

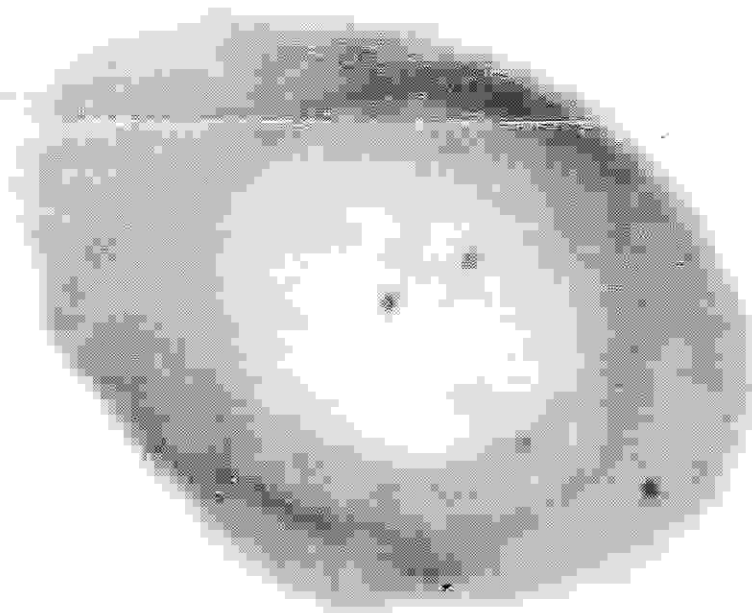


Desert Skies

Tucson Amateur Astronomy Association

Volume XLIV, Number 8

August, 1998



Ring Nebula M 57

Calendar of Events

BEGINNERS LECTURE: Friday, August 7, 6:30 pm at the Steward Observatory Auditorium - Room N210. This month's topic is *An Introduction to Angular Measurement* by Andrew Cooper.

GENERAL MEETING: Friday, August 7, 7:30 pm at the Steward Observatory Auditorium - Room N210. Topic is *"Seeing, Scintillation, Diffraction, Aberration and other nasty effects that blur your images"* by Dr. John Hill, Steward Observatory.

BOARD OF DIRECTORS MEETING: Thursday, August 13, 7:00 pm at Room N305 of Steward Observatory.

STAR PARTIES & EVENTS:

Aug. 22 - Empire Ranch

Aug. 28 - Cub Scouts at Catalina State Park

Aug. 22 - Kitt Peak, U of A Optical Sciences Dept.

Newsletter Schedule: Deadline for articles: Monday, August 17. Printing: Tuesday, August 25. Folding Party: Wednesday, August 26. Mailing: Thursday, August 27. The newsletter is scheduled to be in the mail at least one week prior to the following month's General Meeting.

Cover: James McGaha took this fabulous shot of the Ring Nebula (M57) on May 30, 1992 using the Kitt Peak 90" Telescope. The exposure was for 180 seconds through a red filter.

TAAA Home Page: <http://www.primenet.com/~lwilson/taaa/taaa.html>

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President	John Kalas	620-6502	jckalas@aol.com
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Star Parties	Karen Allen	749-5744	tildenkall@aol.com

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 solar system and beyond. 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.

Membership in the TAAA:

Regular membership	\$ 23
Senior (over 60) membership	\$ 21
Add for Family membership	\$ 5
Add for Astronomical League (optional)	\$ 3
Add for contribution to Southern Arizona Section of I.D.A. (optional)	\$ 3
Add for Sky & Telescope	\$ 27
Add for Astronomy Magazine	\$ 24

Rates for membership are given above. Family Membership includes two adults plus minor children. Members may subscribe to Sky & Telescope or Astronomy Magazine (or both) at the time of membership renewal, saving substantially over the regular subscription rates. To assure we understand what you are paying for, please identify which class of membership and what options you want. Send one check made payable to TAAA to cover both membership and magazine subscription(s) to:

Tucson Amateur Astronomy Association
Attn: Renewals
P.O. Box 41254
Tucson, AZ 85717

4. Write one check, payable to TAAA, and send it to the address given above.

Call the Treasurer if you have any problems.

Send Address Changes to:

TAAA
Attention: "ADDRESS CHANGE"
P.O. Box 41254
Tucson, AZ 85717

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. All submissions are retained by the editor unless prior arrangements are made. Partial page article submissions should be submitted in Word compatible files via e-mail or on a floppy disk. Full page articles, artwork, and photos should be camera ready. We will not publish slanderous or libelous material! Send articles, announcements, etc. to:

TAAA - Desert Skies
c/o John Kalas
3470 W. Red Bird Court
Tucson, AZ 85745

or e-mail: jckalas@aol.com

4 Easy Steps to Membership Renewal

1. Pay your dues 2-3 months early. Your month of membership expiration is listed on your newsletter mailing label.
2. Find your membership class and its rate. Add the Family Membership rate to this, if applicable.
3. If you desire membership in the Astronomical League or magazine subscription(s), add the appropriate amounts to your membership rate. If this is a magazine subscription renewal, include the renewal notice, if possible. Be sure to identify which options you are paying for.

Desert Skies is published monthly by the Tucson Amateur Astronomy Association, PO Box 41254, Tucson, Arizona 85717

President's Message

Great news! This issue of the Desert Skies has two new articles about constellations in our current evening skies. Chris Lancaster has submitted an interesting piece about Aquila which covers the legend as well as interesting objects to observe within the constellation. Andrew Cooper composed a nifty article about some rewarding objects to view in Hercules. These types of articles will become a regular part of the newsletter together with the informative observing report by Jeff Bridges. Much appreciation to all of them for their efforts to make our newsletter one of the best in the country.

Another item which I'm glad to report is that Laurel Dunlap has volunteered to take over the ALCOR responsibilities for the club. She will be the liaison between the Astronomical League and the TAAA. Laurel will also promote the A.L. within our club to encourage membership and participation in this worthy organization. More about the A.L. later in this newsletter.

