# Desert Skies

Tucson Amateur Astronomy Association

Volume XLVIII, Number 2 February, 2002

## Bob Goff 1942-2001

## Calendar of Events

**BEGINNERS LECTURE:** Feb 1, 6:30 pm at the Steward Observatory Auditorium - Room N210. This month's topic is *What Kind of Star* by George Barber.
**GENERAL MEETING:** Feb 1, 7:30 pm at the Steward Observatory Auditorium - Room N210. Tonight is Members' Night, with various topics presented by members of TAAA.
**BOARD OF DIRECTORS MEETING:** Tuesday, Feb 5, 7:00 pm at Steward Observatory Conference room N305.
**STAR PARTIES AND EVENTS:**

- 31 Jan - Astro-Photo Special Interest Group Dinner
- 09 Feb - TIMPA/TAAA Star Party
- 10 Feb - U of A Science Students Star Party
- 13 Feb - La Cima Middle School Party
- 15 Feb - Turning Point School
- 16 Feb - TAAA Star Party at Las Cienegas (Empire Ranch)
- 18 Feb - Sunrise Drive Elementary School Star Party
- 19 Feb - Immaculate Heart Middle School Star Party
- 22 Feb - Flandrau/TAAA Star Party on U of A Mall

**Newsletter Schedule** - Deadline for articles: Mon, Feb 11. Printing: Mon, Feb 18. Folding Party: Tues, Feb 19. Mailing: Wed, Feb 20. The newsletter is mailed at least one week prior to the following month's General Meeting.
**Cover:** As many of you know, Bob Goff Died on 23 December. This photo was taken of him several years ago at the Grand Canyon Star Party. He loved combining many of his interests there - nature, astronomy, optics and meeting new people. Photo by Dean Ketelsen.

**TAAA Web Page: http://www.tucsonastronomy.org** **TAAA Phone Number: (520) 882-1950**

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

**Membership in the TAAA**

*Annual Dues*

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

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

*Options (add to above membership rates)*

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

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

*Renewal Information*

- Membership expires the last day of the month indicated on your mailing label. You will receive a renewal notice when they are due.
- TAAA members may join the Tucson society of the Astronomical League (TAL). TAL expiration will match your TAAA expiration.
- Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at anytime. Only single year subscriptions are accepted. Allow at least 3 months for processing. Subscriptions must be sent through the TAAA. *Do not send money directly to the magazines.* To change an individual subscription to the group rate, send the above subscription amounts and your magazine renewal notice to the TAAA treasurer.
- To ensure proper credit to your account, please include a note explaining what you are paying for. Credit cards are not accepted. Write one check or money order for dues plus any options or donations. Make it payable to TAAA and send to:

Tucson Amateur Astronomy Association
PO BOX 41254 Tucson, AZ 85717

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

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

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

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or by e-mail barbergj@flash.net

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## President's Message

Just before Christmas we lost a club member who will be sorely missed. You will find another couple articles about Bob Goff further into the newsletter, but I wanted to share my own memories.. Maybe I am just trying to forever freeze them in my own mind so that they might not be as easily forgotten, or maybe just sharing a little snapshot of the person we knew to all of you...

As Halloween approached I received from Bob an invitation to join him at his house for the evening's trick or treat traditions. But the tradition at the Goff house had been for many years to treat the neighborhood children with a view through a telescope as much as the usual bowl of candy. This had become so popular that he needed help to accommodate the crowd. Three scopes were set up along the curb, and Demo was there with his projection rig and a laptop with several astronomy programs running to tour a virtual galaxy. The evening was busy, with over two hundred costumed viewers stopping by for a look.

I met neighborhood children that had grown up visiting each Halloween, making a special point to go down Cooper Street to see the telescopes. I remember a particular small pair, a fairy princess with a brother in something unidentifiably gruesome, that when turning the corner at the end of the street, ran straight for the 'scopes, father trailing in pursuit. Running past other houses with perfectly good candy bowls, attention caught by something else, maybe a treasured memory from the last year that needed refreshing. They reluctantly left, eyes bright with visions of Saturn, taking candy from the bowl behind the telescopes almost as an afterthought.

