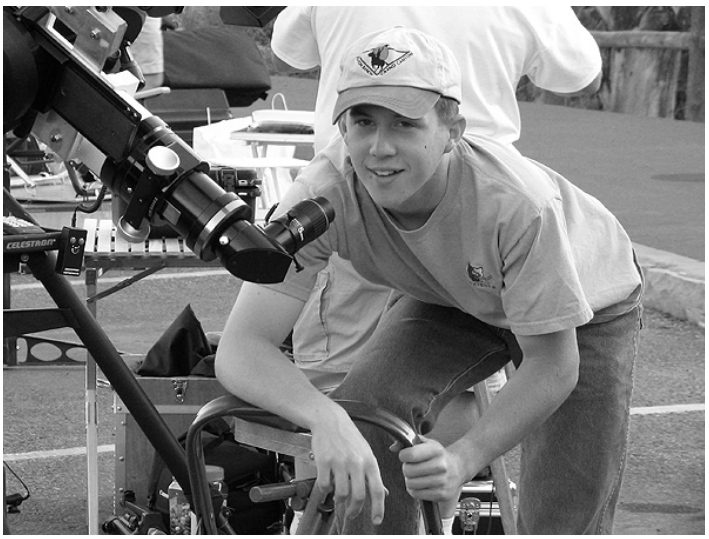
Your ad will run for 4 months unless specified. Month and year of last appearance is last item of ad. For additions or changes to this list, call or e-mail the newsletter editor.

Star Party Report

Grand Canyon Star Party – 2006

Arizona, Grand Canyon – Yavapai Point
June 17 – 24, 2006
Brad Campbell
Las Vegas, Nevada

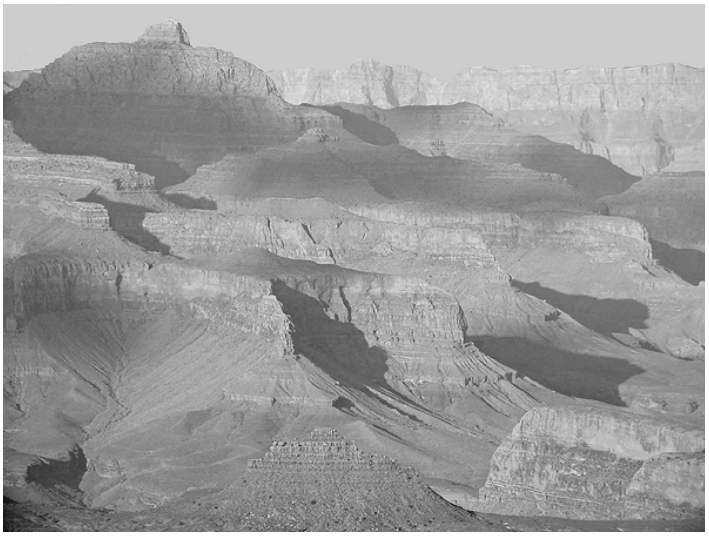




Inspire – 1. to fill with an animating or exalting influence. 2. to arouse or generate a feeling or thought. 3. to affect with a feeling or thought. 4. to guide or control by divine influence. These meanings are according to the Random House Webster's Dictionary. And as anyone knows who has attended a Grand Canyon Star Party in the past, these words certainly fit the bill for the event.

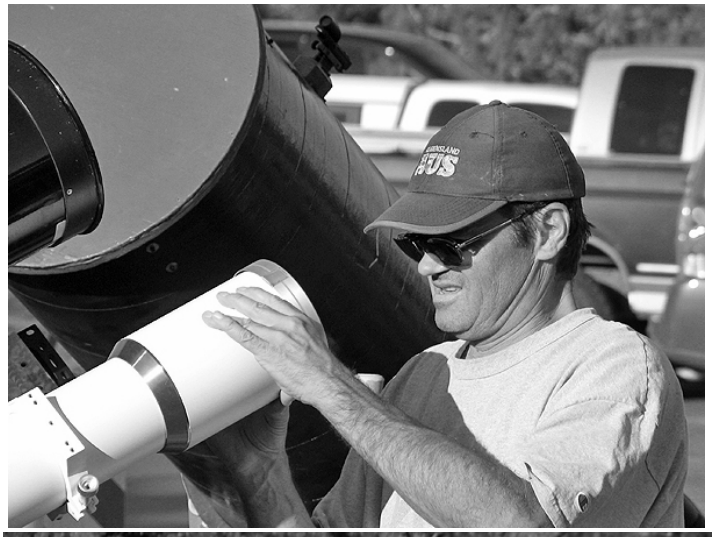
Over the last 4 years, the Grand Canyon Star Party has become a time marker for me. It is held at a fitting time of the year not only for me personally but astronomically. Usually within the dates of the event falls Summer Solstice – the longest day of the year. Not only did we have Summer Solstice but also Father's Day. This was the first year in about the last 10 that I got to share it with my only son – John. I had a 'Sun' day and a 'Son' day all within the same week – how divine!