The monsoon season tried to dampen and shut down the observing activities of the TAAA during July but it failed. Both sessions scheduled in July actually took place. Those hardy few who ventured to Empire Ranch on the 18th enjoyed a few hours of viewing and had the privilege of donating several pints of blood to the mosquito population

of Sonoita. Toward about 10:30 pm the dew and the clouds finally did us in. But on the 25th, it was another story. Obviously, many members had been suffering from observing "cabin fever" because the parking lot at the TIMPA site was packed. And the skies were fantastic; no clouds and very pleasant temperatures. The only "minor" drawback was that the Sonoita mosquitos must have notified their Tucson brethren of our activity. Insect repellent flowed freely. Throw in a couple of tarantulas and it made for a hoppin' night. There were several visitors in attendance with their new telescopes. Their eagerness to learn about their scopes and their appreciation for the experience of a truly excellent observing session was a satisfying reward for those TAAA members who took the time to help them. That is what the TAAA is all about!

To the future,
John Kalas

Editor's Note: Unfortunately, space constraints in this month's newsletter does not permit both new constellation articles to fit. Since Hercules is preceeding Aquila across the sky, Andrew Cooper's article will be included this month and Chris Lancaster's article will be in next month's newsletter.

Meeting Information

Beginner's Lecture:
"An Introduction to Angular Measurement"
Andrew Cooper

Just how big is an arcsecond and can I see it? An introduction to angular measurement... degrees, arcminutes and arcseconds. A little about Dawes Limit, the angular resolution limit of your telescope. And a test of just how small of an object your eye can discern.

Main Lecture:
"Seeing, Scintillation, Diffraction, Aberration and other nasty effects that blur your images"
Dr. John Hill, Steward Observatory

John Hill will be talking about atmospheric turbulence and how it creates seeing and scintillation (twinkling). The talk will include some mathematics and physics, but will also discuss how astronomers can counter these atmospheric effects on both large and small telescopes. John Hill is a great speaker, having talked to us before about multiple spectroscopy of clusters of galaxies, and more recently, the Large Binocular Telescope, of which he is director.

Club News

Astronomical League

The Board of Directors of the TAAA recently decided to set up a new group within the club to meet a requirement placed upon the club by the A.L. As most of you are aware, the TAAA struggled with the A.L. condition that all members of the club must belong to the A.L. Currently, about one-third of the TAAA's 300+ members have paid the \$3.00 annual dues toward A.L. membership. As an alternative to the A.L.'s 100% participation condition, the TAAA has formed the Tucson Astronomical League which will include all of the TAAA members who currently belong to the A.L. All future dues submitted to the A.L. will be under this new organization name. The officers of the new group will be John Kalas (President) and Andrew Cooper (Vice-President). As mentioned earlier in this newsletter, Laurel Dunlap has volunteered to be the ALCOR (A.L. Correspondent).

Hopefully, through Laurel's efforts, the number of TAL members will grow in the future.

Member News

We welcome the most recent members who have joined the TAAA: Stanley and Eva Spoor, Varun Singh, Jeff Henry, and David Pullan. Let's introduce ourselves and get to know each other.

Glenn Nishimoto will be in the lap of luxury as he stays overnight at TAAA star parties. Now Glenn has a neat camper van with all the amenities; foldout bed, refrigerator, stove, heater, pop-up top and the all important camper potty. Good luck with your new vehicle, Glenn.

Club News (cont.)

School Star Party Coordination

Karen Allen is the coordinator of the TAAA's very successful school star party service which is offered free-of-charge to all schools within TUSD and to many organizations in Tucson and the surrounding areas. Supporting astronomy education through this activity has been a community service commitment of the TAAA for many years. Over the years, due to the popularity of this service, the coordination activity has become increasingly demanding for one person to handle effectively. In an effort to streamline the responsibilities, there will be a meeting of all interested individuals during the week of 8/17. The purpose of the meeting will be to solicit suggestions from the attendees on how to delegate some of the responsibilities for actual star party coordination to a "key person" assigned to that star party.

With the new school year approaching, this activity will be gaining in activity level. There is always the need for additional volunteers to donate their time and equipment to this worthwhile service. If you would be willing to help, please advise Karen Allen (749-5744). Sharing basic astronomy information with school children and their families is one of the most rewarding and satisfying benefits of belonging to the TAAA.

Astrophotography Special Interest Group (SIG)

This activity has been somewhat dormant in recent months due to other commitments by its leader, Ray Wallace. Ray has advised the club that his schedule now permits him the time to support the group again. He is anxious to get the SIG's related activities started up again. Ray has proposed some interesting astrophotography activities which, if pursued by the group, should yield some unique presentations for the second half portion of future monthly meetings.

Construction at Steward Observatory

For the next couple of years, Steward Observatory will be surrounded by construction as a new underground building is put in at Cherry and University. We will keep you up-to-date on where you can park. The parking lot north of Steward at 2nd and Cherry will not be effected and is the best place to park. The parking lot near the Visitor's Center will always be available, but getting to it may be a challenge. For the next few months utility work will close Cherry from 4th St. to almost University making access from 6th St. impossible. Access to the Visitor's Center parking lot will be from Campbell, down University and then South on Cherry to the parking lot. The least affected handicapped parking will be on Hawthorne, just north of Flandrau Planetarium and the Lunar and Planetary Lab. Additional handicapped parking may be found in other areas, but getting to those spaces may be a challenge.

A Few Thank You's Are Due

As Treasurer, I feel it is my responsibility to inform our members of our recent fundraising successes and donations. During the last month, TAAA members brought telescopes to two different star parties. For their efforts, \$100 was given to us by the Arizona Aerospace Foundation for the star party at The Pima Air and Space Museum and \$50 was received for

the star party that was held for the congregation of All People's Synagogue. We have also received a generous donation of \$300 from one of our members. The TAAA also has 7 members making monthly contributions through the Automatic Donation Program, adding \$95 each month to the Land & Telescope Fund. We also received a donation towards Light Pollution that has been forwarded to the Southern Arizona Chapter of the International Dark-Sky Association. Thank you to all who donated their time or money. - Terri

From the Mailbag

Here are some things that recently landed in our PO Box. These items will be at the next meeting, so ask Terri about anything that catches your eye. Bold items are new this month.