After the kids stopped coming I helped him break down and put away the old Celestron SCT prototype he used that night. Discussing whether is was better to rework its noticeably flawed optics, or retain it in original and possibly historic condition. He showed me what he was up to, always planning another project, a busy and cluttered shop that so reflected its owner. Glass and polishing compound everywhere, pitch and the smell I always associate with the creation of optics. I never did get the 3.1" diagonal that I had been bugging him about for years.

Bob lived life to the fullest, and by his example reminded each of us to do the same.

Andrew Cooper

## Meeting Information

### Beginner's Lecture
Title: What Kind of Star?
Speaker: George Barber

When we gaze at the night sky, or aim our telescopes at various objects, we see many different stars. In this lecture, the methods that astronomers use to categorize stars will be discussed, as well as the properties of these different types of stars.

### Main Lecture
Member's Night

Again we reserve the floor for you, the club membership, to give short presentations on any subject that deals with the field of astronomy. Time slots are given out in first-come first-up order, and while the first few are taken there are still some available. So swallow your stage fright and step up and share what you know with everyone! (We are a very forgiving and tolerant audience) Contact Andrew at taaa@seds.org to get your name on the list.

## Club News

### Member News

We welcome the most recent members who have joined the TAAA: Jenise Martin, Peter Midford, David and Carolyn Moser, Douglas Nelson, Kent and Gini Patterson, Kent Phillips, and Keith Schlottman. Glad to have you join! If you haven't already, be sure to pick up a new members pack at a meeting. Hope you'll make it to our star parties or meetings so we can all get to know you.

### Astro_photo Special Interest Group Dinner
31 January, 7 pm

The weather has been gracious lately, with some good nights for observing and astrophotography. If you'd like to share your efforts, or just learn more about astrophotography, be sure to attend our monthly meeting. Join us for astrophotos, fun, and a delicious Chinese buffet at China Rose, NE corner of Speedway and Rosemont.

### Robert Fulton Goff
By Dean Ketelsen

I hope I'm not the one to let you know that Bob Goff died suddenly of heart failure on 23 December 2001. It is funny in this world of instant communication that even today, a mutual friend called to tell me she had just heard the news. I guess e-mail lists and newspaper articles can only go so far...

Bob came to Tucson nearly 20 years ago, starting work as the site manager for Steward Observatory on Kitt Peak.

## Club News (cont.)

overseeing the maintenance of the 3 telescopes and supervising the telescope operators there. While that was a new task for him, he had been involved in telescope making since before becoming a teenager, eventually working as a professional optician for Perkin Elmer and others, served as chief observer at the Big Bear Solar Observatory, polished the 88" CFHT on Mauna Kea, served as president of the Orange County Astronomers and was instrumental in getting their scope at Anza built.

We learned much of this later as we got to know him, mostly he was a friendly, outgoing fellow, eager to go observing, hiking, go eat Mexican food, or talk telescopes or telescope making. He was a constant presence in the TAAA and everyone was a friend. He served a term or two as Member At Large, and refigured the club's 16" telescope mirror, as well as mostly finishes the 30" mirror that awaits a telescope. He joined the land committee when we were actively looking at observatory sites, sometimes wondering if he would be able to get out his cougar from the jeep roads he explored with us. Health problems slowed him down some, and he would drift in and out of club activities, but he loved to be among us when he was strong enough. If he had a fault, it was that he was too eager to offer assistance in refiguring or testing a mirror, and sometimes his health was such that the offer would wait in a pile in his lab for his attention.

In recent years he had been on the heart transplant list, but the phone never rang. More recently he was taken off the list while recovering from surgery for a tumor on his bladder. In the last 6 months he also had part of his colon removed and had a prostate procedure. But while all this was going on he had lost weight and his strength was returning. He seemed more vigorous than he had been in a long time and it seemed his heart health problems were so distant. His collapse on the 23rd was quick and the EMT workers were never able to regain a pulse. His wife Valerie has been so strong through this ordeal. He also has 4 kids, one living in Tucson, the others in Texas. Fortunately they were all together in November for a big reunion. They gathered again on 11 January for his memorial with hundreds of his friends from astronomy, optics and health fields to say goodbye one more time. There it was announced that a Robert Goff endowment was being started by the Flandrau Planetarium and that contributions could be made through them.

