



# *Desert Skies*

*Tucson Amateur Astronomy Association*

Volume XLVIII, Number 6

June, 2002



**TAAA Members Enjoy a Picnic and Observing at Kitt Peak**

**Cover Photo:** Observing spots go fast at our Kitt Peak picnic and observing. Photo by John Kalas

TAAA Web Page: <http://www.tucsonastronomy.org>

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School Star Party Volunteer Coordinator	Rob Wilson	744-0263	rasjwilson@aol.com

#### Membership in the TAAA

##### Annual Dues

Individual membership.....	\$ 23
Family.....	\$ 28
Senior (over 60) membership.....	\$ 21
Senior Family (at least one over 60).....	\$ 26
Student membership (over 18 years old).....	\$ 15

Family Membership includes two adults plus minor children. Persons under 18 may join at a special Reduced Family Membership rate (\$15/yr) upon parental or guardian acknowledgment of participation in TAAA activities. Call the Treasurer to request the required form.

##### Options (add to above membership rates)

Tucson society of the Astronomical League (TAL) dues.....	\$ 3.50
Sky & Telescope Magazine.....	\$ 29.95
Astronomy Magazine.....	\$ 29.00
Postage for New Member Pack.....	\$ 3.50

**Donations** are accepted for any of the TAAA funds: SA-IDA/Light Pollution, TIMPA, Education, 30" Telescope & Land, or General Fund.

##### Renewal Information

- Membership expires the last day of the month indicated on your mailing label. You will receive a renewal notice when they are due.
- TAAA members may join the Tucson society of the Astronomical League (TAL). TAL expiration will match your TAAA expiration.
- Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at anytime. Only single year subscriptions are accepted. Allow at least 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, send the above subscription amounts and your magazine renewal notice to the TAAA treasurer.

- To ensure proper credit to your account, please include a note explaining what you are paying for. Credit cards are not accepted. Write one check or money order for dues 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 changes to the above address or email the treasurer.

**TAAA Mission Statement** - We are a resource for anyone interested in astronomy. It is our mission to nurture a person's natural curiosity about the night sky. By giving people a knowledge and understanding of astronomy, we enhance their enjoyment of the sun, moon, and stars. Through our public activities and school evening observing sessions, we bring astronomy to persons of all ages. Our regular meetings and observing sessions offer members a forum to meet others with similar interests and experiences and to learn from one another.

**Desert Skies Publishing Guidelines** - All articles, announcements, news, etc. must be submitted by the newsletter deadline noted above. 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  
TAAA/Desert Skies Editor  
15940 W Ridgemoor Ave  
Tucson AZ 85736

or by e-mail [barbergj@flash.net](mailto:barbergj@flash.net)

## President's Message

A quick look at this month's star party schedule confirms that the crunch is behind us, the school year is over and we made it! I must extend my thanks to those many volunteers who made the school star party program the success that it is. I know these last months were busy, but how do you say no to a teacher and their students? We have to much too often, not easy. Now we get to settle back to a more sedate pace, and maybe just enjoy the sky. But I do miss the school star parties over the summer!

This month bring several items sure to keep the public's eye on the sky. As the encore to this spring's great planetary show the last and brightest two "stars" of the show, Jupiter and Venus will dance a last round in the sunset. Two objects sure to catch the attention.

Keep your eyes on the Sun for the Lunar eclipse this June 10th. It may not be a total here in Tucson but even a deep partial can make everyone look at the sky in wonderment. A reminder that we are connected to what goes on in the sky and that what goes on up there can have immediate effect. In this case a good percentage of our fellow

citizens will be engaged in the evening commute when the Moon dims the Sun to a fraction of its usual brightness, sure to get noticed. Be ready for the usual questions from your friends and co-workers.

A number of members have volunteered to reconstitute the land search committee and this has been approved by the board. As a first action this committee has started to put together a list of requirements for any land that might meet the club's purposes. In this newsletter you will find more information and a request for your input.

So, with any hope we can look forward to at least two more new moons, maybe three before the monsoon comes and provides the year's usual two month break from all things astronomical. Make the best of it!

Andrew

## Meeting Information and Calendar of Events

**TAAA MEETING DATE:** Friday, at the Steward Observatory Auditorium - Room N210.

### **BEGINNERS LECTURE: 6:30 pm**

Title: What Kind of Star - Part II

Speaker: George Barber

At the February beginner's lecture, stars that occupy the "main sequence" were discussed. In this lecture, the other types of stars will be investigated, including variable stars, red giants, neutron stars, and black holes.

### **GENERAL MEETING: 7:30 pm**

Title: Member's Night

Tonight, the floor is reserved for you, the club member, to give short presentations on any subject that deals with the field of astronomy. Time slots are given out in first-come, first-up order. So swallow your stage fright, step right up, and share what you know with everyone! (We are a very forgiving and tolerant audience). Contact Andrew Cooper at [taaa.seds.org](http://taaa.seds.org) to get your name on the list of presenters.

**BOARD OF DIRECTORS MEETING:** Tuesday, June 11, 7:00 pm at Steward Observatory Conference room N305.

### **STAR PARTIES AND EVENTS:**

01 June - TAAA Star Party at TIMPA  
 06 June - Astrophoto SIG Dinner  
 08 June - Grand Canyon Star Party  
 08 June - TAAA Star Party at Las Cienegas  
 10 June - Eclipse Viewing at Flandrau/Parking Garage  
 11 June - Marana Parks & Rec. Solar Program  
 14 June - Pima County Natural Resources Star Party  
 15 June - Mt. Lemmon Women's Club Star Party  
 22 June - Tucson Children's Museum Star Party

**Newsletter Schedule:** Deadline for articles: Mon, June 17. Printing: Mon, June 24. Folding Party: Tues, June 25. Mailing: Wed, June 26. The newsletter is mailed at least one week prior to the following month's General Meeting.

## Club News

### **Member News**

We welcome the most recent members who have joined the TAAA: Guy Baty, David A. Dickinson, Richard Dougall, David Gale, Steve Govostis, Michael Gusick, Yale and Blossom Joseph, Bob and Carrie Olson, Michael Talbot. We also welcome back former member William Walker. Glad to have you join! If you haven't already, be sure to pick

up a new members pack at a meeting. Hope you'll make it to our star parties or meetings so we can all get to know you. (Updated membership lists are available at the regular meetings, so pick one up if you need it.)

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**Club News (cont.)**


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**Club Member Honored**

The Las Cumbres Amateur Outreach Award was presented to Dean Ketelsen, Tucson, Arizona. This award honors outstanding outreach by an amateur astronomer to children and the public. Since 1991, Ketelsen has organized the Grand Canyon Star Party, which has allowed tens of thousands of Canyon visitors to better appreciate the night sky. Every year he organizes the "Star Party for 55,000" at a University of Arizona home football game. During this event, Ketelsen and Tucson area amateur astronomers set up telescopes outside the football stadium and give incoming fans views of astronomical objects. Among his many other astronomy activities, he has worked as a volunteer for the ASP's Project ASTRO, bringing the wonders of astronomy into Tucson classrooms. He is currently a Senior Research Specialist in the Steward Observatory's Mirror Lab in Tucson.