Trips/Conventions

- Solar eclipse trip information (always new stuff coming in)
- Astrofest 1998 (Kankakee, IL - Sept 11-13)
- **Northern Arizona Star Party (near Prescott - Sept 18-19)**

Miscellaneous

- Hubble Library of Electronic Picturebooks CD-ROM (see article below)
- **CD/DVD: Impact: Ground Zero**
- Abrams Planetarium Sky Calendar subscription information (only \$9 a year)

Reports

- Minutes from the recent meeting of the Sonoita Valley Planning Partnership. Decisions at these meetings can impact Empire Ranch.

Catalogs

- We always have a selection of catalogs including Meade, ASP Conference Series, Novagraphics, Edmund Scientific, Swift Binoculars, Sky Publishing, Kalmbach Publishing, two Meteor Catalogs. There are many others.

Newsletters

- International Dark-Sky Association, Saguaro Astronomy Club (PHX), East Valley Astronomy Club (PHX), Phoenix Astronomical Society, Astronomy Club of Sun City West (PHX), Albuquerque Astronomical Society (NM), Salt Lake Astronomical Society (UT), Denver Astronomical Society (CO), Peoria Astronomical Society (IL), Warren Astronomical Society (MI), Milwaukee Astronomical Society, Von Braun Astronomical Society (Huntsville, AL), The Universe in the Classroom (ASP).

Hubble Library of Electronic Picturebooks CD-Rom

This is a CD-ROM (both PC and Mac) with nearly 500 space images, 25 minutes of exciting astronaut video, image captions, tutorials, maps, and essential reference material. There's 16 different Electronic Picturebooks. These are regularly priced at \$33.95 but we can get them for \$24 each if three more members decide they want one. (Minimum order for the price break is 10.) If you're interested, call Terri at 579-0185 or see her at the next meeting. For a sample of the Picturebooks, look at the following web site: <http://www.stsci.edu/exined/>

Star Parties & Events

Empire Ranch August 22 (Saturday)

The Empire Ranch has been our normal observing site for quite a number of years. Empire Ranch is at about 4000 feet, so be prepared for cooler temperatures and arrive soon after sunset. Stay as long as you like, but let everyone know when you're ready to leave. Someone may be taking astrophotos. Bring a telescope if you have one, but you don't have to have one to attend. Most of us would be glad to let you look through our telescope. There are no facilities at the site, so be prepared. One nice advantage of belonging to the TAA is the opportunity to observe among friends. Help in finding an object, or sharing of equipment always goes on at our star parties. If you haven't attend a star party yet, you're missing the best part of belonging to the TAA.

Kitt Peak - Optical Sciences Dept. August 22 (Saturday)

The TAA has been requested to supply 5 - 6 telescopes for the annual U of A Optical Sciences Dept. new student picnic. The event will start at 6:00 pm with the picnic dinner and proceed afterwards to observing for approx. 30 people. There will be a sign-up sheet at the August meeting.

Catalina State Park - Cub Scouts August 28 (Friday)

Approx. 5 telescopes are needed to accommodate a local Cub Scout den outing at the large group area in Catalina State Park for youngsters ranging in grade levels 1 through 5. There will be additional information and a sign-up sheet at the August meeting.

Dark Skies for August 1998

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	0:20 - 4:06	Mo/Tu 10/11	20:43 - 21:15	Fr/Sa 21/22	20:28 - 4:26
Sa/Su 1/ 2	0:58 - 4:07	Tu/We 11/12	20:42 - 21:55	Sa/Su 22/23	20:27 - 4:27
Su/Mo 2/ 3	1:40 - 4:08	We/Th 12/13	20:40 - 22:36	Su/Mo 23/24	20:25 - 4:27
Mo/Tu 3/ 4	2:26 - 4:09	Th/Fr 13/14	20:39 - 23:18	Mo/Tu 24/25	20:39 - 4:28
Tu/We 4/ 5	3:17 - 4:10	Fr/Sa 14/15	20:38 - 0:02	Tu/We 25/26	21:12 - 4:29
We/Th 5/ 6	- - -	Sa/Su 15/16	20:36 - 0:50	We/Th 26/27	21:44 - 4:30
Th/Fr 6/ 7	- - -	Su/Mo 16/17	20:35 - 1:41	Th/Fr 27/28	22:18 - 4:31
Fr/Sa 7/ 8	Full Moon	Mo/Tu 17/18	20:34 - 2:35	Fr/Sa 28/29	22:54 - 4:32
Sa/Su 8/ 9	- - -	Tu/We 18/19	20:32 - 3:32	Sa/Su 29/30	23:34 - 4:33
Su/Mo 9/10	- - -	We/Th 19/20	20:31 - 4:24	Su/Mo 30/31	0:17 - 4:33
		Th/Fr 20/21	20:30 - 4:25		

Weekend	Sun	Sun	Mercury	Venus	Mars	Jupiter	Saturn	
Sa/Su	Set	Rise	Set Vi	Rise Vi	Rise Vi	Rise Vi	Rise Vi	Vi=Visibility
1/ 2	19:19	5:38	19:59 -	3:48 -1	3:52 4	21:36 -3	23:19 0	-3 brilliant
8/ 9	19:13	5:42	Rise -	4:00 -1	3:46 4	21:08 -3	22:52 0	0 conspicuous
15/16	19:06	5:47	5:33 -	4:13 -1	3:40 4	20:39 -3	22:25 0	3 moderate
22/23	18:58	5:51	4:48 7	4:26 0	3:34 3	20:10 -3	21:57 0	6 naked eye limit
29/30	18:50	5:56	4:31 4	4:40 1	3:29 3	19:40 -3	21:29 0	9 binoculars limit

By Erich Karkoschka

Special Report

Grand Canyon Star Party Recap by Dean Ketelsen

The years tend to get fuzzier as time goes by, but my feeling is that the '98 Grand Canyon Star Party was just about the best ever! Certainly it far exceeded the previous year when bad weather and trail construction at Yavapai Point seemed to conspire against any sort of astronomy gathering. But this year the weather returned to the excellence we have come to expect at the Canyon over the years. And the crowds returned with a vengeance - we easily averaged 200 attending our slide shows every evening, and I heard rumors of people waiting for half an hour for a look through the huge 41" in attendance. So, all in all, except for some gale force winds on the Tuesday evening which shut down the viewing, it was a great week.

