



Desert Skies

Tucson Amateur Astronomy Association

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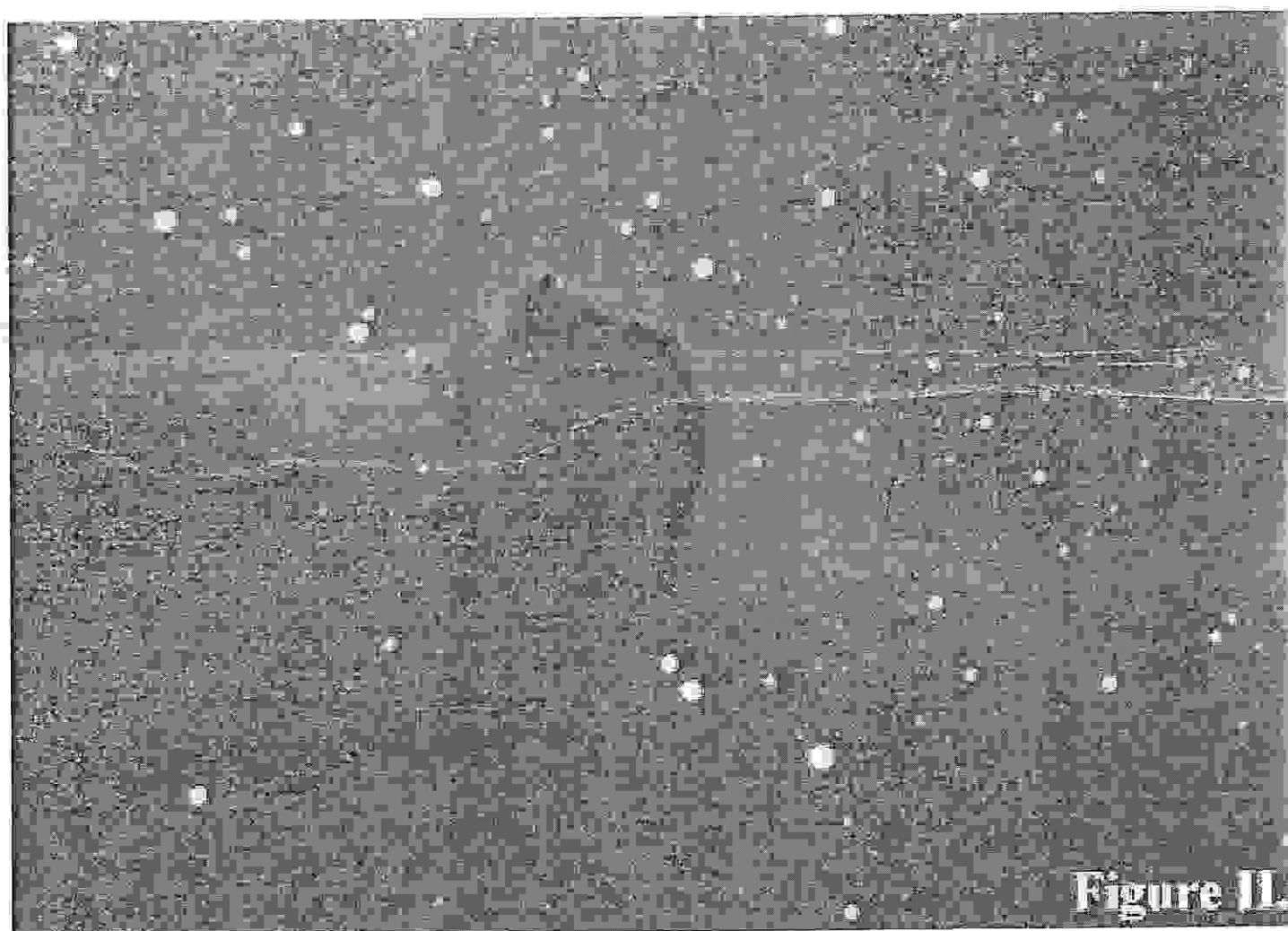


Figure 11.

The Horsehead Nebula in Orion

Cover Photo: The Horsehead Nebula by Alfredo Garcia, Jr., using a Starlight X-Press MX5C CCD camera and 127mm f/5.6 Orion Short Tube Refractor piggybacked on an 10" f/6.3 LX 200 (8-minute exposure)

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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. All material copyright Tucson Amateur Astronomy Association or specific author. No reproduction without permission, all rights reserved. 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

President's Message

It may be winter, and there is supposed to be an El Niño event going on in the Pacific, but we have had great skies lately. I hope you have had an opportunity to make use of them! I heard that the January TIMPA event was well attended, so there must be some of you that don't mind the cooler weather.

The rapid progress at TIMPA has not slackened this month. We finished running the power to the observing pads and laid out the forms for two more pads. At the moment there are two pads available for use, with access and power all set up and going. Many thanks to those who came out and helped! It looks like one more work party will finish the immediate goals, set up the forms for a couple more observing pads and get concrete poured in.

We have a full schedule of school star parties again this month. I hope you can find a spare evening or two to help out with this program. Jupiter and Saturn grace the evening skies this month making these school events so enjoyable. Even in the city these planets let us bring a sight to remember to anyone, be it a virgin eyeball or one of us jaded veterans. Nothing like the ringed planet to create a smile, even if I get accused, usually jokingly, of putting a picture in the telescope at least once a star party.

See you out in the dark!

Andrew

Meeting Information and Calendar of Events

TAAA MEETING DATE: Friday, Feb 7 at the Steward Observatory Auditorium - Room N210

BEGINNERS LECTURE: 6:30 pm

Title: The TAAA for 2003

Speaker: Andrew Cooper

Our club president will be giving a rundown of what our club is doing, what programs the club has to offer and what our plans are for the next year. This should include details on the TIMPA project, the land search committee looking for an even darker site, coming events we have planned, astronomical league programs and more.

GENERAL MEETING: 7:30 pm

Member's Night

Tonight the floor is reserved for you, the club membership, to give short presentations on any subject that deals with the field of astronomy. Time slots are given in first-come, first-served order. Contact Andrew Cooper at taaa@seds.org to get your name on the list of presenters.