**Astro Photo SIG Dinner**

6 June, 7pm

China Rose, NE corner Speedway/Rosemont

As always, we meet the evening before the general meetings at the China Rose "Sky Room". Feel free to bring you prints, slides, or electronic images to show off. It is a great forum for advanced or beginners alike. The easiest way to learn the art of astrophotography is to learn from the folks who have already made all the mistakes. Join us for a great buffet dinner and relaxed image show.

**Beginners Lecture Presenters Needed**

Have you ever considered giving the Beginner's lecture? The club is always looking for someone who is willing to share the benefit of their experience. And, if you can't come up with a topic, Andrew has a number of topics, which would greatly benefit those who are new to astronomy, as well as the seasoned astronomer. This gives you a chance to learn something new, as well as help others. So, step up to the spotlight! Give Andrew Cooper a call at 2795-3585, or e-mail at [acooper@pobox.com](mailto:acooper@pobox.com).

**Grand Canyon Star Party**

8-15 June 2002

South and North Rims

You can smell it in the air - Grand Canyon Star Party time! I've yet to hear from our ranger since she returned from her spring leave. As a result, I've yet to receive fee waivers or other new info for this year's event. I'll start bugging her ASAP, so hopefully I'll have those mailings to send out so you get them by the first of June. If you do not, and you think you've confirmed with me - let me know to make sure you are on my list. If you would just like to "pop up" for the weekend and see what we are about, you are more than welcome to join us that way.

The fee waiver saves you the \$20 at the entry gate, and there are usually new rules for us to adhere to that you should know about. I suspect there will be fire restrictions enforced again this year, which means no open campfires or charcoal, but camp stoves should be allowed. In any event - check the mailing from me for those last minute updates.

I'm low on twilight speakers this year, so raise your hand and be counted! Needed are slide shows for the lay public (I aim my talks for 4th graders!) about 45 minutes in length to entertain the folks while it gets dark enough to observe. If you have a shorter talk, let me know, sometimes we can combine a couple. E-mail me if you would like to volunteer.

That's all for now - It is always a great time! Look to next month's newsletter for a recap and photos. See you there!  
Dean\_ketelsen@as.arizona.edu

**Flandrau/UA/TAAA to Host Eclipse Viewing at Tyndall Parking Garage**

On the afternoon of Monday, June 10, 2002 the western United States will witness a rare, deep partial eclipse of the sun. For Tucson, Phoenix and many parts of the western United States the sun will set while still in eclipse. Because of Tucson's proximity to the central path of the eclipse, 74% of the sun's diameter will be covered by the new moon as seen from the Old Pueblo. The eclipse in southern Arizona will be best around 6:25 p.m., when the new moon will appear to turn the sun into a solar crescent.

Times of the eclipse from Tucson are as follows:

Start of Eclipse: 5:24 p.m.

Maximum Eclipse: 6:25 p.m.

End of Eclipse: 7:30 p.m. (sunset)

The TAAA is invited to join Flandrau Science Center, University of Arizona's Department of Parking Transportation and Coronado Instruments in their free eclipse-viewing event for the general public starting at 5 p.m., and lasting until sunset at 7:30 p.m. Telescopes with safe solar filters will be set up for public viewing free-of-charge at the top level (NW corner) of the Tyndall Ave. parking garage located between Tyndall and Euclid Avenues, just south of Speedway Blvd. Eclipse glasses will be on sale the day of the eclipse both at Flandrau, and at the Tyndall garage viewing area, while supplies last. TAAA members with safe solar telescopes and/or viewing equipment will be able to park at the top of Tyndall garage in a reserved area very close to the viewing area FREE of charge! To obtain the free parking, TAAA members must RSVP Michael Terenzoni at [miket@ns.arizona.edu](mailto:miket@ns.arizona.edu), phone: 621-3646 and are encouraged to arrive before 5 p.m. if they can.

Visitors for this eclipse can park for free on the UA campus only in Zone 1 parking lots close to the Tyndall garage during the afternoon of June 10. Effective at 5 p.m.



## Club News (cont.)

visitors can park in the Tyndale Ave garage for a nominal fee. Parking will be free after 8 p.m. (you can park in Tyndall for free if you are willing to wait until 8 p.m. to leave).

Information about the eclipse will be available before the eclipse by calling Flandrau Science Center's free Astronomy Newsline at (520) 621-4310 or visiting its "Astronomy News" section on the Internet at <http://www.flandrau.org/astronomy/news.htm> and at <http://www.flandrau.org> (look for the Astronomy section).

## TAAA and Interpreters Help Kids See Night Sky

May 16, 2002

By Steve Marten

Interpreters assisted a group of more than thirty deaf students, ages 5-19, see and "hear" about the night sky at the Arizona School for the Deaf and Blind in Tucson on May 16<sup>th</sup>. At the telescopes from TAAA were John Kalas, Chuck Schroll, Steve Marten and Ken Wheelock. Jupiter, Venus, Mars, double stars and clusters were among the sights many had observed for the first time. The most impressive for the group was Jupiter and its attendant Galilean moons. The students were also amazed at the multitude of tiny stars seen in the Hercules cluster. TAAA members learned a bit of sign language too, in responding to students' questions while showing them around the night sky. No "signing" was needed, however, to know that the students were very enthusiastic and enjoyed a truly memorable evening.

## Kitt Peak Star-B-Cue Review

Text and Photos by John Kalas

About 53 TAAA Members and families enjoyed another very successful outing on the mountain. The weather was terrific with pleasant temperatures. Several telescopes were set up for solar viewing. The potluck barbecue was well appreciated with a great selection of homemade dishes to share with the diners. With nice, clear skies



many attendees rushed to the westward side of the picnic area after dinner to enjoy an impressive sunset. Robert Crawford and Ed Finney made it official by setting up their telescope on the large rock outcropping across the parking lot and planted a sign declaring it the "Crawford - Finney Rock Observatory". After dark, fifteen to twenty telescopes began probing the rich skies. The event was a resounding success and everyone headed down the mountain by midnight. Thanks to all who attended for leaving the site cleaner than we found it. If you were unable to go to this star-b-cue, don't worry. We have another scheduled for September 28<sup>th</sup>. Mark your calendars and watch the newsletter.

## Items Left at Kitt Peak Star-B-Cue

During the final check of the picnic area before departing, John Kalas found two items left at the potluck table. There was a red-handled knife and a large towel used as a tablecloth found in the ramada. If either of these items sounds familiar to you, please call John at 620-6502 to claim them.