I was perhaps closer to him that some, serving as best man at his and Valerie's wedding in '85. I'll miss his presence at RTMC, his even temperament, his generosity and the same old groaners of jokes he would repeat. When asked "What's New?" he would immediately state "Why, the reciprocal of dispersion!" (An insider optician joke - for glass, nu=1/dispersion) We all knew him, we all will miss him. I suggest at a minimum we name a telescope after him, if not an observatory. Since he refigured the 16" and did most of the 30", he certainly qualifies. For now, that will have to do...

### Beginners Lecture Presenters Needed

Have you ever considered giving the Beginner's lecture? The club is always looking for someone who is willing to share the benefit of their experience. And, if you can't come up with a topic, Ray has a number of topics, which would greatly benefit those who are new to astronomy, as well as the seasoned astronomer. This gives you a chance to learn something new, as well as help others. So, step up to the spotlight! Give Ray a call at 294-1197, or e-mail at raywallace@altavista.com.

### Newsletter Cover Photos Needed

Perhaps you've noticed that every month, the cover of the newsletter prominently displays a photograph either documenting a club activity, or which ties in with the main lecture for the month. We have our usual contributors, and a few new ones. Thanks to them for their contributions! But, sometimes no one has an appropriate photo and we have to scramble. I would like to build a library of photos, which could be used in our newsletter whenever we needed a specific subject. If you would like to contribute, please send your photo to the newsletter editor Be sure to include your name, so we can credit you, as well as details on how you obtained the photograph.

### We Thank Our Members

Last year our own membership made generous donations in time, property, and money. In addition to the highly visual donations of time made by our elected and appointed officials, many members provided telescopes and expertise at star parties; both the unpaid ones and those we receive money for from local convention groups. All money received from star parties went into the TIMPA fund. We also have a number of members who went through the Project ASTRO workshop and are now working closely with a schoolteacher bringing astronomy to the classroom. There are lots of other ways our members have offered donations of time and we greatly thank every one of you.

This year we had some grand donations of property. A huge library (just under 500 books) was donated to us by a non-member. It took a small group of TAAA members to move all these books! We thank TAAA member Pat Heimann for the donation of signs that are at TIMPA. We also had a few telescopes and associated equipment donated this past year, some needing some tender loving care before they can be used and others in pretty good shape.

Donations of money totaled $1823.90 this year. A large part of this total was donated through our "Automatic Donation" program. This is a method for members to make a monthly donation to the TAAA without writing a check. It's easy on you and the TAAA gets a monthly donation in

## Club News (cont.)

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.

| | |
|---|---|
| Unrestricted Donation (for General Fund) | $338.75 |
| TIMPA Project | 151.00 * |
| TIMPA Telescope Fund | 10.00 |
| Education Fund | 127.00 |
| Light Pollution Fund | 229.10 |
| Land & 30" Telescope Fund | 968.05 |
| Total received from members/friends | $ 1823.90 |

* Does not include money from star parties.

We surely overlooked someone in this article and we apologize. We thank everyone who contributed something to the TAAA. We hope 2002 will be as good if not better!

## Items of Interest

**WEBSITES: TRIPS ON THE INTERNET SUPER-SKYWAY**
By Rik Hill

This month I relate a tale of woe with a happy ending.

I clumsily tripped over my ETX90 last Nov. and a telescope that had once produced textbook stellar diffraction images, then was ruined. No longer would the pretty close double stars look like disks but rather a confused pattern of coma and astigmatism more resembling a bird in flight. It was so depressing.

A call to Meade and I found that for the mere paltry sum of $75 I could send the whole instrument in for complete refurbishment. I did so and sent along a short list of some nagging little problems to be cleared up (like excessive drive hysteresis) and the off center secondary baffle..