BOARD OF DIRECTORS MEETING: Wednesday, Feb 12
7:00 pm at Steward Observatory Conference Room N305

STAR PARTIES AND EVENTS:

- 1 Feb - TAAA Star Party at Las Cienegas
- 2 Feb - UofA Astronomy Students Star Party
- 5 Feb - Holladay Magnet School Star Party
- 6 Feb - White Elementary K-5 Star Party
- 7-8 Feb - Flandrau Science Center Star Party
- 11 Feb - Pueblo Gardens Elementary Star Party
- 12 Feb - TAAA Board of Directors Meeting
- 13 Feb - Wakefield Middle School Star Party
- 13 Feb - Astro-Photo Special Interest Group
- 15 Feb - TIMPA Work Party
- 18 Feb - Ironwood Elementary School Star Party
- 22 Feb - Whipple Observatory Star Party
- 22 Feb - TAAA Star Party at TIMPA
- 25 Feb - Desert View High Star Party
- 26 Feb - La Cima Middle School Star Party
- 1 Mar - TAAA Star Party at Las Cienegas
- 5 Mar - Cross Middle School Star Party
- 6 Mar - Lulu Walker Elementary Star Party

NEWSLETTER SCHEDULE: Deadline for articles: Mon, Feb 17. Printing: Mon, Feb 24. Folding Party: Tues, Feb 25. Mailing: Wed, Feb 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 to join the TAAA: Thomas R Andrews, Mike and Grace Bross, Marvin Chapman, Edward Doran, Judy Drury, Jeff Hedspeth, Brian O'Connell, and Jim Shultz. Glad to have all of you join! New members should 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.)

Astro-Photo Special Interest Group

13 February 2003

China Rose, 7pm, NE corner Speedway/Rosemont

As normal, we'll again be meeting in the China Rose "Sky Room" on the Thursday after the regular TAAA meeting. It is a great relaxing venue to show off your recent astro-photos, or see what others have been up to over some great Chinese food. There have been a wide variety of images lately, from simple tripod shots to advanced CCD images, so no matter what your level of expertise or interest, there will likely be something for you to enjoy. Come join us!

Club News (cont.)

Refreshments

Refreshments are in jeopardy. No body has volunteered to serve as Refreshments Host for two months. The signup sheet will once again be in the meeting room near the door for anyone to sign up. We are seeking Refreshments Host for the next few months, so please consider providing this valuable service to our members. Sign up for a single month if you prefer.

Refreshments Host brings cookies, soda, ice, and whatever other supplies are needed to the meeting. They set out the refreshments shortly before the main lecture ends and then cleans up after the feast is over. The TAAA reimburses expenses up to \$25.

Flandrau Science Center Star Party

February 7-8

Jupiter Near Opposition: Public Viewing Event. Here are two chances to show the general public Jupiter, Saturn, the bright winter sky and a thick crescent Moon on the UofA mall with the folks at Flandrau Science Center. Jupiter is close to opposition, and the UA basketball team is not playing in Tucson, making this a good opportunity for public outreach. Join Flandrau Science Center on Friday, February 7 and Saturday February 8, 2003 from 6:30 p.m. to 10:00 p.m., weather permitting (set up recommended at 6-6:15 p.m., no later than 7 p.m.). Flandrau Science Center will need lots of volunteers for the two nights of celestial viewing to handle the expected large crowd on the grassy mall in front of Flandrau. Lights on the mall will be specially turned off for the event. Parking on the grassy portion of the mall near or at the observing area will be only allowed with permission, in advance. If you intend on helping out (or have special parking needs) please let Michael Terenzoni at Flandrau know via e-mail (miket@ns.arizona.edu) or phone (621-3646). A sign up sheet will be available at the February meeting.

Solar Telescopes Needed

By John Kalas

A little history... Back in November, a gal from Raytheon organized a highly successful one-day Math & Science FunFest at Veniana Vista Elementary School. It consisted of a wide variety of companies, government agencies and institutions (UofA and PCC) setting up demonstrations and exhibits around the school campus. The students circulated to as many exhibits as they could during the entire school day. I participated as a representative of the TAAA and set up a solar telescope and a display table with another gent from Raytheon.

The activity was such a huge success that the coordinator sought to develop the idea into an event that could reach many more students in southern Arizona. She has arranged that the Math & Science FunFest be held again, only this time in a much larger venue at the Tucson

Convention Center in conjunction with the annual Southern Arizona Regional Science & Engineering Fair (S.A.R.S.E.F). The activity is scheduled for two days, Thursday and Friday, March 20th and 21st from 9:00 am to 2:00 pm. The coordinator would love to have the TAAA participate again in this larger format. Since there will be many more students involved in this big event, it would be difficult to solicit large numbers of solar telescopes, particularly on a weekday. It would be nice to have each student look through the eyepiece, but it may not be practical. Instead, a few telescopes equipped with video cameras could project the images onto large TV monitors and service a much larger audience. Video cameras, like the Meade Electronic Eyepiece (\$89.), could be utilized to capture the images. We might even be able to get an electronics store to loan us some large screen TV's. It's just a thought.

I have offered to help coordinate the solar observing exhibit. Being that this is not a weekend activity, it may be difficult for some TAAA members to get the time off from work to support this event. If anyone would be interested in participating in this activity, please contact me at 620-6502 or via e-mail at jckalas@aol.com.

Science Fair 2003

The TAAA board will discuss our participation in the Southern Arizona Region Science and Engineering Fair 2003 at our next meeting. In the past we have awarded students who enter excellent projects in the field of astronomy or optics. We need at least two TAAA members to view the projects and select one project per age group (3 awards - Elementary, Middle, and High school grade levels) that is worthy of our recognition. The science fair judging takes place on Tuesday, Mar 18th. Usually a couple (or three) TAAA members look over the lower level projects in the morning and then interview the high school students (they are present from 1:00 to 3:30pm). This all takes place at the Tucson Convention Center. Few TAAA members would argue our dedication to young people considering the number of school kids we reach each year through our school star parties. This is a way we can encourage individual students who show promise in the field of astronomy or optics. I've always enjoyed reading over the projects and awarding those that stand out above the rest. If you can serve as a judge, or if you have questions (or need your arm twisted a bit), please contact Terri at 579-00185 or tklappin@earthlink.net. No formal science training is needed, just an interest in youth.