# STARIZONA

ADVENTURES IN ASTRONOMY AND NATURE

5201 N. Oracle Rd.  
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[www.starizona.com](http://www.starizona.com)  
292-5010

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## Club News (cont.)

### WOW!! What a Surprise.

By John Kalas

As announced in last month's newsletter, the TAAA was asked to supply six telescopes to a convention of the Association of Research Administrators hosted by NOAO at the El Conquistador Resort. Bryon Skinner, Harold Staves, Lou Faix, Steve Marten, Thom Peck and John Kalas volunteered for the assignment. Robert and Barb Callanan came down to see if their help was needed. The event was very well received by the guests as they marveled at the fantastic five-planet display in the clear western sky. The club offered to provide this astronomy service for free. We were told that a donation would be made to the club. Near the end of the activity, John Kalas was presented with a check for \$500! What a pleasant surprise. Many thanks to our volunteers.

### Library Books Reviewed

Text and Photos by John Kalas

On May 11<sup>th</sup>, fourteen TAAA Members visited Robert Crawford's residence for the daunting task of reviewing about 500 astronomy books that were donated to the club by a local Tucsonan nearly a year ago. It was obvious when we took the collection of books that not all of them could fit in our library. Robert was kind enough to allow the club to store the books at his house since the donation. The list of volunteers assembled to review the books were Robert Crawford, Ed & Ellen Finney, Sheila Conrad, Terri Lappin, Claude & Teresa Plymate, Luke and Ann Scott, Debra Davis, Andrew & Deborah Cooper and

attempt to assess their value. About five cartons of "unwanted" books plus two other cartons from our original library collection will be offered to club members at the June meeting (see the following article).

### Book Sale at the June Meeting

By John Kalas

There will be a huge book sale in the lobby of the Steward Observatory Building during the June monthly meeting. These books were sorted out of the large library donation received by the club about a year ago and cannot fit in our current library. So bring your quarters and have a ball choosing some great additions to your astronomy library.

### Help Needed

The club is looking for someone to take over the responsibilities of Newsletter Folding/Mailing Coordinator. The duties of this position include; obtain the newsletter copy from the editor, paste up the master copy, deliver the master copy to the copy person, schedule folding parties, secure mailing labels from the treasurer, attend folding parties, coordinate folding and labeling of newsletters, and take newsletters to post office. Although this sounds like a lot of activity, it is only a few hours of effort for two days a month. John Kalas has been performing this task for the last several years and would like to give it up. If you might be interested in supporting the club in this capacity, please call John at 620-6502 for more information.

### TAAA Assists in La Paloma Marketing Effort

By Steve Marten

In the beautiful Fiesta area of the stylish La Paloma Hotel, TAAA provided an evening around the night sky for 25 guests from San Diego on Saturday, May 18<sup>th</sup>. The guests were involved in a weekend promotion to attract business clientele to La Paloma from the San Diego area. One of the typical features available for their evening events could be a fantastic look at the night sky while receiving attentive dinner service. The surrounding trees of the Fiesta area add to the natural beauty of the locale just east of the main building but it kept me calculating the upcoming locations of additional sky targets and moving the scope several times. All was well as the guests clearly enjoyed seeing Jupiter and Venus in the west, the quarter moon overhead and May's marvelous sky attractions in the east. They asked many questions and learned more about our closing five-in-a-row visible planet show that only occurs about every 58 years! At the end of the evening many of the guests indicated that they would prefer a spectacular look at the night sky with TAAA in their future Tucson La Paloma events.



John & Liz Kalas. After about two hours, the books were segregated into three groups; "keepers" for the TAAA library, books to be disposed of and classic/vintage books. Claude & Teresa Plymate, the club's librarians, took the five cartons of keeper books back to their home to inventory, mark and prepare them for the TAAA library; Debra Davis took the large box of vintage books to

## Club News (cont.)

### TAAA Land Search Committee

The TAAA Board of Directors voted at their Tuesday, May 14th meeting to reactivate the Land Search Committee. Andrew Cooper will serve as the committee chair; JohnPaul Sosville, George Barber, Paul Olson, Steve Ratts, and Terri Lappin volunteered to serve on the committee.

Those of you who know some club history will recall that this committee has been active in the past, but has been dormant for some time now. In the past the committee searched extensively for a suitable site, and even found a few properties that bids were made on, but was otherwise unsuccessful in securing the goal. One of the key problems encountered was finding a suitable site within the club's budget. However, the primary reason the land search activity stopped when it did was that it was decided to concentrate more on finishing the mechanical aspects of the 30" telescope which we planned to locate at the site they were searching for rather than continue the search for land. Later, the development at TIMPA also put a damper on the long-term motive to locate a dark-sky site. Several things have happened since then to warrant a fresh look at this. First of all, the amount of money in the land and telescope fund has grown through continued donations made by our generous membership. Secondly, we now have direct access to MLS listings, digital cameras and the Internet. Third, and not least of all, one of the new committee members, Paul Olson, is a local realtor with decades of experience; we believe he will be a significant asset to the committee in it's search.

The first order of business charged to the committee by its chairman and our club president, is to identify clearly what we are looking for and what criteria will drive our search. There is no sense in looking for something if you're not sure what you're looking for! Laying out a plan which will include a reasonable timeline of events, expected lifetime of the site, expected distance from Tucson, lighting concerns, creature comforts, and acreage will be our first duty. For example one possible plan might be: within eighteen months purchase a dark sky site, minimum 40 acres, bounded on at least one side by state or federal land. The land should be within 90 minutes from the I10/I19 intersection, and have reasonable accommodation for those of us who want to stay overnight. The sky should be at least as dark and have no worse sky-glow than the Las Cienegas (Empire Ranch) site. There should be a reasonable expectation that the property not suffer light pollution for a minimum ten years.

To help us make our recommendations to the Board, we ask you to take a moment to help us by completing this brief survey so that we will know what the club membership would prefer in a club observing site. You may bring this survey with you to either the June or July meeting, or, if you will not be able to attend one of those meetings, feel free to mail it to TAAA, P.O. Box 41254, Tucson, Arizona 85717. Copies of this survey will also be

available at the next two club meetings if you would like to fill one out then and drop it off. Completed surveys may be dropped off with any committee member.

1. Should the TAAA be involved in a land search with the intention of obtaining a permanent dark-sky site for astronomical observation? ( Y / N )
2. In the event that the TAAA were to obtain land at a dark-sky location, would you give financial support to the TAAA for building and maintaining an observatory at this site? ( Y / N )
3. If the TAAA were to acquire a permanent dark-sky site, would you be interested in a long-term lease of a portion of this land where you could place a concrete slab and/or pier, which you could use for your own equipment? ( Y / N )
4. Would it be acceptable for the TAAA to enter into a long-term (10+ year) lease for property rather purchasing property if it meant a better site for less money? ( Y / N )
5. In considering a permanent dark-sky site, please rank each of the following criteria on a scale of one (unimportant) to five (very important).