Before writing this article I looked over my past writings. I found that I had complained about the weather a lot. Rather than complain during this past year I chose to ignore it and gave in to utter defeat. I'm sure my telescopes were thinking as they sat in their boxes and crates that I had passed away. If you were like me, you were probably wishing that this year's GCSP would bring kinder and gentle clear skies and not the turbulent assorted potpourri of weather conditions inflicted upon me for no reason at all.



I've always heard that wishing makes it come true. I was exalted to find calm, clear (for the most part) and super dark skies at the canyon!
More than the skies that I had intended to view (my last dark sky sessions were at last year's GCSP) I was looking forward to seeing all my friends whom I consider part of my extended family. I was pleased to find most of them had returned and among them were some new faces for me. My life has been affected for the better by each and

Star Party Report (cont.)



every one of them.

There are never enough 'thanks' in order for those who make this event possible - Dean Ketelsen of the Tucson Amateur (not in my eyes) Astronomy Association, the United States Department of the Interior, the National Park Service and the Grand Canyon National Park. Of course, without the efforts of our Park Rangers the event would be total chaos.

Coming to the close of this article I realize I have forgotten the best part – the public whom we came to serve. Without them I would not have had the individual smiles and genuine thanks, shared personal conversations and interesting human interaction that help keep me sane. Without them we would all be just standing around in the dark. I must give one personal thanks. Usually, even before getting to the GCSP, I at least have some idea of what I am going to write about – this year I drew a blank. One night before sunset I had taken some photos of the Condors flying around Yavapai Point and was showing them to my fellow amateur Astronomers. Bernie Sanden saw them and said 'Those photos are inspiring' and there you have it – thanks Bernie!

Star Party Report (cont.)

But what of inspiration? We come to the Grand Canyon, Yavapai Point to be specific, to show off the night skies that we love so dearly. We intend to inspire others, mostly those who have just an inkling of an idea as to what goes on in our realm of the world. With an inspiration must come an exhalation and this would be the payoff of our efforts in the form of an idea followed by action. As a young child leans to peer through the eyepiece focused on a beautiful object of the past, the faint light of a distant quasar expands to form a new galaxy. A thought is planted, the breath complete and a cycle is formed.

Brad Campbell
June 29, 2006
Las Vegas, Nevada

More photos can be found at my website.
www.starnevada.com
brad@starnevada.com

Telescopes for Borrowing

Free service

✦

Only for Members

Don't own a telescope?
Our Loaner Program is your answer!

These telescopes are in the program

Sears 60mmf/15 on equatorial mount
Unitron 62mmf/14.5 on equatorial mount
Meade 90mm ETX
Coulter Odyssey8 8-inch f/4.5 Dobson
Meade 8-inch f/4 Schmidt-Newtonian LXD-55
Meade10-inch f/4.5 on equatorial mount
Meade 10" LX200 GPS (requires training session)

Beginners, here's your chance to learn and observe the sky before buying any equipment. The Loaner Program is available to any current member after meeting requirements detailed in the TAAA Loan Policy. Contact the Equipment Loan Coordinator (see page 2) for details about these telescopes.

Object of the Month by Alfredo Garcia

This month's OTM belongs to the class of objects known as nebulae, and in particular, a nebula that is left over after a supernova event. This type of nebula is known as a supernova remnant (SNR).

SNRs are formed at the death explosion of massive stars. The outer layers of the exploding stars are blasted out in expanding clouds that are visible long after the initial explosion fades from view. These "expanding clouds" are classified into three main remnant types: Shell-type, Crab-like, and Composite Remnants.