The 41" was a pleasant surprise - Dennis Young of Sedona notified me about 10 days before the star party that the scope and owner would be attending. It's owner - Mike Clements, was a real character and his telescope was out of the ordinary as well. Mike lives out of his truck on the road, looking for events such as ours to show folks the universe. The huge scope sets up in a couple minutes - the entire bottom assembly rolls down a ramp out of the truck and the side truss that holds the secondary and focuser assembly attaches quickly. Look for the image on the front of last month's newsletter, as well as a smaller image in this one. While the images could have been sharper, there is no substitute for aperture and some amazing views of galaxies and clusters amazed viewers far into the night. Likewise, Dennis' 28", newly dedicated at RTMC the month

Special Report (cont.)

before, also was a superb performer. Mike and Dennis pulled at least 2 all-nighters and any lucky observers passing by could have been kept busy for a long time sharing views between the two scopes.

But there were a few other amazing telescopes. Mike Spooner from Page brought his 9" refractor again (on the rumors that a 9" Clark would be attending) as well as his excellent 17" Dob. Mike has never been afraid to boost up the magnification some, and both scopes held up well to that scrutiny. I saw Antares green companion at about 400X with the refractor, and the view of Epsilon Lyrae's double-double barely fit in the field of view at that magnification! Likewise, his 17" Dob, boosted up over a few hundred power with an OIII filter gave stunning views of the Omega and Veil Nebulae. The other scope that really impressed me was Marilyn Unruh's 16", which provided some impressive views of some galaxies, again with relatively high magnification.

Besides the scopes, there were some pretty amazing astronomers too. Richard and Marcie Taylor, of Bakersfield, CA went to a lot of effort to set up their equatorially mounted 18" off the back of their truck every night. He had a little jib crane to help assemble the optical assembly, but the level of effort he expended every night to show off views deserves our commendation. Will and Margaret Devore drove for 3 days from Jacksonville, FL to spend the week with us before driving back. They started out as novices, but between the dark skies and plentiful advice from other amateurs they left us a lot more experienced with hopes to return in the future.

Our astronomer of the year award goes to Derald Nye this year - he set up his 8" scope nearly every day at the head of the parking lot giving anyone who cared to look some great views of the moon, Venus and some particularly excellent looks at Jupiter. Early one morning I witnessed at least 5 cloud bands on the oval disk of the gas giant - and don't forget that this was in daytime! Besides his daytime activities, he also set up most every night and was also one of the twilight speakers. He used a counter to monitor how many "looks" he provided - over 2,550 when combining day and night observing! Derald certainly epitomizes the spirit of volunteerism which makes this a great event. Thanks Derald!

Another award of dubious distinction that I first gave out last year - the study astronomer of the year award (first given to Dennis Young for hiking south rim to north rim with a telescope) actually had a couple of candidates this year. The runner up award goes to Stan Spoors of Rimrock, AZ. As you read this he is recovering from hip replacement surgery, but at the star party he could barely walk, but after getting dropped off by his wife he biked between the campground and observing site carrying his telescope in a trailer towed behind the bike! Look for his photo in this newsletter. The award of study astronomer of the year goes to Bernie Sanden. While the rangers all tell you that under no circumstances should you hike down to the river and back in one day, Bernie spent 3 days below the rim, making the river and back on two of them, then spending the evening showing off views of the universe with his scope and also giving one of the twilight talks. Wow - makes me tired just writing about it!

There were some spectacular daytime visual treats as well. After the windstorm Tuesday evening, Wednesday dawned as one of the most amazingly clear days I have ever seen at the Canyon. After spending several months there

(spread over several years) it was easy to notice how extraordinary it was, and noticed by several other observers as well. Additionally, the heavier spring rains really provided a bountiful display of Cliff Rose. Normally, these almost grotesque looking plants offer a couple yellow blooms but this year some were literally covered with blossoms. And the bike rides out on the west rim trail provided pleasant smells as well as visual treats as a result.

The star party allows us regulars the chance to catch up on friends we have made in the past. It was great to see John Dobson return for what must be his 4th consecutive year. In my first visit to the Canyon, I ran into him and the San Francisco Sidewalk Astronomers with some of their big scopes. John gave the twilight talk that night and I recall seeing M13 through the big 24" after standing in line for what seemed like forever. Thanks to him this star party had a great start and I am glad that he comes to help out in this continuation of his public crusade. It was also great to spend time with David and Elinor Levine, former TAAA members who moved to west Texas a few years back. David spent some long days at the rim with his Questar helping recruit new observers for the evening observing.

Well, the statistics are in - Arizona led in astronomer attendance with 28 (13 from Tucson, 9 from Phoenix). California had a respectable performance with 14, 5 from Texas and 3 from Florida. There were another half dozen or more from other scattered states. The twilight talks are extremely important in entertaining potential observers until it gets dark enough to observe. Many thanks to those helping with the effort which includes Wil Milan, John Dobson, Bernie Sanden, Tim Black (who deserves special recognition for giving his talk in the Tuesday gale with 3 guys holding down the screen), Darin Stephens, Andrew Cooper, and Derald Nye.