\_\_\_ Proximity within 1 hour drive of central Tucson

\_\_\_ Proximity within 1.5 hour drive of central Tucson

\_\_\_ Proximity within 2 hour drive of central Tucson

\_\_\_ Property located above 4000 feet elevation

\_\_\_ Sky at least as dark as TIMPA

\_\_\_ Sky at least as dark as Empire Ranch

\_\_\_ Freedom from light trespass by nearby residential or commercial light sources

\_\_\_ Flush Toilets

\_\_\_ Public Utility Electricity

\_\_\_ Water Well

\_\_\_ Away from airplane flight paths.

\_\_\_ Other Criteria, please elaborate below

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### Club News (cont.)

6. We have tried to quantify distance and darkness criteria. In your own words please tell us your preferences for distance, darkness and sky-glow.

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7. Do YOU have a favorite site in mind? If so, where is it? What utilities does it have? What about water? How much? How many acres?

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8. Are there any other primary concerns you would have for such a site that we have not addressed here? Please list them below

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While the committee already has several enthusiastic members, we also realize that there may be others in the club that would be interested in participating in this effort. We would particularly welcome any past committee members who can help by bringing their experience and knowledge to this endeavor. If you would be interested in joining this committee, or even if you just have a suggestion or idea you would like to share with us, please contact the committee at TAAA, P.O. Box 41254, Tucson, Arizona 85717, or via email at [taaa@seds.org](mailto:taaa@seds.org).

### Items of Interest

#### WEBSITES: TRIPS ON THE INTERNET SUPER-SKYWAY

CELESTIAL DUPLICITY - Pt. II

By Rik Hill

In the April Desert Skies I talked about resources for double star observing. This month I want to tell you about equipment that you can build or buy to facilitate your observing. With simple equipment you can watch these celestial pairs swing around their common center of gravity (barycenter). In only a year or so there are many where you can actually detect the motion! I have been measuring these stars for over 15 years now and nearly all have shown motion and in some it's plainly obvious to the casual observer!

The simplest measuring device is the wire diffraction micrometer. It consists of a few bars (called "wires"), mounted parallel across the aperture of the telescope. Some details can be found at: <http://www.astroscenes.freemove.co.uk/diffmic.htm> and a photo of a good device at the bottom of the page at: <http://www.astroscenes.freemove.co.uk/tele.htm>

For those that are more adept at construction there's the Filar Micrometer. In this device you place cross hairs on the two stars. Traditionally these are made of spider web but recent models have used fine electronic wire and synthetic threads. An excellent design with some details is posted by the Astronomical Society of Southern Africa at: <http://www.skywatch.co.za/instruments/micrometer/index.htm>

For more design ideas there are two antique micrometers and one modern one at: <http://www.brayebrookobservatory.org/BrayObsWebSite/HOMEPAGE/frame504179.html>

Some of you may not be handy with tools. For you there's an excellent filar micrometer made by Van Slyke Engineering and shown at: <http://www.observatory.org/filarmic.htm>

A review of this latter micrometer and another one is posted by the Webb Society at:

<http://www.webbsociety.freemove.co.uk/notes/dsretel.html>

Armed with any one of these devices and a steady clear sky, you can now observe the stars as they go through their elliptical dances from year to year.

As always, if you know of a particularly good website you would like mentioned here, drop me a line at [rhill@lpl.arizona.edu](mailto:rhill@lpl.arizona.edu)

#### Events in the Sky for 2002

Compiled by Joe Orman

<http://pages.prodigy.net/pam.orman/JoeGallery.html>

June 3 (evening): Jupiter and Venus 1 1/2 degrees apart, with Mars below, in W after sunset.

June 10 (afternoon): Partial solar eclipse, 5:19pm to 7:19pm MST, in W. 60% eclipsed at maximum



**Items of Interest (cont.)**

June 12 (evening): Crescent moon 2 1/2 degrees to right of Jupiter, with Venus above and Mars below, in W after sunset.

June 13 (evening): Crescent moon 2 degrees above Venus, Jupiter and Mars below, in W after sunset.

June 20 (evening): Venus 1/3 degrees above Praesepe ("Beehive" star cluster), in W after sunset.

July 2 (morning): Saturn and Mercury 1/4 degree apart, low in ENE before sunrise.

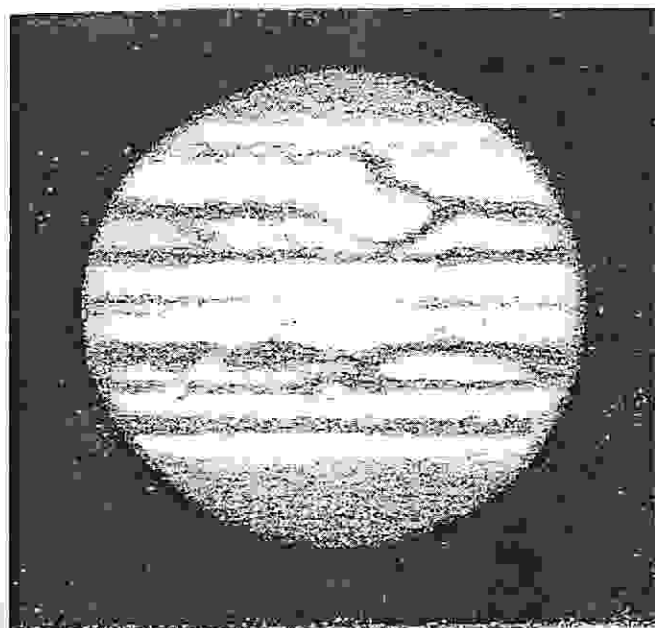
July 2 (evening): Jupiter and Mars 3/4 degree apart, extremely low in WNW after sunset (too close to sun to see?).