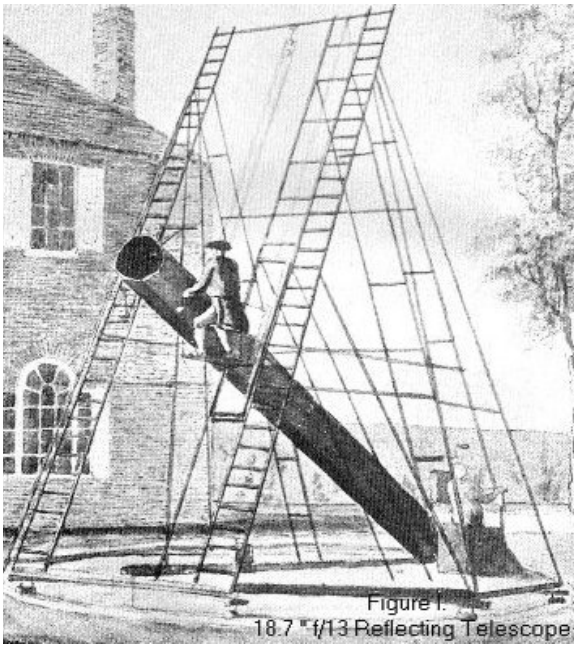


Figure I.
18.7 " f/13 Reflecting Telescope

In the shell-type remnant the explosion shock wave plows through space. In doing so, it heats and mixes interstellar material it encounters producing a shell or ring of hot material traveling through space. An example of this type is the subject of this OTM article and will be discussed further in this article.

Crab-like remnants also called plerions are similar to shell-type remnants, except that they contain in the middle of them a type of star called a pulsar. This star blows out jets of very fast-moving material. As a result, these remnants look more like a blob than a ring. An example of this type is M1, the Crab Nebula which of course this type is named after.

And finally, composite remnants are a cross between the shell-type and crab-like remnants. These remnants appear shell-like and/or crab-like depending on how you are observing them in the electromagnetic spectrum (visible, radio, x-ray, etc). An example of this type is IC433.

As I mentioned above, an outstanding example of the shell-type remnant is found within the boundaries of the summer constellation named after a "swan". This "swan" is of course, the constellation of Cygnus and the supernova remnant is the celestial wonder known as the Veil Nebula. The Veil is made up of two parts: NGC 6960, which is the western part centered on the star 52 Cygni and NGCs 6992-6995, which comprise the eastern part. For this article, I am going to concentrate on the western part, NGC6960 because it is my favorite of the two.

NGC6960 is without a doubt one of the best and most famous members of the supernova remnants located within our own Milky Way Galaxy. It was discovered visually by the astronomer Friedrich Wilhelm (William) Herschel on 5 September 1784 using his 18.7-inch (0.48 m) speculum f/13 reflecting telescope. As an aside, his telescope had a focal length of over 20 feet! Figure I represents a drawing of his telescope I found on the Internet. Imagine observing through that telescope! On wrong step and your toast!

Anyway, back to NGC6960. The estimated distance to this part of the Veil Nebula is about 1,400 light-years. It currently has an apparent size of about 1.5 degrees lengthwise. This makes it about 3 times the apparent size of the Full Moon. Despite its rather large apparent size, NGC6960 has a fairly low overall surface brightness and can be somewhat difficult to visually observe. It has a visual magnitude of about 7 and can be observed with small telescopes or binoculars. A dark sky location is a must to fully appreciate the nebula. NGC6960 is also known as the Witch's Broom Nebula.