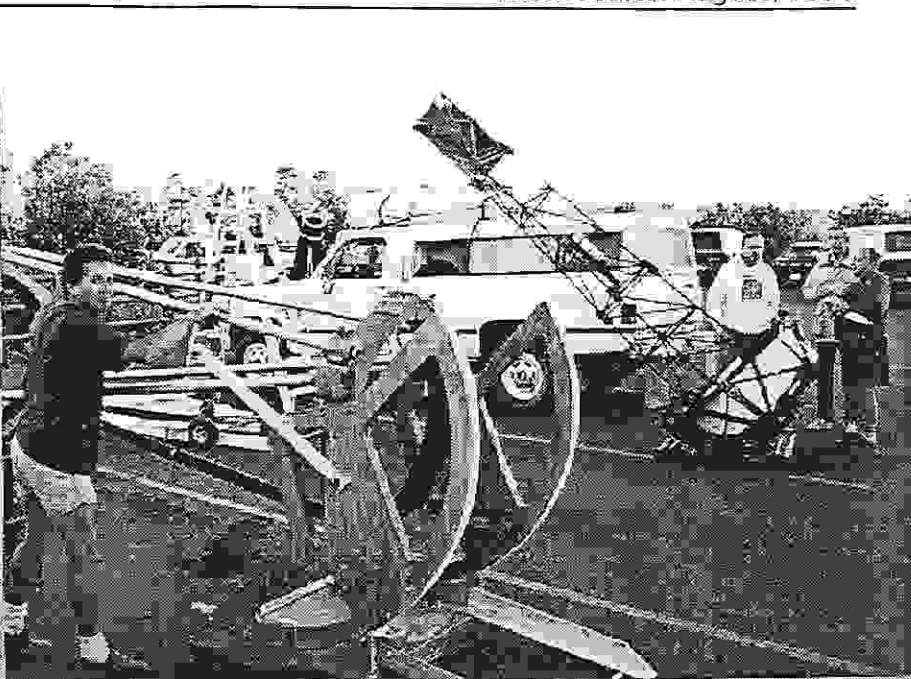
It was a memorable year and I could go on, but probably won't. The star party is a great time and I hope it becomes more popular among TAAA members. I am interested in passing off some of the work of the star party so I will likely put out a call for volunteers next spring. In the meantime, I expect the star party to continue in nearly its present form. Next year's dates are currently scheduled for 12-19 June, 1999. Of the people I polled for dates, there seemed some interest in including the crescent moon, so the star party will go from about a day before new to a day before first quarter. In addition, Mars will be very nearly at opposition, so there should be some good early evening objects to attract people's attention. I hope to see you there!

Captions for photos on next page:

(Clockwise from lower left)

1. Derald Nye was a fixture at the Yavapai Parking lot showing visitors Venus, Jupiter and the Moon during the day.
2. Stanley Spoors of Rimrock, AZ was an ironman, biking his telescope to Yavapai Point in this trailer.
3. Tim Black of Fort Worth, TX and Steve and Rosie Dodder of Phoenix check out a Schmidt-Cass.
4. Dennis Young of Sedona sets up his 28" while other attendees check out Mike Clements' 41".
5. El Nino spring rains made for a spectacular show of the usually subdued Cliff Rose bushes on the rim.

(All photos by Dean Ketelsen)



GRAND CANYON
STAR PARTY
1998

Items of Interest

Steward Observatory Public Evening Lectures

Steward Observatory has been hosting public evening lectures in astronomy for 70 years. The lectures for the Fall '98 semester will be held on Monday nights at 7:30 pm in room N210 of Steward Observatory. Following talks, there will be opportunities for viewing the night sky (weather permitting) with the use of the 21-inch telescope at the Campus Station of the Observatory operated by undergraduate majors in astronomy and related sciences. All of the lectures and the use of the telescope are free of charge and open to the public.

Fall '98 Schedule:

- Aug. 31 Dr. John Hill "The Large Binocular Telescope Project"
- Sept. 14 Dr. Neville Woolf "An Earlier Look at Earth-Like Planets"
- Sept. 28 Dr. John Cocke "Gamma-ray Bursters, Gravitation Theory, and the Nature of the Redshift"

Volunteer Docents Needed at Kitt Peak

By Ginny Beal

Docents are needed by the National Optical Astronomy Observatories (NOAO), the organization which operates the Kitt Peak National Observatory. This is an unpaid, Volunteer position.

Docents perform a number of duties: escort and guide visitors through the telescopes and facilities which are open to the public. Docent tour guides will learn basic information about the telescopes and related topics associated with the Observatories. Background in astronomy is helpful but not necessary. Docents are also needed to act as 'greeters' at the Kitt Peak Visitor Center by directing and providing information to visitors and to assist in the Gift Shop.

The tour guide shift is from 10 AM to 4 PM each weekday and on weekends. A time commitment of one six-hour shift per month is requested of Docents. Although a full day commitment is preferable, it is possible for Docents to commit to two half-day shifts per month. Transportation to and from Kitt Peak is provided.

The next formal training session is scheduled for October 1998, or inquire about informal training. For further information, contact: Ginny Beal, NOAO Outreach Coordinator, Phone: 318-8535, email: gbeal@noao.edu

The Southern Arizona Section of the International Dark Sky Association

The SA-IDA Meets on the second Wednesday of each month at the offices of the I.D.A. at 3225 North First Ave. (just north of Fort Lowell and just south of the Map and Flag Store. The office is in the courtyard, best parking is in the back). All are invited to attend and participate (no need to be a member. Its an open meeting with doors open from 5 to 7 PM. Refreshments and snacks are provided.

The next meetings are August 12, September 9, October 14, November 11 and December 9. Please plan to attend, we need your ideas.

What Have You Done for Light Pollution Control?