We Thank Our Members

Last year, when many non-profits suffered from decreased donations, our members came through for us. Many made generous donations of their time attending star parties for both school kids and convention groups. Those that supported the convention groups really helped our efforts at TIMPA. Funds received from the convention

Club News (cont.)

activities are earmarked for the TIMPA development. Lots of thanks to John Kalas for making sure our convention star parties are covered. (Already this January he has arranged star parties that will bring in over \$900! If you can help him by bringing your telescope to one of these events, be sure to let him know you are available. Many of these events don't make the newsletter!) There are many TAAA members talking to kids in the classroom through their work with Project ASTRO. We also had the wonderful support of our elected and appointed officials who keep things going smoothly for our members. There are lots of other ways our members have offered donations of time and we greatly thank every one of you.

The only negative thing we've experienced this past year is a slight decrease in membership, which has dropped by 3% since January 2002. (Currently we have 373 members.) This is the first long term decrease in membership we've seen in years. A number of our winter visitors have decided they can't afford to spend the winter in Arizona and have chosen to not renew their membership. This accounts for some of this decline. Hopefully this decline will level off in the next few months.

Donations of money totaled \$2117.60 in 2003, which is an increase of 16% over what we received last year from

our members and friends! A large part of this total was donated through our "Automatic Donation" program. This is a method for members to make monthly donations to the TAAA without writing a check. It's easy on you and the TAAA gets a monthly donation in your name. (If you want information about this program talk to the Treasurer.) We will soon be mailing letters for tax purposes to those who gave in excess of \$50 in donations. (Dues, magazines, and the TAL fee are not considered donations.) If you believe you donated and don't receive a letter, contact the Treasurer. The donations received last year are broken into the following funds:

General Fund	\$321.50
TIMPA Project	244.00 *
Education Fund	145.00
Light Pollution Fund	392.10
Land & 30" Telescope Fund	1007.00
Library	8.00
Donations by members/friends	\$ 2117.60

* Does not include money from convention star parties

We surely overlooked someone in this article and we apologize. We thank everyone who contributed something to the TAAA. We look forward to a successful 2003!

Items of Interest

WEBSITES: TRIPS ON THE INTERNET SUPER-SKYWAY

"HEY BOYS AND GIRLS, WHAT TIME IS IT?"
by Rik Hill

Have you been out observing and seen that unusual event but not had accurate UT readily available? Have you tried to divine the secret code of the Julian Date? Do you know the Sidereal Time...right now? Well there are a number of tools available on the web to help you know these things at any given moment.

Universal Time is available at many sites. The ALPO has a

direct link to the U.S. Naval Observatory and shows 20 seconds of UT on its main web page at

<http://www.lpl.arizona.edu/alpo/>

if you need more time just hit the "refresh" or "reload" button for another 20 seconds. This time is accurate to better than one second and thus good for most purposes. If you want to go to the source for this time you can go to:

<http://tycho.usno.navy.mil/what1.html>

This will be a bit more accurate as the route is usually more direct. National Institute of Standards and Time

STARIZONA

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Items of Interest (cont.)

(NIST) has a website with a lot of time information including a link to WWW, WWVH and WWVB at

<http://www.boulder.nist.gov/timetreq/service/its.htm>

The current time with a nice world day/night map is linked at

<http://nist.time.gov/timezone.cgi?Mountain/s/-7/java>

but you can't be behind a firewall for this to work. If you are computer savvy you can obtain more accurate time by downloading the Network Time Protocol software at

<http://tycho.usno.navy.mil/ntp.html>

This will put your computer in direct communication with the USNO Master Clocks and will adjust your computer clock to better than 30 milliseconds. However, if you are behind a firewall you will have problems with this. Read the information on the page above.

In variable star observing they have abandoned the earth based Gregorian calendar and use Julian Date (JD) that is a count of time since January 1, 4713 B.C. This day begins at noon GMT or UT and if expressed as a Gregorian date is called Greenwich Mean Astronomical Time or GMAT. So Feb. 1 GMT will be half over when Feb. 1 GMAT begins and the Julian Day of 2,452,672 begins. There are two nice converters for JD at:

<http://www.macho.mcmaster.ca/JAVA/JD.html>
<http://aa.usno.navy.mil/data/docs/JulianDate.html>

Both work equally well. I use them when making variable star reports. Much better and faster than the 1960s and 1970s method of using a calendar and tables for fractions of a day!

Unix/Linux users can download a nice little widget that will compute Julian Date on your machine at:
<http://prdownloads.sourceforge.net/jday/>

For Linux/Unix users there's a nice bit of freeware at

<http://melhuish.info/simon/projects/download.html>
 called SClock. Once loaded into your system it creates a nice little widget digital clock that continually shows you the sidereal time. O.k., now what's the star time, or Sidereal Time? One of the best websites for this is again at the USNO.

<http://tycho.usno.navy.mil/sidereal.html>

You don't even have to know your latitude or longitude as it has many cities in its database. If you want more localized control, at:

<http://astronomy.physics.tamu.edu/download/>

there is Astronomy Clock which will display on a PC, both Universal Time/Date and Local Sidereal Time.

Lastly, there is a page with every kind of time system you can imagine, available for use or download. There's 3-D clocks, Doomsday clocks, a Bill Gates Wealth Clock, World Clocks and a Zym Clock (whatever that is!)

So now you have all the time in the world!

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

Steward Observatory Public Evening Lecture

Since 1924 Steward Observatory has hosted public evening lectures in astronomy. The Steward Public Evening Lectures are held two Mondays each month when classes are in session. The Spring 2003 schedule is provided here and can also be found at http://viking.as.arizona.edu/~taf/pubeve/pub_lect.html. The lectures are held in the Steward Lecture Hall (N210), the same room we hold our meetings. Following each lecture, the 21-inch telescope will be available for viewing the night sky (weather permitting). The lectures and the use of the telescope are free of charge and open to the general public.

Date	Speaker/Topic
Feb 24	Dr. Robert Kennicutt The Accelerating Universe: Problem Solved or Problem Revealed?