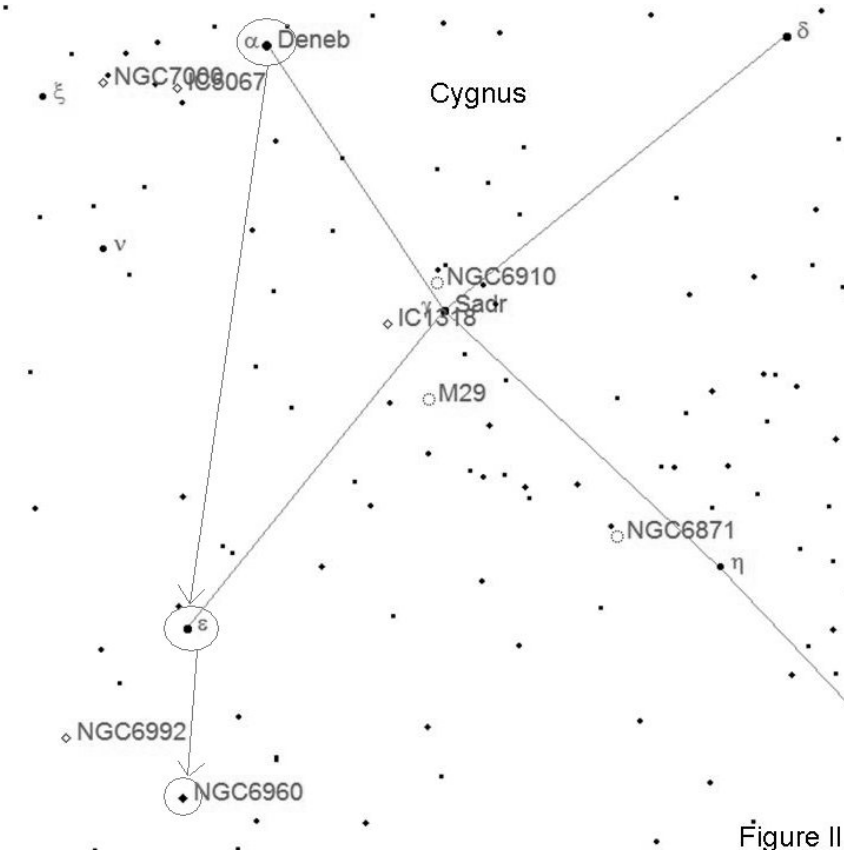


Figure II

Object of the Month by Alfredo Garcia (cont.)

The best time to observe the Veil Nebula in August is during periods when the Moon is not visible and from a dark sky location (the darker the better!). For those of us here in Tucson, we also have the Monsoons to contend with as they are in full swing during this time of the year. If you go out observing (from the Tucson area) in early or late August at about 10:00 PM, you will find NGC6960 at an altitude of about 59 degrees (early month) to about 84 degrees (late month) above the east horizon. This places the nebula in excellent position for observation. If you use setting circles or have an automated go-to telescope, you can find the Witch's Broom Nebula at coordinates: Right Ascension 20 hr 45 min 58 sec and Declination +30 deg 35 min 42 sec.

Though the nebula is not visible to the naked eye, you can easily "starhop" (See Figure II) to NGC6960's location by finding 52 Cygni, a 4.2 magnitude star. 52 Cygni is actually a foreground star at a distance of about 204 light-years and it is just a matter of line of sight that makes the star appears to be in the nebula. To find 52 Cygni, first find Cygnus' brightest star (magnitude 1.2), Alpha Cygni (or Deneb). From Deneb, go to the 2.5 magnitude star known as Epsilon Cygni located almost at the end of one of the "wing tips" of Cygnus. As a matter of fact, ε Cygni has been given the proper name of "Gienah" which is derived from the Arabic word for wing tips. From this "wing tip" star, proceed to 52 Cygni. Since these are all naked visible stars, you should have no problems getting to 52 Cygni. NGC6960 is found at this location with 52 Cygni being in approximately the middle of the nebulosity.

NGC6960 is visually subtle through a small telescope appearing as only a faint grayish streak passing through 52 Cgyni. If you use a moderate size telescope (>10") you can start to see some the fine filaments and faint detail that make up the nebula. An 18" telescope with a filter does a great job and the view is stunning!! But, only when it is astrophotographed or CCD imaged, does it reveal its true nature. Since I do not have a full size image of NGC6960 in my image library, I am using an image (See Figure III) produced by my friend and fellow TAAA member, Keith Schlottman on 8 Jul 06 from his house here in Tucson. Keith used a 105mm William Optics apochromat refractor at f/5.6 mounted on a Celestron equatorial mount. The image was taken through a SBIG CCD camera and he used H-alpha = Red, Oxygen III = Green, and Sulfer II = Blue filters and shot 10 minutes exposures through each. What's even more amazing is that it was taken by the light of the almost Full Moon (95% illuminated on that date!). Isn't modern CCD imaging great!! Way to go, Keith!