**Observations of Jupiter**

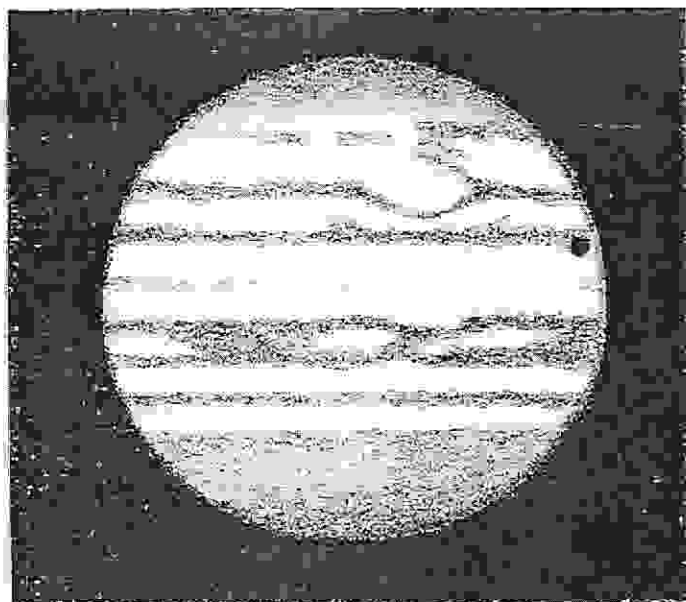
Drawings and Text by Mark Daniels

TAAA member and long-time planetary observer Mark Daniels invites attention to two recent sketches of Jupiter.

The STB Oval BT is featured in both drawings and is in conjunction with the Red Spot. In addition, much detail is visible in Jupiter's NEB, SEB, and STB belts. Note the small white ovals in the STB directly above and left of the Red Spot in the March 23 Sketch. Also note a shadow transit on the preceding limb.



Mark Daniels has been observing and drawing the moon and planets since the early 1980's, and his work has been featured in *Sky and Telescope* and *Astronomy* magazines.



## Star Parties & Events

### TAAA Star Party at TIMPA

June 1 (Saturday)

Come out and enjoy the early summer skies! What makes this event special is that our novice members can get help with observing issues or equipment problems. There will be experienced members present who would be more than happy to help. If you don't own a telescope, don't worry. There will be lots of scopes set up and everyone is invited to look through them. This is a great way to check out the different telescope designs before you make that all-important decision to buy. There is no scheduled talk for this activity. Just come out with lots of questions and we'll do our best to get you the answers you need. If you have friends who might be interested in amateur astronomy, bring them along. Directions to the TIMPA site are located on the outside flap of this newsletter.

### TAAA Star Party at Las Cienegas (Empire Ranch)

June 8 (Saturday)

Las Cienegas (formerly Empire Ranch) has been our normal dark-sky observing site for quite a number of years. Las Cienegas is about 4000 feet in elevation, so be prepared for cool temperatures, and 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 astrophotos. 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. There are no restroom facilities at the site, so be prepared. 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. One nice advantage to belonging to the TAAA is the opportunity to observe among friends. Help in finding an object or the sharing of equipment always goes on at our star parties. If you haven't attended a star party yet, you're missing the best part of belonging to the TAAA. See the directions to Las Cienegas on the outside flap of this newsletter.

### Flandrau/UA/TAAA to Host Eclipse Viewing at Tyndall Parking Garage

June 10 (Monday)

See article in *CLUB NEWS* section of newsletter.

### Marana Parks & Rec. Solar Program Northwest

June 11 (Tuesday)

No. of Scopes: 1

The Marana Parks & Rec. Dept. has requested a daytime activity for a group of summer program kids. There will be about 60 - 70 kids in this group. The program will be 1 to 1 ½ hours long and will require a solar filter. The children will be "shuttled" out to the telescope in groups of about 20. This program will be held at the Coyote

Trails E.S. on Silverbell Road in Continental Ranch. Please contact John Kalas at 620-6502 or via e-mail at <jckalas@aol.com> if you would be able to help out.

### Pima County Natural Resources

June 14, Friday

Northeast

No. of Scopes: 5

This star party is being held at the Lew Sorenson Community Center and is located at 11100 E. Tanque Verde Road. From Houghton Road and Tanque Verde Road, go east on Tanque Verde for 1 mile. The center is just east of Tanque Verde Loop Road as it intersects Tanque Verde Road. There is a parking lot located on the east side of the school. Turn right into the parking lot. The set up area is on the grassy area on the north side of the school buildings. Set up is at 7:45 with viewing from 8:15 to around 10:00 or so. A Star Party leader is needed for this event and a sign up sheet will be available at the June meeting.

### Mt. Lemmon Women's Club

June 15, Saturday

Summerhaven

No. of Scopes: 2-3

This promises to be a VERY fun event for those members that sign up. The fun begins with a picnic (free to TAAA volunteers that sign up) at Olga and Fred Pace's cabin around 5:00 (directions to follow). At or just before 8:00 everyone will head up to the Iron Door parking lot near the ski area for set up. This area has a wonderful orientation across the San Pedro Valley for deep sky observing. To get to the Pace's cabin: Take the Mt. Lemmon Highway to the last bend before reaching the town of Summerhaven (bear left at the Ski Valley Junction). Look for Tucson Ave. It is the last left before reaching the town. If you see the Post Office, you've gone too far. There is a "Pace" sign with an arrow on the tree at the right side of the entrance to Tucson Ave. Travel up Tucson Ave and bear left at each of the next two forks. The second fork is Pace's driveway. Their cabin is to the right. The cabin phone number is 576-1420. If you are coming from central Tucson, give yourself AT LEAST 1 hour, probably more to get to their cabin. Also, you will be at almost 9,000' elevation so be prepared for chilly weather. For those considering staying on the mountain for the evening, there are a number of places to camp. In addition, there are a number of cabins available for rent. For more information on rentals call Jeff Buzek at 760-4578, but don't wait until the last minute to make reservations. A star party leader is needed for this event and a sign up sheet will be available at the June meeting.

### Tucson Children's Museum Star Party Downtown

June 22, (Saturday)

No. of Scopes: 3

This is the second year we've been asked to support this event, and our support was greatly appreciated for last year's three star parties with this organization. The Children's Museum is located at 200 S. 6<sup>th</sup> Avenue. Take

### Star Parties & Events (cont.)

Broadway, west to downtown Tucson. Turn left (south) on Scott Avenue and proceed to 12<sup>th</sup> Street. Turn left (east) on 12<sup>th</sup> Street. The museum will be to your right side. The set up area is located on the southeast corner of the museum lawn and is at the intersection of 6<sup>th</sup> Avenue and

13<sup>th</sup> Street. Set up is at 7:45pm to 8:00pm with observing from 8:30pm to around 10:30pm. A Star Party leader is needed for this event, and a sign up sheet will be available at the June meeting. Please consider supporting this worthwhile event!