Mar 10	Mr. David Levy Reflections on Four Decades of Comet Searching: (Reception/book signing following lecture)
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Mar 24	Dr. George Coyne Galileo Still Haunts the Church
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Apr 7	Dr. Joan Najita (TBA)
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Apr 21	Dr. Xiaohui Fan End of the Cosmic Dark Ages
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New Vistas In Astronomy

Lectures in Astronomy Free to the Public In the Santa Cruz Valley

The Fred Lawrence Whipple Observatory takes pleasure in presenting its 33rd year of public lectures on astronomy and astrophysics for the Southern Arizona community. The series presents recent discoveries in astronomy, local research projects, and modern methods used to explore the universe.

Thursday, February 13, 7 p.m. (note evening time)
 Hectospec: 300 Eyes on the Sky
 Szentgyorgyi, Harvard-Smithsonian Center for Astrophysics
 Please note that the dates and times vary.

Items of Interest (cont.)

All lectures are held in the Green Valley Recreation Center West Auditorium, Green Valley, Ariz. Each 45-minute illustrated lecture is non-technical and intended for the interested layperson. A question-and-answer period follows each lecture. Admission is free and open to the public. For more information, call the Whipple Observatory Visitors Center at 670-5707.

Annual Spring Meeting of AAVSO

The American Association of Variable Star Observers (AAVSO) is having its annual spring meeting in Tucson on April 22 thru 27, 2003. Details of the meeting items, topics, and registration forms will be posted on their Web site <www.aavso.org> in the near future. David Levy and Dr. Tim Slater will be acting as co-hosts for this meeting.

Desert Sunset Star Party - May 1-4, 2003

Registration is now online for the Desert Sunset Star Party. Please check our website (<http://chartmarker.tripod.com/sunset.htm>) for details about this new star party and to get your registration forms. We have speakers who will talk on a variety of subjects such as identifying stars, supernovae, Mars and the weather in the Southwest. We will have vendors present and door prizes, and a contest for the best Simple Astronomy Tool (SAT). We also have lots to do during the day and have scheduled tours to Mt. Hopkins (Whipple Observatory), BioSphere 2, and the Univ. of AZ Mirror Lab. Catered meals will also be available. If you do not have web access, please contact a club member to get the forms. We hope you will be able to join us.

Chart Markers and More
Pat and Arleen Heimann
<http://chartmarker.tripod.com>

LIGHT POLLUTION ACTION

Through the years, TAA members have listened to seemingly endless discussions of light pollution, loss of the night sky, and the unceasing campaign to preserve the nighttime environment for all earthlings. Perhaps TAA is the best-educated astronomy club in the country on the topic of outdoor lighting, because we have so much at stake in the astronomical community. How we use our awareness and express our concerns is one proof of our cosmic connections close to home.

International Dark-Sky Association (IDA), with deep roots in Tucson, via Tim Hunter and David Crawford, is the catalyst for worldwide action on quality outdoor lighting. Southern Arizona Section of IDA is the local base for education and action in Pima County and metropolitan Tucson. Several members of TAA are very active in SA-IDA, including John Polacheck, Brian Skinner, Bob Callan,

and Darryl Nye, among others. Ask these "front-line warriors" how education, linked with recent developments in lighting technology, can promote enforcement of local codes that protect our dark skies for all citizens.

As a major tool in saving the stars, Pima County has adopted a new outdoor lighting code, and this code is now in effect. Of course, we need your help in calling for strict enforcement of the new code. If there is a problem light in Pima County that bothers you, relay the information to SA-IDA at the section's e-mail address (info@sa-ida.org). If you want to learn more about the activities of SA-IDA or participate in lighting tours of Tucson, check the internet at www.sa-ida.org. Usually the Southern Arizona Section meets on the second Wednesday of each month at IDA headquarters. This is your opportunity to meet with other activists and to have your opinions heard in making a difference where you live and observe.

You know what "glare" and "light trespass" are; now go forth with your knowledge and complaint forms to protect your back yard, TIMPA, and TAA's future dark-sky site. And clear your calendar for IDA's Annual Meeting in Tucson March 20-23. And stay tuned for "dark-sky week", April 1-8 for more local events showcasing quality outdoor lighting. For more information refer to www.darksky.org, your international source for saving the stars.

Grand Canyon Star Party

21-28 June, 2003
North and South Rims

Greetings all! Now that the new year is upon us, it is again time to make plans for this year's Grand Canyon Star Party. Why the rush to start thinking about attending, you ask? It is because it is very difficult to find motel rooms if you put it off, so unless you are the hardy camping type, you should think about it early and make reservations while you can.

This year's event has been pushed back a little later than we've ever had it in June, and we risk some pre-monsoon clouds, but I've always heard complaints from folks when we have it early in the month because their kids are still in school, so we are pushing it back a bit. The Canyon will be crowded and the sky dark, so make those plans now. By the time you read this, the website should be updated with the latest information, including phone numbers of places you can make reservations. That website, of course, is www.tucsonastronomy.org/gcsp.html. And you can always contact me for information as well. For those of you who've been camping with us the last few years, I do expect to receive a number of campsites again to distribute to those staying the full 8 days (Saturday thru Saturday) with us. Signup for those will again be in March, so check for further information in the March newsletter.

Dean Ketelsen, 293-2855 <ketelsen@as.arizona.edu>

Star Parties and Events

NOTE: These star parties will take place before the February monthly meeting.

TAAA Star Party at Las Cienegas (Empire Ranch)
Saturday, 2/1/03

Las Cienegas (formerly Empire Ranch) has been our normal dark-sky observing site for quite a number of years. Please try to arrive before sunset. Stay as long as you like, but let everyone know when you are ready to leave; someone may be taking 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. Expect very cold temperatures this time of year. Attendees should park their vehicles either perpendicular to the airstrip facing toward the center of the strip, or parallel to the airstrip along either side facing west. That way, when you are ready to leave, you will not have to back up and turn on your bright white backup lights. See the directions to Las Cienegas on the outside flap of this newsletter.

UofA Astronomy Students Star Party
Sunday, 2/2/03

This notice should have appeared in the January newsletter. The TAAA will support the first of two star parties for astronomy students from the UofA. The event will be held at the Saguaro National Park West in the parking lot at the Visitors Center. The activity runs from 7:00 to 9:00 pm. Set-up will start at 6:00 pm and must be completed before 7:00 pm when the students arrive by vans. This is a fun event. The students are very interested and appreciative and will be asking lots of questions to complete their assignments for the evening. John Kalas is the coordinator. Several TAAA Members have already responded to an e-mail message sent out in January and have already volunteered. If you are interested but haven't volunteered yet, please give John a call at 620-6502.