It came back on 12/24 as a welcome Christmas present. I tested it that night and was a bit disappointed in the results. It was better but still not like it formerly was. I'm quite picky about that, perhaps more than the average ETX user. I did notice that the drive was MUCH better and held object in the field quite well.

I did a net search the day after Christmas and found a site that was chock-a-block full of terrific information for ETX owners with the unlikely name of Weasner's Mighty ETX Site at: http://www.weasner.com/etx/menu.html

(If you do nothing else, even if you do not own an ETX, you should go there to enjoy the photo at the top of the page. It's great.)

I used the search engine on that page and searched on "collimation" and a page full of links on that site was brought up. I went through each one. Then, on the page at
http://www.weasner.com/etx/techtips/collimating.html

I found exactly the information I needed. Here were specific instructions on the alignment of the ETX. But the holidays, and related things, kept me from attempting to fix the problem.

On the night of Jan. 18/19 I set aside time to try my hand at the collimation. Now this should not be done by anyone that is unsure of themselves. Better then to leave it to Meade! When I followed the instructions and removed the optical tube assembly (OTA) from the plastic housing that holds the diagonal, I was looking at the back of the t telescope with three pairs of screws and the focusing knob. Each pair had an allen head screw that was flush to the back plate and another that stood off the back plate. I surmised, with some help from the instructions, that the flush screw was a hold-down for the mirror cell and the

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**Items of Interest (cont.)**

one standing off was the alignment screw. All six were set in place with some sort of painted-on material (it looked like nail polish). Alignment would break the bond but since my instrument is well out of warranty, and I had no intention of returning it again, I boldly went ahead.

I should point out that this is not a procedure for those unfamiliar with the alignment of a fast primary, compound telescope system. The screws required only on eighth of a turn at a time. In about an hour and a half I had the star images looking just like a textbook diffraction image. I was
thrilled. My little 'scope was back in form. A look at Sigma Orionis was wonderful. Three of the four components were clearly visible at 125x. I was fighting clouds so the fourth component was not visible. The same was true for Rigel. The companion was swamped by scattered light on the thin clouds or simply obscured by the thicker ones. Before calling it quits for the evening I braved a look at Beta Mon, one of my favorites. It was split clearly at 125x with nice diffraction around each star. I dropped the 10mm eyepiece into a KLEE barlow (2.8x) to get to 350x so I could study the diffraction and the light distribution in the pattern (a critical test for the collimation). It was beautiful. The drive was holding them in the field nicely too. It was a splendid end to a very productive evening!

My compliments to Mike Weasner for a great resource in that website for all ETX owners and to Tony Costanzo who's instruction on that site gave me the information and courage I needed to do the job.

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

## Our Bob

Sharon Koerber, Sky Works

In October of 1998, while we were moving into Sky Work's permanent location, a mostly gray, bushy haired, wild-bearded hippy kinda guy wearing Birkenstock sandals, nylon shorts and a faded slightly ratty t-shirt (tucked-in, of course) blasted into our shop. He ever so arrogantly and with great relish, perfect articulation and pompous authority, informed us that he was the greatest optician around and we would do well to tell our customers they should not buy a telescope "off the rack" but rather come to him for their mirrors. "Of course, since I am so good they will have to wait up to a year but I am well worth it!"

I, Sharon, was under-whelmed, to put it mildly, by this thunderstorm of a man, so I excused myself to the back of the shop, determined not to return until he left. Suddenly, I heard a female voice and I came back to the front of the store to see the immediate transformation from bully conceited individual into the gentle, still conceited, cuddly bear we came to love like family. Bob Goff our friend and indeed a fine optician will always be like a brother to us. We felt closer to him than mere friends.

Valerie, the source of the female voice, came to the shop to introduce herself and to make sure that Bob got home in time to eat dinner before he got too tired. The love and respect the two of them felt for each other made our day a little brighter and endeared him to us even more. She meant so much to him.

Before they left, they invited us to join them on Halloween to show the ghouls and vampires a bit of the night sky out in front of their home. Valerie explained that this was an annual event. We were delighted to go. It was also at that time that we met Demo Galanos, who unfortunately was the person who was to inform us that our Bob had passed away.