The members of the Southern Arizona Section of the International Dark-Sky Association (SA-IDA) would like to remind all those interested in astronomy in southern Arizona of their responsibility toward light pollution control. Setting an example for your neighbors is one way to start. You should fix your own outdoor lighting in such a way that they never glare directly at anybody, always pointing downwards, are not of excessive wattage and produce no light trespassing towards the neighbors around you.

In addition, you can help with community service by distributing literature on light pollution issues to businesses, neighbors, industries, city/county representatives and politicians.

You can contact IDA in Tucson (293-3198) between 12:00 and 3:00 p.m. for obtaining copies of the many handouts that IDA publishes relating to the various light pollution issues.

Unless everybody who is interested in astronomy gets involved and helps in light pollution control, even to the smallest degree, our skies will continue to get brighter making astronomy impossible and decreasing the quality of life for everyone.

Thanks,
Ed Vega

A.L.'s Starry Nights Festival

Greetings Folks! A reminder is long overdue. The second annual Starry Nights Festival is planned for October 16-17, 1998 in Yucca Valley, California. Again this year, we have a very impressive list of guest speakers including Ed Krupp, David Levy, Ashley McDermott and Leo Connolly.

Thanks to the efforts of the Town of Yucca Valley, we'll again have exclusive use of the Joshua Tree National Park, Black Rock Canyon Campground for excellent dark sky observing. In addition, we expect numerous astronomical vendors and superb door prizes. There will be a regional meeting of the International Dark-Sky Association with updates on the latest efforts to conserve energy and preserve the beauty of our night skies in southern California. The Western Region of the Astronomical League and the Western Amateur Astronomers will be holding a joint meeting at SNF.

If you'd like to register early, set your "www" search engines to "Starry Nights Festival" for an update on activities, prices and a registration form. Hope to see you soon.

Wishing you all clear skies and bright stars,
Bob Gent
Chair, Western Region, Astronomical League

Observing Reports

A CLUSTER VARIABLE

During August evenings we can peer into our Galaxy's crowded nuclear region. As we observe the Milky Way star fields in the constellation of Sagittarius we see that star clusters and nebulae abound along this spiral arm of the Galaxy. The famous Sagittarius nebulae of M8 "Lagoon", M17 "Omega", and M20 "Trifid" lie at distances of between 5,000 to 7,000 light years. The galactic star clusters of M6, M7, M23, and M25 are foreground objects much closer to us. The scattered stars of the M25 cluster lie about 2700 light years away. M25 is a rather unique star cluster because it contains a supergiant Cepheid variable as one of its stellar members. Only a few galactic star clusters are known to contain variable star members. U Sagittarii can be readily observed with small amateur equipment. An enjoyable project would be to follow U Sagittarii's light fluctuations over the next month.

As with most Delta (δ) Cepheid type variables, U Sagittarii is a huge star when compared to our Sun. The diameter of this star is equal to about 80 suns. At maximum this star has a luminosity of about 2000 suns, and a spectrum of F5Ib. Since U Sagittarii is the most massive star within this cluster it is under going internal structural changes as it ages. This cluster has been dated at about 89 million years of age. Visually U Sagittarii fluctuates from magnitude 6.3 to 7.1 in a $6\frac{3}{4}$ day period. So in a week's time you can watch it cycle through once. Several weeks of observation will help you to notice the classical Cepheid light curve pattern. In 1866 Julius Schmidt was the first to recognize U Sagittarii's variability.

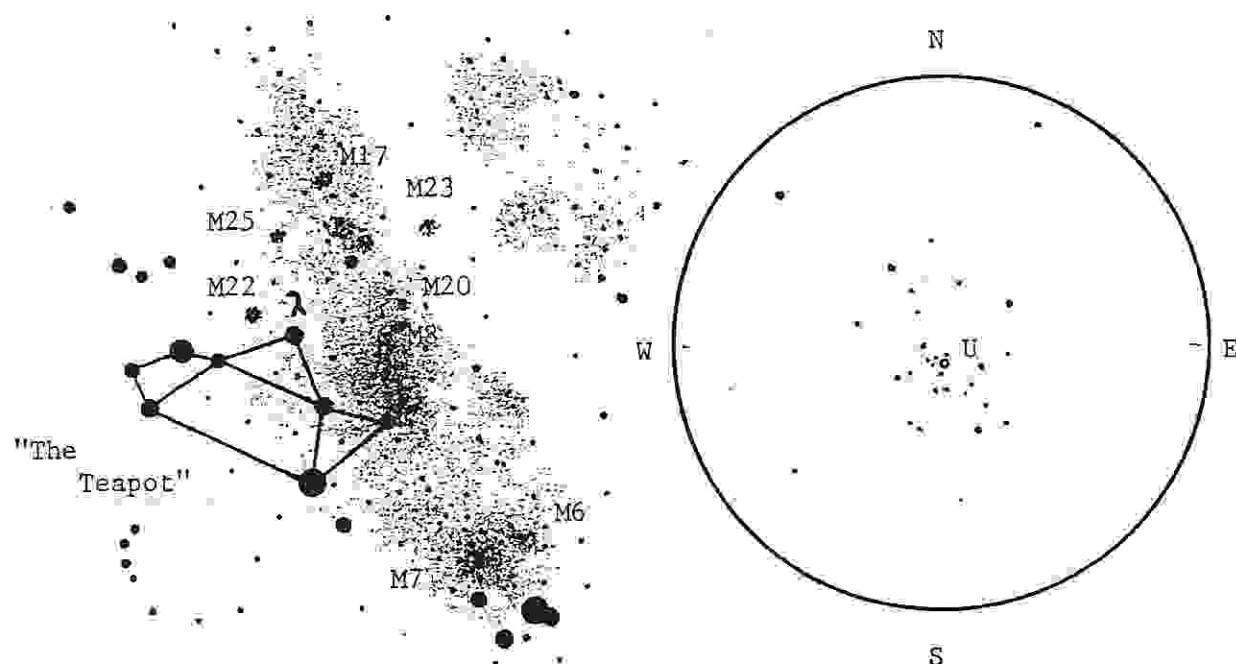
U Sagittarii is also a double star. S.W. Burnham was the first to note this pair in 1879, and it carries his double star designation of $\beta 966$. The $9\frac{1}{2}$ magnitude companion is $66.5''$ to the west-southwest at a P.A. of 253° . The projected separation of this pair is 40,000 A.U. or $\frac{2}{3}$ of a light year. This star is in all probability an optical pairing rather than a true binary system.