Event: Holladay Magnet School **South-Central**
Wednesday, 2/5/03 **No. of Scopes: 6**

Holladay Magnet School, 1110 East 33rd St., will be holding their annual Star Party. From midtown Tucson take Campbell Rd. south. Campbell becomes Kino Pkwy after Broadway; continue over Aviation Parkway to 22nd St and turn right (west). Go about a half-mile to Park Ave and turn left (south). Continue on Park about one mile to 33rd St. just past Fremont. The viewing location will be south-east of the school buildings on the basketball court. Contact John Kalas at 620-6502. Jennifer Draper, Science Facilitator, can be reached at 225-1600 or email Jennifer.Draper@tusd.k12.az.us. Set-Up Time: 6:30pm Observing will be from 7:00pm to 8:30pm. Sunset: 6:02pm Dark Sky: 7:25pm Moon Phase: Crescent Moon

White Elementary K-5 Star Party **Southwest**
Thursday, 2/6/03 **No. of Scopes: 3**

White Elementary will be holding a Star Party at 2315 W. Canada St. Get on I-10 TO I-19 south. Exit onto Irvington westbound (exit #89) to S. Mission Rd., turn left (south). Go 1/2 mile to W Canada St., turn right (west). School is on left side of street. The viewing area is on the south field near portable LRC 90B. Use the gate on Canada St. that is just east of the first parking lot; take the dirt road to the south field. Set-Up is 6:30pm, observing will be from 7:00pm to 8:30pm. Contact person Anne Peralta can be reached at 623-2018 or email anne.peralta@tusd.k12.az.us. Sunset: 6:03pm Dark Sky: 7:25pm Moon Phase: Crescent Moon

Pueblo Gardens Elementary **South-Central**
Tuesday, 2/11/03 **No. of Scopes: 5**

Molly McKasson (w-225-2700) and Pueblo Gardens Elementary will be hosting *Night With the Stars* for students and parents. From Speedway and Campbell, take Campbell south (becomes Kino) to 36th St. and turn left. Continue east to Plumer, turn left, and proceed to 33rd St and turn right. You will see their parking lot on your right as soon as you turn right on 33rd. The viewing location is on the playground near the library (NE side of school). Set-up is at 6:30pm and observing time is 7 to 8:30pm. Contact Person: Molly McKasson 225-2700 (no email). Sunset: 6:06pm Dark Sky: 7:29pm Moon Phase: Gibbous

Wakefield Middle School **South-Central**
Thursday, 2/13/03 **No. of Scopes: 4**

The students and teachers at Wakefield will be hosting their special science event "Starry, Starry Night and the Arts" at 101 W. 44th St. Go south on 6th Ave., pass under I-10, and continue to 44th street; turn right (west) on 44th and go about one block to Wakefield (in back of Southgate Shopping Center). The observing area will be on the field adjacent to the school. Contact person Altazady Carrillo can be reached at 225-3800 or email aazady@cs.com. Set-Up Time: 6:30pm Observing will be from 7:00pm to 8:30pm. Sunset: 6:08pm Dark Sky: 7:30pm Moon Phase: near Full Moon

Ironwood Elem. School Star Party **Northwest**
Tuesday, 2/18/03 **No. of Scopes: 7**

Ironwood Elementary School Star Party will be holding their annual *Third Grade Star Party* at 3300 W. Freer Dr. Take Ina Rd. west to (or take the Ina exit from freeway) and proceed to Thornydale. Turn north on Thornydale to Overton (Walgreen's on northeast corner - 3rd stoplight north of Ina) and take a right (east) on Overton. Go 1/2 mile to Camino de la Tierra and make a left (community called Overton Heights) and follow the road to the end. School will be on your right. Drive through the gates to

Star Parties and Events (cont.)

the left of the school to access the viewing area on the playground. Contact person Linda Penny can be reached at 579-5150 or email L.K.Penny@maranausd.org. Set-Up Time: 6:30pm. Observing will be from 7:00pm to 8:00pm. Sunset: 6:08pm. Dark Sky: 7:30pm. Moon Phase: near Full Moon.

TAAA Star Party at TIMPA Saturday, 2/22/03

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

Whipple Observatory Star Party Saturday, 2/22/03

Once again, we have been invited to Whipple Observatory to help with their public star party. Telescopes provided by TAAA and the Sonora Astronomical Society will show visitors Saturn, Jupiter, the Orion Nebula, and other deep-sky objects.

3:30 pm Visitors Center Opens
6:00 pm Informal lecture by observatory staff
7:00 pm Observing begins in parking area next to Visitor Center

Dress for cold evening temperatures. Small red flashlights and binoculars are useful to bring. Please cooperate with staff directing parking when you arrive. The parking spaces nearest the building are reserved for TAAA and SAS members and their telescopes. Visitors will be asked to vacate that area of the lot by 5:00 pm. For more information, call 670-5707. Follow the links on the TAAA website for location and background information.

Desert View High Star Party Southeast Tuesday, 2/25/03 No. of Scopes: 5

The students of Desert View High are preparing for another "Telescope Session" this semester at 4101 E. Valencia Road. From Speedway, proceed south on Alvernon and continue past I-10 and Benson Hwy. At Valencia turn

left (east) and continue about 1/2 mile to school on left (north) side of street on Valencia between Alvernon and I-10. Set-up will be in the faculty parking lot's southeast corner. Contact person Jim Treat can be reached at 545-5210 or email jimt@sunnysideud.k12.az.us. Set-Up Time: 7pm. Observing will be from 7:30pm to 9pm. Sunset: 6:18pm. Dark Sky: 7:40pm. Moon Phase: near New Moon.

La Cima Middle School Star Party Northwest Wednesday, 2/26/03 No. of Scopes: 4

La Cima Middle School is preparing for their "Starry Night" science event at 5600 N. LaCanada. Take River Rd. west to LaCanada, turn right (north). Go one mile north to the school (on right), use the 2nd (north) entrance. The viewing area is on the north field near the basketball court. Contact person Jeff Brydges can be reached at 696-6795 or 6730 (no email). Set-Up Time: 7pm. Observing will be from 7:30pm to 9pm. Sunset: 6:19pm. Dark Sky: 7:40pm. Moon Phase: (no moon during viewing session).