As I mentioned earlier, NGC6960 is also known as the Witch's Broom Nebula. So how did it get this name? Well, I couldn't find who the first to name it so was despite research on the Internet. However, if you look at Figure IV, I found an image of a witch's broom and oriented it in the same fashion as Keith's nebula image and one can readily see how the name came about. And what's more interesting is that Keith took his image by the light of the almost Full Moon and I thought that was very appropriate!

So take advantage of whatever clear skies we might get during August and see if you can spot and ponder upon one of the best SNRs in the sky and get "swept away" by the Witch's Broom as I always do! Good luck! J

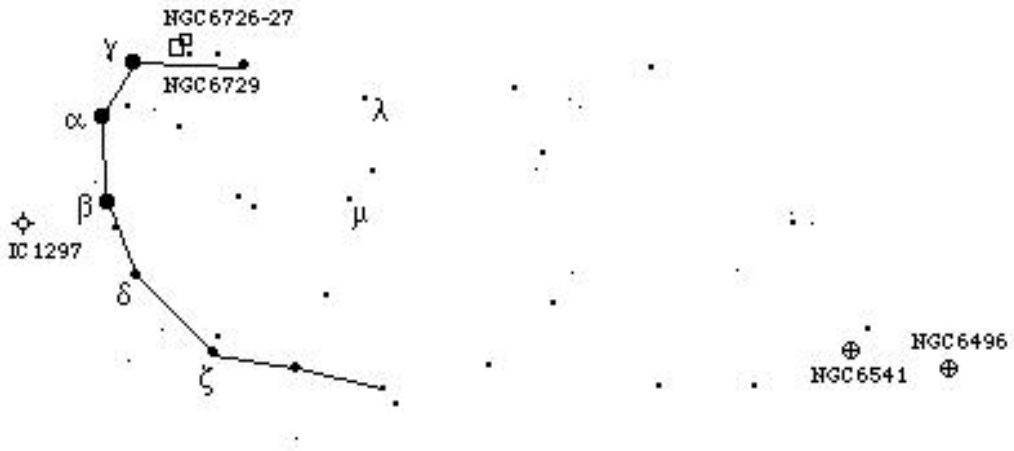
Constellation Report by Chris Lancaster

Corona Australis

The Southern Crown

Corona Australis is one of the original 48 constellations envisioned by the second century astronomer Ptolemy. It is a half circle of 4th magnitude and dimmer stars under the teapot asterism of Sagittarius and east of the lower curve of the tail of Scorpius. Most depictions of Corona Australis show it as a laurel wreath, and it is considered to be the crown of Chiron, the centaur, or a duplicate of Corona Borealis (the constellation known as the northern crown), which is the crown of Ariadne, the daughter of the king of Crete, Minos.

Corona Australis lies near the heart of the summer Milky Way, so the deep sky objects that we expect to see are star clusters and nebulosity. We can start with NGC6541, which is a bright globular cluster in the southwest corner of the constellation. One way to find this bright, 6.6 magnitude cluster is to star hop from some bright stars in the tail of neighboring constellation Scorpius. Start with Lambda Scorpii (the tip of Scorpius's tail) and move southeast through the tail stars of Kappa and Iota. Keep going in this same direction two and a half degrees to a 4.9 magnitude star, then repeat this step two and a half degrees to another 4.9 magnitude star. NGC6541 is then less than half of a degree southeast of this last star. You can also use your setting circles or computerized telescope and dial up RA 18h 8m Dec -43d 42'. Here is a fine globular cluster, which you may or may not be able to resolve depending on the size of your telescope and atmospheric conditions. Its overall magnitude of 6.6 means it is easy to spot, and the size of 13' makes a good view at moderate power.



Nearby at 1.7 degrees west-southwest of NGC6541 (or RA 17h 59m Dec -44d 16') is another globular cluster, NGC6496, which straddles the boundary between Corona Australis and Scorpius. Here we have a more subdued cluster glowing at magnitude 9.2 and having about half the size of NGC6541, but it is still well worth a look. This cluster appears as a loose ball of stars.