The cluster was first recorded by Philippe de Cheseaux in 1746. The French astronomer Charles Messier ran across it on the night of June 20, 1764, and he included it in his famous catalogue. At 5th magnitude M25 is an unaided eye object from darker sky locations. In a telescope M25 shows about 50 stars scattered over $\frac{1}{2}^\circ$ of sky. This $\frac{1}{2}^\circ$ apparent diameter is equal to a 20 light year true diameter.

To find M25, first look for the "Teapot" shaped constellation of Sagittarius located east of the familiar curving star pattern of the Scorpion, Scorpius. From Lambda (λ) Sagittarii, the top star of the teapot, move $2\frac{1}{2}^\circ$ northeast, toward the upper left to M22 a bright 4th magnitude globular star cluster. You may remain here for a while to savor this celestial sight. Now move north 5° to M25. A chart has been prepared so you can compare U Sagittarii to other non variable cluster members.

So do enjoy this cosmic rarity amidst the bright Sagittarius Milky Way star fields.

by Jeff Brydges



M25 in a 2.4" telescope at 35x.

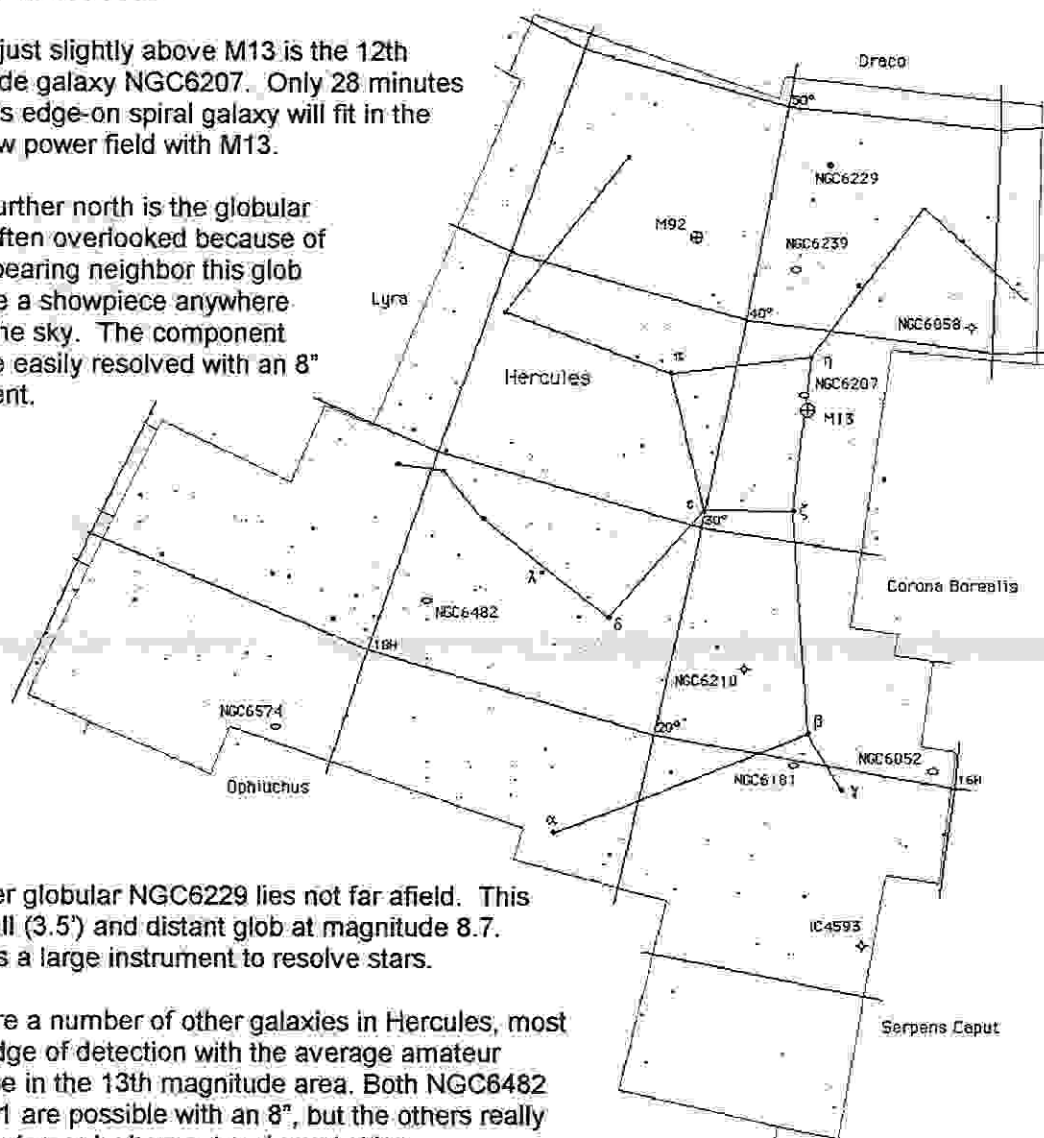
Constellation Report

Hercules

High in the midsummer sky this well known constellation offers many objects to observe besides the over-viewed M13.

Indeed, just slightly above M13 is the 12th magnitude galaxy NGC6207. Only 28 minutes away this edge-on spiral galaxy will fit in the same low power field with M13.

A little further north is the globular M92. Often overlooked because of its overbearing neighbor this glob would be a showpiece anywhere else in the sky. The component stars are easily resolved with an 8" instrument.