I think, sometime between that first day and Halloween, Lynn Hepburn died. Valerie called to let us know and said that Bob was very depressed. Lynn was the last of the group that polished the 90" on Kitt Peak. Bob was the lone survivor. We had never met Lynn but our growing fondness for Bob removed any doubt that we would attend the memorial. So after we closed our shop late that night we traveled to the house where the memorial was being held. We were nervous about just walking in on mourners at such a late hour. As we got out of the truck, I raised my voice enough for the 10 or so people who looked in our direction to tell them that we were friends of Bob Goff. Suddenly, a booming voice shouted, "And who is Bob Goff!" Steve and I frantically searched the area for the source of the voice and were ready to turn and run but we had promised. Suddenly, a mostly gray, short haired, no bearded, Bermuda chic gentleman grabbed me and lifted me up to his eye level and gave me the biggest bear hug I have ever had. This was the new Bob! How handsome and majestic he looked that night. He put me down and then proceeded to move us through the house introducing us to everyone in sight. His final introduction was to Pauline Hepburn. He told us to stay with her until he said good-bye to Valeria who was going home. We did as we were told. To this day the only person we remember, aside from Bob and Valerie, is Pauline.

For the past four years we invited all our friends and customers out to Sabino to watch the Leonid meteor showers. Bob came every year except this year. 2000 was the best of the times with Bob. One night no one showed up except Bob. It was freezing cold. All we could see of each other were our eyes. We were together from 11:30 p m until 4 a m. We will cherish that night forever. He told us about his time on Kitt Peak, SR71, Celestron, over 40 years experience in the optics field. There were no meteors that night but Bob filled the night sky with his articulate and boisterous voice.

We can't believe we will never see him again. We will love and miss him for as long as we live.

## Items of Interest (cont.)

### Steward Observatory Public Evening Lecture

Since 1924 Steward Observatory has hosted public evening lectures in astronomy. The Steward Public Evening Lectures are held twice a month at 7:30pm 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. The entire schedule is available at http://viking.as.arizona.edu/~taf/pubeve/pub_lect.html. The next few lectures are listed below.

| | |
|---|---|
| Feb 4 | Dr. Richard Poss<br>Interpreting the Universe: Astronomy and the Visual Arts |
| Feb 18 | Dr Laird Close<br>Detwinkling the Stars: Ultra-Sharp Astronomy with Adaptive Optics |
| Mar 4 | Dr. Christopher Impey<br>Truth and Beauty in Cosmology: Does the Universe Have an Aesthetic? |
| Mar 18 | Dr. Robert Jedicke<br>"Target Earth: The Inevitability of Asteroid Impacts" |
| April 1 | Dr. Jeffrey Bennett<br>"On the Cosmic Horizon: Ten Great Mysteries for Third Millenium Astronomy" |
| Apr 15 | Dr. Peter A. Strittmatter<br>"Steward Observatory in the 21st. Century" |

### Grand Canyon Star Party 2002

8-15 June, North and South Rims
By: Dean Ketelsen

It is time again to put in those vacation requests for the 12th Grand Canyon Star Party. For those of you who have never been there, it is different from other star parties you might have attended. This one is designed for the general public, those tourists who happen upon our telescopes set up at the Grand Canyon National Park. If you enjoy setting up your scope for the public whether it be for school kids or the occasional public event the TAAA or Flandrau puts on, it is very similar, however, under the extremely dark skies of the Canyon, they will be amazed at what they can see thru your scope - and you might be amazed as well.

The star party runs for 8 nights, Saturday thru Saturday. You do not need to stay the entire time, though it hardly seems worth the 6-hour drive for just a night or two. The Park Service provides us with a few free campsites (down to 12 this year), however those are reserved for those staying the entire week - I long ago gave up trying to coordinate the comings and goings of attendees during the week, so for a freebie, you need to commit for the entire time. The campsites are only $12 a night, last time I checked, so if you come up for a few days, it is not a lot of money. Rooms, if you want them, need to be reserved NOW! You might be hard pressed to find a room for the entire event, though likely for a few days in a row you have a better chance. As those reservations reflect, June is just about the Park's busiest time, and that is actually the way I like it - more customers to look thru the scopes! The mass of people make some things difficult - parking is a problem, so take the free shuttle buses or better yet, haul up a bike with your scope. It makes daytime exploring a real joy, especially when you zip past the circling cars straight for the view from the rim.