### Dark Skies for June 2002

**DARK SKIES** (no twilight, no moonlight) for Tucson in 24-hour MST: 18=6pm, 20=8pm, 22=10pm, 0=12am  
**RISE, SET, VISIBILITY** for sun and bright planets: rise for morning object, set for evening object

Fr/Sa 31/ 1	21:04 - 0:18	Mo/Tu 10/11	21:10 - 3:37	Fr/Sa 21/22	3:23 - 3:37
Sa/Su 1/ 2	21:04 - 0:52	Tu/We 11/12	21:11 - 3:37	Sa/Su 22/23	- - -
		We/Th 12/13	21:30 - 3:37		
Su/Mo 2/ 3	21:05 - 1:22	Th/Fr 13/14	22:22 - 3:36	Su/Mo 23/24	- - -
Mo/Tu 3/ 4	21:06 - 1:50	Fr/Sa 14/15	23:09 - 3:36	Mo/Tu 24/25	FULL MOON
Tu/We 4/ 5	21:07 - 2:17	Sa/Su 15/16	23:50 - 3:36	Tu/We 25/26	- - -
We/Th 5/ 6	21:07 - 2:44			We/Th 26/27	21:15 - 21:32
Th/Fr 6/ 7	21:08 - 3:13	Su/Mo 16/17	0:26 - 3:37	Th/Fr 27/28	21:15 - 22:14
Fr/Sa 7/ 8	21:09 - 3:37	Mo/Tu 17/18	1:01 - 3:37	Fr/Sa 28/29	21:15 - 22:50
Sa/Su 8/ 9	21:09 - 3:37	Tu/We 18/19	1:34 - 3:37	Sa/Su 29/30	21:15 - 23:22
		We/Th 19/20	2:08 - 3:37		
Su/Mo 9/10	21:10 - 3:37	Th/Fr 20/21	2:43 - 3:37	Su/Mo 30/ 1	21:15 - 23:51

Weekend	Sun	Sun	Mercury	Venus	Mars	Jupiter	Saturn	
Sa/Su	Set	Rise	Rise Vi	Set Vi	Set Vi	Set Vi	Set Vi	Vi=Visibility
1/ 2	19:24	5:16	4:55 -	21:56 -3	21:03 5	21:57 -1	19:47 -	-3 brilliant
8/ 9	19:27	5:15	4:26 9	22:01 -3	20:55 6	21:35 0	Rise	0 conspicuous
15/16	19:30	5:15	4:06 6	22:03 -3	20:47 7	21:13 1	4:57 -	3 moderate
22/23	19:32	5:16	3:57 5	22:03 -3	20:37 8	20:51 3	4:33 9	6 naked eye limit
29/30	19:33	5:19	4:00 4	22:01 -3	20:27 9	20:30 5	4:09 5	9 binoculars limit

By Erich Karkoschka

### Object of the Month by Alfredo García, Jr.

Hard to believe that May went by so fast, but it did! I hope you were able to get out and do some observing as we were presented with some great, clear skies. It is June now and the onset of summer is upon us as well as the monsoons. But, if observing permits, I have chosen an OTM that marks the beginning of summer and is a splendid observing target.

I have decided to return to the nebula class of objects and select a particular type known as a planetary nebula. Despite their name, planetary nebulae have nothing to do with planets. They were named planetary nebulae by the early sky observers who first discovered them due to their appearance. To these astronomers they did not appear as stellar point sources, but rather as small diffuse objects that resembled the outer planets in our solar system such as Uranus and Neptune when seen through a telescope.

In reality, planetary nebulae are gaseous shells shed by stars late in their life cycles after they have used up all of their nuclear fuel. The star ejects a significant portion of its mass in a shell leaving an extremely hot central star that illuminates the matter. Planetary nebulae do not last long in cosmic terms and eventually the gaseous shell expands and diffuses. It becomes invisible leaving a central star that we see as a white dwarf.

The OTM I have chosen is one of the finest examples of these amazing planetary nebulae that our Milky Way Galaxy has to offer. It lies in the constellation of Lyra, the Lyre. It was discovered in January 1779, first by Antoine Darquier de Pellepoix and later by Charles Messier. It made Messier's list and became known as M57, or as it is more commonly referred today, the Ring Nebula. The popular name was given to the nebula because of its ring-like shape. This view is easily seen in telescopes of all sizes and more spectacularly in astrophotographs/CCD images. To me it resembles a smoke ring floating amidst the dark space background.

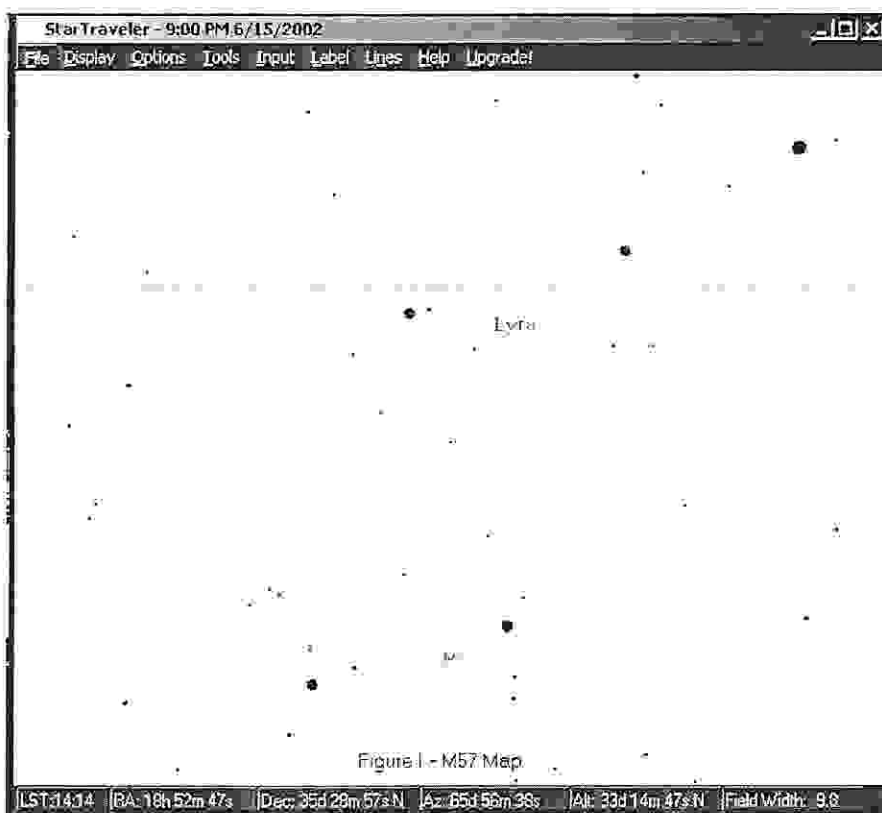
The accepted distance to the Ring Nebula is about 2,300 light-years. The gaseous shell is expanding at a rate of 20 to 30

### Object of the Month by Alfredo Garcia, Jr. (cont.)

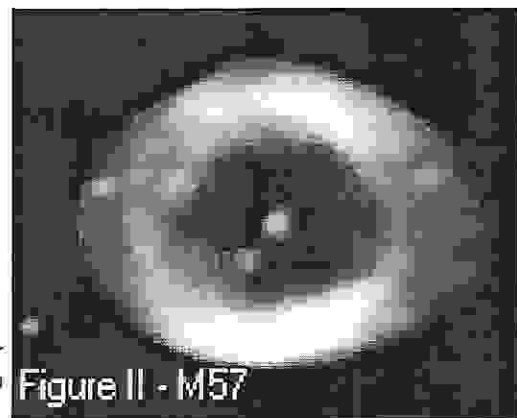
km/sec and approaching us at about 21 km/sec. The matter comprising the shell has a mass of roughly 0.2 solar masses and its apparent dimension of 1.4 arcminutes equates to a linear diameter of 0.9 light-years. So this is no small object!