For experienced observers, there is an elusive planetary nebula at the opposite side of the constellation at RA 19h 17m 24s, Dec -39d 37' 00", or 1.5 degrees east of Beta Coronae Australis. This is IC1297, a small nebula measuring a mere 0.1 arc minutes across. At high power, you should be able to distinguish this as a diffuse circle; otherwise it will be difficult to see it as anything different than the surrounding stars.

A diffuse area of reflection and dark nebulosity is found in the northeastern section of Corona Australis. Here we have a collection of nebular bodies composed of NGC6729, NGC6726, and NGC6727. Although it sounds complex, they occupy a fairly small area of sky measuring about 5 arc minutes. One of these nebulae, NGC6729, is illuminated by the variable star R Coronae Australis, so the responding nebula also varies. This star is an irregular variable, which fluctuates between magnitude 9.7 and 12, and lights up the small, comet shaped nebula. So active is this star that it has been observed changing by as much as 2 magnitudes in a few days time. NGC6726 and 6727 are side by side, more or less in contact with each other, and forming a double lobed structure of about 2 arc minutes in the longer dimension. Find this group by centering your scope near 19h 1m 50s Dec -36d 55', or just less than 1 degree west of magnitude 4.2 Gamma Coronae Australis.

After finding some of these elusive objects, we can relax a little and go after an easy double star. It's one of the brighter stars in this constellation but, nevertheless, is just within naked eye limit in dark skies. The star is Lambda Coronae Australis, which is just to the west of the brightest arc of stars forming the most apparent structure of the constellation. Lambda is a pair of magnitude 5 and magnitude 9 stars separated by a wide 29 arc seconds, so it can be separated by the smallest of telescopes at very low power.

Often we forget about Corona Australis because it is adjacent to the wonderful offerings of Sagittarius and Scorpius, but sliding your scope a little more to the south will bring you into its environs, which offer some wonders of its own.

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Directions to TIMPA and Empire Ranch

Directions to TIMPA Site

GPS coordinates: 32 deg 15.868' N, 111 deg 16.390' W

From the North:

1. Take Ina Rd. west about three miles past I-10.
2. Turn left (south) on Wade Rd.. Wade Rd. becomes Picture Rocks Rd. when the Rd. bends to the right (west).
3. Take Picture Rocks Rd. west to Sandario Rd..
4. Turn left (south) on Sandario Rd. to Manville Rd..
5. Turn right (west) on Manville Rd. to Reservation Rd..
6. Turn left (south) on Reservation Rd. (dirt Rd.) and go about two miles. The entrance to TIMPA will be on the left.

From the East:

1. Take Speedway Blvd. west and it turns into Gates Pass Rd..
2. Go over Gates Pass and continue west to Kinney Rd..
3. Turn right (north) on Kinney Rd. and continue past the Desert Museum.
4. Kinney Rd. bends left at the entrance to Saguaro National Park West and becomes Mile Wide Rd..
5. Take Mile Wide Rd. west about five miles to Reservation Rd.. Mile Wide Rd. ends at Reservation Rd. and you must turn right (north) onto Reservation Rd..
6. Take Reservation Rd. north about one mile. The entrance to TIMPA will be on the right.

NOTE

Please DO NOT ask the caretakers for access to the TIMPA SITE. Contact a board member to arrange access to TIMPA. For scheduled TIMPA star parties, a designated TAAA representative will provide access to the site.

Directions to Las Cienegas (Empire Ranch)

GPS coordinates: 31 deg 47.356' N, 110 deg 37.913' W

Take I-10 East from Tucson and turn off at Exit 281 (Route 83 Sonoita-Patagonia Highway South). Travel south on Route 83 for about 19 miles and watch for the green and white milepost 40 sign along the right side of the road. Approximately ¼ mile past milepost 40, turn left into Las Cienegas. The road is dirt and has some "washboarding" so don't go too fast. At about the 2.9 mile point there will be a fork in the road. Stay to the right. When the road ends in a "T", take a left. You will cross a concrete section of the road down in a wash. Just up the hill from the wash (about .2 mile), turn left. Just ahead of you (.1 mile) will be the end of an abandoned airstrip with a covered ramada. The club members have been setting up several tenths of a mile down the runway. If you arrive after dark, as a courtesy to other members, use only your parking lights to approach the set-up location.