**** March Star Parties occurring before the next monthly meeting March 7th ****

TAAA Star Party at Las Cienegas (Empire Ranch) Saturday, 3/1/03

Here's another chance to enjoy the darks skies at Las Cienegas. See the article for Jan 4, above, for details.

Cross Middle School Star Party Northwest Wednesday, 3/5/03 No. of Scopes: 7

Cross Middle School will be preparing for their annual Star Party at 1000 W. Chapala. Take Oracle Rd. north and turn left (west) at Ina Rd. Turn right (north) at the first stoplight (Paseo del Norte). Continue to the stop sign and turn left (west) on Chapala. Cross is about one block down on the street on the right side. The observing location is behind the library/administration building. Contact person Toby Drakulich can be reached at or email tdrakulich@amphi.com. Set-Up Time: 6:30pm. Observing will be from 7:00pm to 8:30pm. Sunset: 6:24pm. Dark Sky: 7:46pm. Moon Phase: Crescent.

Lulu Walker Elementary Star Party Northwest Thursday, 3/6/03 No. of Scopes: 6

The student body of Lulu Walker Elementary will be holding a Star Party at 1750 W. Roller Coaster Rd. Take Oracle north to River Rd., and turn left (west) on River to La Canada (approx. 1 mile). Turn right (north) on La Canada to Roller Coaster Road. Left (west) on Roller Coaster to Lulu Walker Elementary School. The observing location will be

Star Parties and Events (cont.)

on the northeast side of school yard/playground in a large, dark, grassy area. Contact person Laura Ward can be reached at 696.6510 or email ljward@msn.com. Set-Up Time: 7pm. Observing will be from 7:30pm to 9pm. Sunset: 6:25pm. Dark Sky: 7:46pm. Moon Phase: Crescent.

TIMPA Site News

TIMPA Work Party February 15

Our observing pads got a good initiation at the TIMPA star party last January. Work will continue on the observing pads. We will set up forms, pour concrete and finish any electrical work. We also need to cut down some large shrubs and expand the graveled turning and parking areas. So bring water, hats, shovels, rakes, and general hand tools. Work starts at 9:00 am and with the winter weather the morning will be cool and perfect for outdoor work. See you there!



Desert Skies Classified

FOR SALE:	TAKAHASHI Epsilon-130 Astrograph (f/3.3 reflector corrected for photography) on EM-1 equatorial mount; 4.2 mm and 7 mm Televue Nagler eyepieces, 12 mm illuminated crosshair eyepiece; Olympus OM-1 for 35 mm photos (plus 24, 50, and 200 mm Olympus lenses); Mamiya attachments for 6x7 roll-film (120/220 Ektachrome, etc); Polaroid pack or sheet-film for medium format. Mamiya Universal Press camera w/ f2.8, 100 mm goes with the ensemble. \$1,275. Jim Jondrow, 529-0933; jjondrow@fastucson.net [03/03]
FOR SALE:	CELESTRON C90 Telescope/Spotting Scope. Used 4 or 5 times. Includes 30, 18 & 9 mm oculars, Porro prism, star diagonal, Canon T mount, finderscope, foam-lined case. \$335. BOGEN Super Pro Heavy Duty Tripod Model 3050 with a Delux 3-Way Bogen Pan Head w/Mounting Plate. New condition, \$170. Both item above sold as a package, \$455. Earl Richmond, 647-0162 or email erichmond@theriver.com . [05/03]
FOR SALE:	Partially completed 15" Dobsonian. The telescope is roughly half-completed, the secondary cage and mirror support being completed. Details of its early construction can be found at http://www.seds.org/~hyperion/scope/ and I would be more than happy to show the current scope to any interested party. Jacob Laufer at sirius@riverstyx.com . [05/03]
FOR SALE:	Losmandy G-11 Mount + Sky Commander. \$2500. Mount is in excellent condition and includes these extras: Extra 21 pound counterweight, Spare Electronics drive board, Spare Polar alignment scope, Spare RA or Dec drive motor, added a shortened set of legs to create a tripod short enough to get the eyepiece of a Newtonian closer to my eye level. The stock set of tripod legs are included. Contact Steve Coe at stevecoe@ngcic.org or 602-789-7786. [05/03]
FOR SALE:	6" f/6 Maksutov-Newtonian Tube Assembly. \$750. This is the Orion version of the Intes MN 61. It has a 2 inch focuser, 9X50 finder, dust caps for all optical surfaces and a dew shield. The images in this telescope are superb, a textbook set of Airy disks during the star test. It shows excellent detail on the Moon and planets at 250X and also is a terrific Rich Field Telescope for wide angle views along the Milky Way. Other Items: Meade Variguide Dual Axis Drive Corrector. \$80, 45 degree erect image diagonal 0.965" \$20, Contact Steve Coe at stevecoe@ngcic.org or 602-789-7786. [05/03]

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 George Barber at 822-2392 or e-mail at barbergj@flash.net.

Object of the Month by Alfredo Garcia, Jr.

Welcome to my 24th issue of The Object of the Month articles. Hard to believe two whole years have gone by since my first OTM, but they have. I have enjoyed composing the past articles and hope you have enjoyed reading them as well. If you have any comments, you can e-mail me at alfredgarcia@earthlink.net