The central star of M57 is very dim and has a magnitude of about 15. The German astronomer, F. von Hahn, first discovered it some 21 years (or around 1800) after the initial discovery of M57 itself. The star is a planet-sized white dwarf star that shines as brightly as our own Sun. It is the remainder of a sun-like star that blew away its outer envelopes as it progressed in its stellar evolution. This left a central star that presently has a temperature of over 100,000 K. It will shine as a white dwarf star for several billions of years to come then cool down and eventually end its life as a cold black dwarf star.

Since the stars that make up the constellation of Lyra are quite bright, finding M57 is easy to do with or without coordinates, but you do require optical aid. If you go out observing (from the Tucson area) around mid-June at about 9:00 PM and look between the east and northeastern sky you will find M57 at an altitude of about 35 degrees above horizon. M57 is not visible, however, to the naked eye (Size: 1.4 x 1 arcminutes/Magnitude: 8.8) and setting circles or an automated go to scope are the easiest ways to find it (RA: 18 : 53.6 (hr:min), DEC: +33 : 02 (deg:min)). If you do not have setting circles or an automated go to scope, you can find it quite easily with star hopping techniques. Start by locating the constellation of Lyra. Next, find the stars  $\beta$  (Beta) Lyr and  $\gamma$  (Gamma) Lyr. Draw a line between these two stars and M57 is a one-third of the distance between  $\beta$  Lyr and  $\gamma$  Lyr (See Figure I.)



The Ring Nebula is not only an excellent object visually through a scope, but it also an outstanding astrophotography or CCD imaging target. The "ring shape" is visually unmistakable through a scope, but when it is astrophotographed or CCD imaged, it becomes even more spectacular. When I first received my Starlight X-Press MX5C CCD camera, M57 became my first imaging target. I used my Meade 10" f/6.3 LX200 and produced the image at Figure II. It shows nice detail in the nebular shell and the dim central star is clearly visible. So if you get a chance to image this nebula, I recommend you do so. It will reward you with a fine image to proudly display.



So if the monsoon's permit and we get some clear, moonless early summer nights this June, go out and observe this wondrous nebula for yourself. You will not be disappointed.



**TAAA Board of Directors Meeting - May 14, 2002**

TAAA Board Meeting  
May 14, 2002

Board Members Present: Andrew Cooper, Terri Lappin, Thom Peck, Steve Peterson, Robert Callanan, Bill Lofquist, Jane Tongate.

Other members present: John Kalas, George Barber, Steve Rjatts, Paul Olson, JohnPaul Sosville.

Meeting opened at 7:07 pm.

Introductions of members present were made.

1. Additions to the agenda: Andrew asked for additions to the agenda. Items 8-11 were added.
2. Events: Andrew reviewed upcoming May events with the Board and handed out a list of events for June. There was discussion of whether there would be enough scopes.
3. Treasurer's Report: Terri handed out the club balance sheet for April. It was decided to invite our financial advisor to the June Board meeting to discuss investments. Discussed astronomy calendars for 2003, this was deferred to a later time. Member lists were distributed to the Board members only.
4. Land Search Committee: JohnPaul began reading a report on land search.. past efforts have been unsuccessful. He would like to resurrect the land search committee with George Barber, Steve Ratts and Andrew Cooper representing the Board. A discussion pursued on how to go about this and it was moved to reform the committee; moved by Robert Callanan and seconded by Thom Peck. Along with George, Steve, JohnPaul and Andrew, Terri will be included to provide past history of previous land search. Paul Olson presented a 12 question survey for the membership to assist in determining land needs. John Kalas added the consideration of the 30" telescope. JohnPaul will contact Dean Ketelsen for history information also.
5. Library and Surplus Books: Terri reported that 14 people showed to sort books at Robert Crawford's house. The books were sorted into three categories, to be appraised, to be sold and to be kept for reference. A book sale was favored, selling at a minimal cost.
6. Member's Night: Andrew reported that two presentations have been scheduled. There is still plenty of room for others. There will be an article in the June newsletter.
7. Lifetime Membership: Andrew handed out a proposal by Paul Olson. Paul would like to see a subcommittee formed to look at the impact on membership. There was discussion on this matter. Terri will consult with the accountant on tax issues.
8. Meade Award: John Kalas read a letter from Wendy Levy regarding the award of an 8". The Board discussed the option of an upgrade to 10".
9. Qwest: Terri read a letter regarding deadlines for listing the club in the yellow pages. Nothing additional will be done.
10. Responsibility Redistribution: John Kalas reported that he needs to unload some responsibilities, especially paid star parties. Options for redistribution were discussed and agreed upon. John also reported that this is his last Board meeting. John will solicit volunteers in the next newsletter.
11. Solar Eclipse June 10. This event is on the TIMPA calendar but is not an organized event. TIMPA will be open for members to observe if they wish.

Before adjourning, results from the May election were recorded given to the Secretary.

Meeting adjourned at 9:10 pm.