A smaller globular NGC6229 lies not far afield. This is a small (3.5') and distant glob at magnitude 8.7. Requires a large instrument to resolve stars.

There are a number of other galaxies in Hercules, most at the edge of detection with the average amateur telescope in the 13th magnitude area. Both NGC6482 and 6181 are possible with an 8", but the others really require a larger instrument and good skies.

Of more interest may be the several planetary nebula in Hercules. NGC6210 is a small but bright planetary (magnitude 9.7) near β Her. This planetary is not too hard to find and stands magnification well with a size of about 20". For a real challenge try IC4593, this planetary is only about 10" across and is difficult to tell from a star in the search field. Twelfth magnitude NGC6058 is over twice the size at 24", and more diffuse, a little easier to find.

While in the area be sure to not pass up α Her, a dramatic binary with a red-gold and bluish-green pair. This pair lies about 540ly away and has an apparent separation of 4.6". The reddish A component is variable, common for a red-giant star, oscillating from about magnitude 3 to 4 a few times a year.

by Andrew Cooper

TAAA Board of Directors Meeting - July 9, 1998

Location: Steward Observatory Conference Room N305, University of Arizona.

Call to Order: 7:05 pm

Board Members Present: John Kalas, Andrew Cooper, Ingrid Saber, Terri Lappin, John Polacheck and Dave Reynolds

Board Member(s) Absent: Bill Lofquist

Member(s) Present: Dean & Vicki Ketelsen, Patrick Price, Gary Rosenbaum, Bob Schwartz and Larry Wilson

Guest Speaker: J.J. Ruther of Buehler Capital Management

1. Grand Canyon Star Party - Dean Ketelsen presented an overview of the current phase of eight years of Grand Canyon Star Parties. Attendance is increasing, i.e. Derald Nye's telescope alone was used by 2,500+ visitors. Dean would like help from more club members. John Kalas offered to support Dean with a committee in future years. The next GCSP is scheduled for June 12-19, 1999.
2. Investment Update - Bob Schwartz, TAAA Financial Liaison, introduced Mr. J.J. Ruther who distributed performance reports which reflect a portfolio growth from \$47,585 to \$48,657.98 during the period of May 13 to July 8, an increase of 2.24%.
3. TIMPA Site Committee - John Polacheck introduced Patrick Price, a committee member, who is getting advice from an architect friend at the U of A. John Polacheck is being assisted in the planning phase by an acquaintance who is a contractor. Gary Rosenbaum is investigating atmospheric conditions at the site. John has had several meetings with the new TIMPA President to discuss cost sharing. John and Bob Schwartz met with Patricia Thomas of Pima County to review variance details and building permit fees. No major roadblocks to the project are evident. John Kalas responded to John Polacheck's hope that help will be forthcoming from club members by stating that he knows of many members who will support the TIMPA project with labor and volunteered services.
4. Door Prize Raffle - John Polacheck proposed again a motion to raise funds for the TIMPA site via a 3-month trial raffle of the best prize donated by Starizona each month. Opinions were voiced about how disruptive the extra raffle would be and about concern of taking advantage of Starizona's generosity. Voting in favor were Ingrid Saber and John Polacheck. Opposed to the motion were Andrew Cooper, Terri Lappin and Dave Reynolds. The motion did not pass. Terri mentioned the possibility of a larger raffle, such as that of the Audubon Society, with \$10.00 tickets and a cruise as the prize.
5. Astronomical League - The A.L. is requiring that our newly formed group, the Tucson Astronomical League, have two officers and separate meetings. John Kalas and Andrew Cooper will fill the president and vice president roles, respectively. Laurel Dunlap has volunteered to serve as ALCOR.
6. TAAA Library - Sam and Phyllis Turner have offered to become librarians. They have prior experience in this area.
7. Donations to the I.D.A. - Dan Knauss, TAAA member and attorney, has advised the club that there are no barriers preventing the TAAA from transferring contributed monies from its Light Pollution Control Fund to the I.D.A. Terri will reformat the TAAA brochure and the membership form to allow for voluntary donations to this fund.
8. Steward Lecture Hall Computer Upgrade - A proposal has been received for the TAAA to add a ZIP drive to the lecture hall computer to facilitate the uploading of CCD images. Several possibilities were discussed. Terri Lappin will review this proposal with the appropriate U of A personnel.
9. Board Meeting Minutes in the Newsletter - Ingrid Saber expressed her desire that the minutes published in the newsletter be composed by the association's secretary because it is assumed that this is the individual writing them. The newsletter editor agreed to allot sufficient space each month for this purpose.

Meeting Adjournment: 9:45 pm

Desert Skies Classified

FOR SALE: Nearly complete set of Sky & Telescope magazines from 1958 - 1984, bound in 24 volumes with a few loose issues. Make an offer. Contact Jim De Veny at 318-8390 (W) or 323-0936 (H) or e-mail: deveny@noao.edu. (10/98)

FOR SALE: Besseler Dichroic Enlarger with Gray Lab timer and power supply. Includes two lenses and 35mm slide holder. All for \$550. Call Duane Neihaus at 529-7767. (8/98)

FOR FREE! Wood tube and rocker box (Dobsonian mount) formerly used to house a 10" Schiefspiegler. Good start for any Dobsonian mount of your own. FREE, but please come and pick it up ASAP! Dick Buchroeder, 884 9800, rab@azstarnet.com (11/98)

FOR SALE: C5+, tripod, acc'y tray, Telrad, Dec motor, hand controller, JMI Moto-Focus, Celestron Advanced AstroMaster computer, 26 mm Plossl. Like new, used twice. \$1850. On display at Starizona - 5201 N. Oracle Rd 292-5010 or call Dave Reynolds 579-7337 evenings. Dave also has many household and personal items for sale. He will have the details at the August meeting. (11/98)

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 John Kalas at 620-6502 or e-mail at jckalas@aol.com.