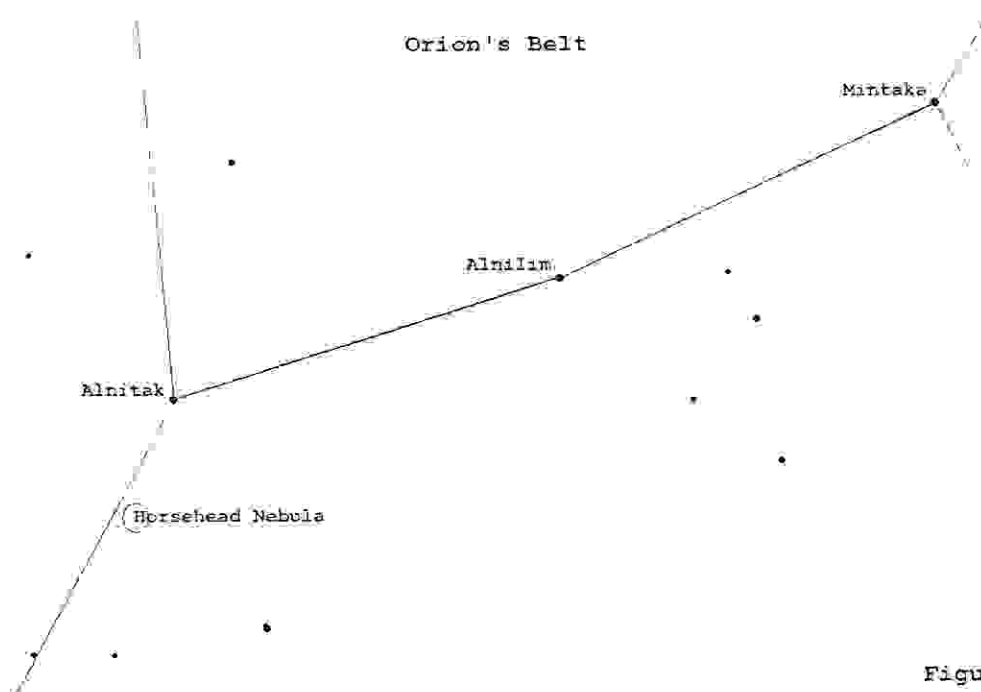
I normally report on brighter objects in these articles, but last month I was out observing and took some CCD images of an object that all of us have heard of. We have all seen plenty of astrophotographs and/or CCD images of it, but perhaps very few of us have ever seen it directly through a telescope. The OTM belongs to the nebula class of objects and in a particular, the type known dark nebulae.

Dark nebulae are also known as absorption nebulae and are dark concentrations of gas and dust that often have stars forming inside of them. These dark nebulae can only be seen if they obscure part of a bright nebula or if they block background stars. These nebulae become opaque because of their internal dust and gas. The gas is mostly hydrogen in the form of H₂ molecules and as a result the dark nebulae are often referred to as molecular clouds. They can be more than a million times as massive as our own Sun and contain much of the mass of the interstellar medium. Dark nebulae can be hundreds of light-years in size and have an average density of 100 to 300 molecules per cubic centimeter with temperatures in the range of 7 to 15 degrees Kelvin.

The OTM I have chosen is one of the finest examples of these dark nebulae that our Milky Way Galaxy has to offer though it is very difficult to directly observe. It lies in the constellation of Orion, the Hunter, and its shape resembles the head of a very common animal. The shape was first discovered on a photographic plate taken at the Harvard College Observatory in 1888.

Well, no doubt by now you have figured out that the nebula is none other than the Horsehead Nebula. This dark nebula is also referred to as Barnard 33 (or B33) in Barnard's 1927 Catalogue of Dark Nebulae which lists some other 348 dark nebulae as well. The estimated distance to the Horsehead Nebula is about 1,500 light-years. It has an apparent size of roughly 5 x 3 arc minutes and of course no assigned magnitude value. B33 is part of the optically visible nebula known as IC434 against which it is silhouetted thus enabling us to view it. The whole area in and around the IC434 and the Horsehead Nebula is illuminated by the star Sigma Orionis and not by the bright (magnitude 1.7) Zeta Orionis (or Alnitak) which is a foreground star and part of Orion's Belt.

If you go out observing (from the Tucson area) around mid-Feb at about 9:00 PM and look to the southern sky, you will find B33 at an altitude of about 55 degrees above the horizon (just about transiting for this timeframe). The stars that make up the constellation of Orion and in particular "the belt" are quite bright so star hopping to the Horsehead is easy to do. But, what is much harder to do is to view the nebula itself once you are the right area. To view B33 is indeed a challenge and requires a large size scope, a very clear, dark sky, and perhaps a nebula filter.



If your telescope has setting circles or you have an automated go to scope, you will find the nebula at RA: 05 hrs 41 min and DEC: -02 deg 30 min. If your telescope does not have this equipment, you can hopefully find it through star hopping techniques and view it (with a large telescope mind you!). To do this, start by locating the constellation of Orion and finding the famous asterism known as "Orion's Belt". Once you find "the belt", find the bright star in the belt known as Alnitak. You will find the Horsehead Nebula about 25 arcminutes to the southeast of Alnitak. (See Figure 1).

Figure 1

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

As previously discussed, the Horsehead Nebula is visually very difficult to find even through the largest of amateur telescopes, but when it is astrophotographed or CCD imaged it becomes quite a sight! I used my Starlight X-Press MX50 CCD camera and my 127mm f/5 Orion ShortTube Refractor piggybacked on my 10" f/6.3 LX 200 to produce the image (8 minute exposure) shown on the front cover. If you color astrophotograph or color CCD image the nebula, it shows itself as a dark black object silhouetted against the beautiful pinkish color of the bright nebula IC434. So if you get a chance to astrophotograph or image this nebula, I recommend you do so. It will reward you with a fine image you can proudly display.

Clear Skies
Alfredo

TAAA Board of Directors Meeting - January 8, 2003

Board Members Present: Andrew Cooper, Terri Lappin, Jane Tongate, Robert Callanan
Board Members Absent: Thom Peck, Bill Lofquist, Steve Peterson
Meeting opened at 7:07 pm

1. Changes to the agenda: Andrew asked for additions to the agenda, items added are Nomination Committee and car plates with club logo.
2. Events: Andrew reviewed upcoming events for January and handed out a 2003 master schedule through April.
3. Treasurer's Report: Terri apologized for not having a printed report and will send the Secretary a copy. There were two expenses this month one for TIMPA and the other So. AZ IDA.
4. TIMPA: Andrew reported that the December 21 work party went well. Wire is in the ground and need to be connected for power, includes two receptacles for the 6 ft dome (GFI protected). There is a work party for January 18 to finish work. Unscheduled visits to TIMPA were also discussed and a reminder will be printed with directions to the site.
5. Sky Works Recognition: The President and the Secretary signed the certificate and Andrew will present it to Sky Works.
6. Loaner Telescope Program: Andrew reported that the article in last month's newsletter did not produce any volunteers.
7. Nomination Committee: Andrew discussed the need for volunteers for the committee. Andrew will make some phone calls. The membership list was reviewed briefly for potential volunteers to ensure the nomination process functions properly.
8. Car Plates: Terri reported on the pricing. It needs to be determined if this is something we want to pursue. An action item to bring designs to the next Board meeting was assigned to Board members.
9. Old Business: Regarding the lifetime membership, Terri moved and Andrew seconded to discontinue discussion since an acceptable plan has not been developed. Passed unanimously. Text was discussed for a constitution change that will be presented in the February newsletter. The Board added electronic newsletter to the old business list.