Respectfully submitted,

Jane Tongate  
Secretary

## Desert Skies Classified

- FOR SALE:** Arizona Observatory/Home/Land for Sale in Cochise County  
House: 28'x52' doublewide on 167 acres, fenced, well; underground utilities; r.v. site with full hookup; barn/garage. Observatory: 14'x14'; two panel roll off roof; adjacent warm room. Altitude 4500 feet. Telescopes: Two C-14's; one on Losmandy G-11 mount, with installed CCD camera from SW Cryogenics (Roy Tucker), 13.1" binocs. Contact Jim Kessel (jwkessel@mac.com) 520-384-3637 fax: 520-384-3282, 6650 Covered Wagon Road, Willcox, AZ 85643
- FOR SALE:** Kodak Model 4200 Carousel Slide Projector. About 10 years old, but in good working condition. Included is a new (unused) light bulb, 6 carousel trays, and a tripod-mounted projection screen. Selling price is \$75 for all items. Contact Charles T. Bridges, 520-321-1403 (home # evenings), 520-628-2078 x 116 (work # days), charles@dakotacom.net
- FOR SALE:** Meade ETX-90E 3.5" telescope. Includes AutoStar controller, deluxe field tripod, hard carry case, 2 eyepieces (26mm and 9.7mm), Barlow lens, moon filter, 8X25 right-angle finder, 8X21 erect image viewfinder, owners manual. New condition. Cost \$1300 in 2000, will sell for \$650. Call Wes or Rene Ellingson at 586-9292 (located in J-six area near Benson, AZ). (09/02)
- FOR SALE:** Celestron 80mm f/5 "Short Tube" wide view spotting scope (no mount). With mounting rings, tripod plate, and 6x30 wide field finder; no eyepieces or diagonal. Telescope can be easily mounted on a lightweight tripod for nice wide field views. \$100.00. Howard Lester 621-3451(work) or 885-5479 (home). (06/02)
- FOR SALE:** Meade 10" SCT Lx50 with standard Meade foam case. Asking \$1200 OR BEST OFFER. Phone# (520) 722-5351 (feel free to leave a message) Email: jtennantsprint@earthlink.net (07/02)
- FOR SALE:** 8" Meade Equatorial Starfinder. Like new. Optics star test very good. Battery powered clock drive. Includes Telrad finder, 40mm, 25mm, 10mm eyepieces, 2X barlow, and 5 colored filters for planetary viewing. Scope alone costs 600 new. Selling for \$450. I'm in Mesa, but can deliver to Messier Marathon in Arizona City this April. Call 480-924-5981. (07/02)
- FOR SALE:** Celestron SPC8W Schmidt-Cassegrain 8" telescope with equatorial mount, dual-axis drive and Advanced AstroMaster computer with V1.38 software. Includes: Three Eyepieces, 2x Barlow, T-adaptor, Mylar Solar Filter, Footlocker case for telescope tube, Case for mount, Heavy-duty wooden tripod, Asking price, \$1200. Contact Blair Kuropatkin at Blairy@earthlink.net. (07/02)
- FOR SALE:** Odyssey 1 13.1" Dobsonian mount reflector with Telrad finder. Three-volume Telrad finder star maps. \$1000+ invested, sell for \$690. Also includes the 8/98 issue of Sky & Telescope with a (very favorable) review of this telescope. Tim Roelike 794-0527 (wk.) 663-1518 (hm.). (07/02)
- FOR SALE:** 8" Odyssey Dobsonian with eyepieces, 12 years old in excellent condition. Asking \$400. Nima Smith, 743-1890. (07/02)

## Constellation Report by Chris Lancaster

# Lupus

## The Wolf

The entirety of this southern constellation just clears the horizon from Tucson's latitude. It straddles the meridian at 11pm at the middle of the month, and appears as a sprinkling of medium-bright stars southwest of the curving tail of Scorpius. Its modern image is that of a wolf, but in ancient times it was called Therion, an unspecified wild animal.

The first object in Lupus that comes into view is NGC5824, a globular cluster in the northwest corner of the constellation. This globular is both easy and difficult to find. Or a better way of putting it is to say it is easy to see, but difficult to recognize. It is fairly bright at magnitude 9.0 with a size of 6.2'. I was scanning its area with an 11-inch telescope and wondering why I couldn't see it until I realized that it was masquerading as a star! The center of this globular cluster is so densely cluttered with stars that at low power it looks stellar. At high power, the center becomes extended with a faint haze surrounding it. Unfortunately no stars are resolvable except perhaps through the largest of backyard telescopes, but its bright nucleus is quite impressive. About 10.5 degrees north of Beta ( $\beta$ ) Lupi (or the width of your fist held at arm's length) is a 5.5 magnitude star, and 1/2 degree SSE of this is NGC5824. More precisely, this globular is at RA 15h 04m Dec -33d 04'.

Moving 10 degrees to the southeast in the wolf's neck we find another globular that couldn't be more different than NGC5824, as there is no mistaking what this object is. This one is NGC5986, 2.8 degrees WNW of Eta ( $\eta$ ) Lupi, or RA 15h 46.1m Dec -37d 47'. Measuring a large 9.8" and a bright magnitude 7.1, this globular just at the limit of resolvability presents us with a mottled circle of stars. There is no distinct nucleus here, just a gradual increase of stars toward the center.

From a pair of globular clusters we go to a pair of widely separated planetary nebulae. In the northwest corner of Lupus is NGC6026, just under 4 degrees north of Eta Lupi. At between 150x and 200x magnification, this faint (magnitude 12.5) nebula shows a fairly large disk (50") and a central star. (RA 16h 1.4s Dec -34d 32'). As a side trip before visiting the other planetary nebula, we can look to a double star which is close by (just over 1 degree to the northwest.) Xi ( $\xi$ ) Lupi is an easy double for both large and small scopes. Here is a pair of white stars of spectral type A separated by 10.5", and each one is magnitude 5.5.

Now at the far western edge of Lupus is IC4406, our other planetary nebula which lurks among some scattered galaxies. High power should be used on this small, elongated nebula of magnitude 11 since its brightest, observable portion is almost stellar in appearance. The combination of smaller size and brighter magnitude means that this nebula is easier to spot than the other one, but high magnification is required to see it as a disk. You can find IC4406 4.7 degrees northwest of Alpha ( $\alpha$ ) Lupi, or RA 14h 22.4m Dec -44d 09'.

There is a small collection of galaxies in this same area of Lupus. The brightest is NGC5643, a round spiral galaxy measuring 4.5' x 4.0'. If you have found our preceding planetary nebula, IC4406, an easy way to find NGC5643 is to move 1.8 degrees due east (RA 14h 32.7m Dec -44d 10.4'). Otherwise move 2 degrees SSW of Eta ( $\eta$ ) Centauri, a 2nd magnitude star forming the northwest point of a triangle with Alpha and Beta ( $\alpha$  and  $\beta$ ) Lupi.

A couple of open clusters deserve mention, but are almost impossible to view here due to their far southern location. From Tucson, our horizon prevents us from viewing objects which are south of -57 degrees declination. These two clusters are situated near -55 degrees, so you might want to keep these in mind if you ever find yourself observing near the southern hemisphere. NGC5822 is a very large cluster covering 40', or almost half again larger than the width of the moon. It sits well within the southern summer Milky Way which is a rich star field to begin with. This cluster is a collection of 120 stars of magnitudes 9 to 12, making a combined brightness of magnitude 7.0. This cluster is 2.5 degrees SSW of Zeta ( $\zeta$ ) Lupi, or RA 15h 5.2m Dec -54d 21'.

NGC5749 is a diminutive cluster by comparison measuring 8' across, of magnitude 9, and containing stars between 10th and 11th magnitude. Move 2.3 degrees west of NGC5822 to find this one (or center your scope at RA 14h 38.9m Dec -54d 31').

Lupus can be a challenge to observe due to its southern declination, and it takes patience waiting for some of its objects to get high enough to easily view. But it contains some interesting objects which are well worth your time.