Meeting adjourned at 8:30 pm.
Respectfully submitted,
Jane Tongate
Secretary

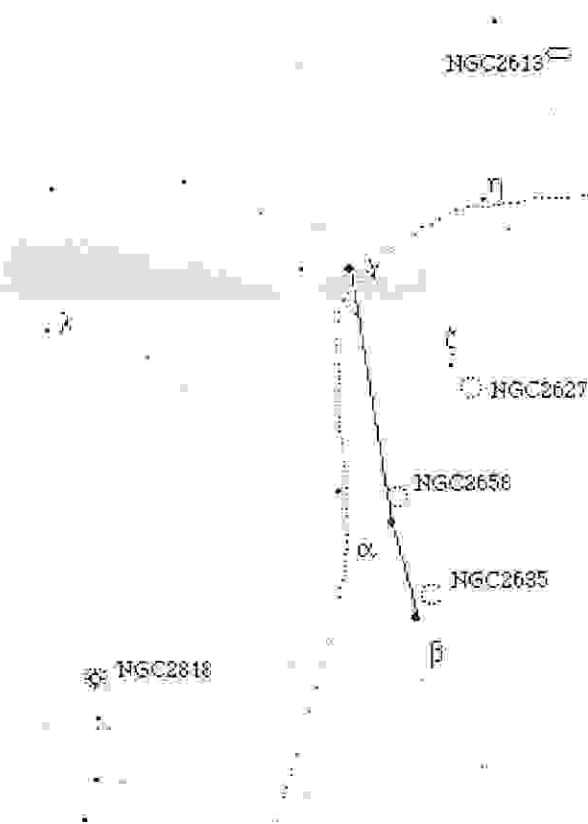
Constellation Report by Chris Lancaster

Pyxis

The Compass

The giant constellation of the ancient ship Argo is, in modern times, broken up into the 4 distinct, smaller constellations of Vela (the sail), Carina (the keel), Puppis (the poop deck), and this month's constellation of Pyxis (the compass). The French astronomer Nicolas-Louis de Lacaille chose the navigational device to name this group of stars southeast of Canis Major, even though the mythical ship Argo sailed before the invention of the compass. Composed of magnitude 3.5 and dimmer stars, it takes some effort to recognize Pyxis, but if you gauge the distance between Sirius, the brightest star in the sky, and the tip of the tail of Canis Major, then extend that line about the same distance to the southeast, you'll be in the general area of the southern limit of Pyxis. Then moving your gaze directly north to the same declination as Sirius will send your eyes across the entire expanse of Pyxis. Pyxis' three brightest stars form a simple straight line running roughly north-south. Pyxis is on the meridian at 10:30 pm on February 15th.

One of the best deep sky objects of Pyxis is the one that also rises the earliest and is at the highest declination. This is NGC2613, a moderately bright edge-on spiral galaxy. It is located at RA 8h 33m 22s Dec -22d 58' 24", or 3.5 degrees north northwest of Eta Pyxididis in the northwest section of the constellation. It glows at magnitude 11.2 and presents itself as a pronounced spike of light. It spans 7.3' in its long dimension and is 1.8' thick, with sharp edges along its length.



An interestingly similar trio of stars and star clusters repeats itself in the southern half of Pyxis. Once you master finding the first cluster, you should have no problem finding the other two since they are all the same distance from marker stars of similar brightness. Starting with the cluster farthest to the north, NGC2627, first find magnitude 4.9 Zeta Pyxididis. Then

move 39' southwest to this magnitude 8 cluster. It is fairly large, covering 11', and has several bright (magnitude 11) stars interspersed with others, which range downward to magnitude 13 and fainter. NGC2627 shows a noticeable elongation. For your setting circles, NGC2627 is located at RA 8h 37m 18s Dec -29d 57' 00".

Move 3.5 degrees south southeast to 3.7 magnitude Alpha Pyxididis as a starting point for finding NGC2658. This star cluster is 32' north of this brightest star of Pyxis. The cluster is small and faint (magnitude 9), but richer in stars than NGC2627. (RA 8h 43m 24s Dec -32 39' 00".)

Near the southern boundary of Pyxis is a third cluster, 2.3 degrees south southwest from where we left NGC2658. Once again, start with Beta Pyxididis and move practically the same distance as we have before (this time 38') to the northwest, or dial up RA 8h 38m 30s Dec -34d 46' 00". This cluster, designated NGC2635, is the most challenging. It is very dim at magnitude 11.2, and covering only 3' of sky. Many small telescopes will fail to resolve the 13th magnitude stars, but those with large apertures and high magnification will show a subtle but pleasant cluster in an irregular triangle shape.

Probably the most unique object in Pyxis is the one I've saved for last. Incidentally, if you're viewing Pyxis early in the evening, it will be the last object to come into view as Pyxis rises since it is located in the far southeast corner of the constellation. NGC3818 is a combination star cluster and planetary nebula. Though it is not as striking as M46, also a cluster/planetary combination located nearby in Puppis, it is in the same category. This object sits in a very empty spot in the sky, so star hopping is difficult. If you can zoom in to coordinates RA 9h 16m 00s Dec -36d 37' 00", then do so. Otherwise, move about 7.5 degrees east of Beta Pyxididis. Look for a tight triangle of 4.6, 7, and 5.9 magnitude stars in your binoculars or finder scope, and then move 47' due north. About 9' of sky is covered by this delicate star cluster, and embedded within is a faint, 13th magnitude planetary nebula of about 40" in size. The nebula itself is not too difficult to spot since it has decent surface brightness, but a fairly large aperture is helpful. It is quite evident at high power in an 11" telescope with dark skies.

These cold nights of February present a wealth of stars and deep sky objects to view, even in the more withdrawn constellations like Pyxis. But braving the weather to meet the challenge of hunting down some of these dim objects makes for a rewarding night of observing.