The nightly routine at the South rim is something like this. A lot of us set up scopes or binoculars at the rim, maintain a presence really, to let the public know that we are there and they should come back for the evening program. At Yavapai Point, where the scopes are set up, literally thousands of people come for the sunset, but 30 seconds afterwards they all run for their cars - on to the next stop. We try to slow the tide, having a twilight talk to keep them occupied while it gets dark enough to observe. By the time you can see a few stars or constellations a few of the scopes will be on M13 or Albireo and the rush is on as lines form behind eyepieces and there are so many people you couldn't drive a car thru the parking lot. But the crowd soon dwindles and in a couple hours it is mostly the scope owners and the last hangers on. Sometimes you get some of the employees that are getting off late, but mostly you are on your own if you want to do some observing from a great sky. A few of the astronomers stay up till Andromeda rises, or the Pleiades, or all night, but most turn in early to repeat the process the next day.

If you would like more information, including contact information for Deloy Pierce, who runs the North Rim event, go to the TAAA website at www.tucsonastronomy.org/gcsp.html, or give me a call at 293-2855 or an e-mail at ketelsen@as.arizona.edu. I'll be taking names for the free campsites on March 1st, and they don't last long, so call or e-mail right away. Please indicate if you are willing to share your space (most campsites will support 2 tents and vehicles) so that we can get more folks in. If you contact me before the 1st, I will remind you of the rules, no exceptions. If you plan to attend the star party, you can let me know anytime - I've got a mailing to get to you at some point for fee waivers, maps and info to help survive the Canyon in June. I'll also have a couple paragraphs for each newsletter until the event to help keep it in your mind and help keep attendees up to date. Like the Canyon itself, you've got to get there at least once in your life - same for the star party - it is a great time and I'd hate for you to miss out! See you there!

### Astronomers Needed

The Vega-Bray Observatory and its Bed and Breakfast (Skywatcher's Inn) needs additional astronomers to give practical astronomy sessions to visitors from all over the USA and even abroad. We use various telescopes (from a 6" f8 refractor to various 12" Mead LX200's to a unique 20" f 10 Maksutov). We use a Finger Lakes "Dream Machine" back illuminated CCD with a full set of quality

## Items of Interest (cont.)

filters. We pay from $80.00 per night (4-5 hours) and are located just east of Benson (45 miles from Tucson). Please call 615-3886."

## Dark Skies for February 2001

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Th/Fr | 31/ 1 | 19:21 - 21:24 | Su/Mo | 10/11 | 19:29 - 5:48 | Th/Fr | 21/22 | 3:03 - 5:38 |
| Fr/Sa | 1/ 2 | 19:22 - 22:31 | Mo/Tu | 11/12 | 19:30 - 5:47 | Fr/Sa | 22/23 | 4:04 - 5:37 |
| Sa/Su | 2/ 3 | 19:22 - 23:37 | Tu/We | 12/13 | 19:30 - 5:46 | Sa/Su | 23/24 | 5:02 - 5:36 |
| | | | We/Th | 13/14 | 19:32 - 5:45 | | | |
| Su/Mo | 3/ 4 | 19:23 - 0:42 | Th/Fr | 14/15 | 20:26 - 5:44 | Su/Mo | 24/25 | - - - |
| Mo/Tu | 4/ 5 | 19:24 - 1:46 | Fr/Sa | 15/16 | 21:20 - 5:44 | Mo/Tu | 25/26 | - - - |
| Tu/We | 5/ 6 | 19:25 - 2:49 | Sa/Su | 16/17 | 22:13 - 5:43 | Tu/We | 26/27 | FULL MOON |
| We/Th | 6/ 7 | 19:26 - 3:49 | | | | We/Th | 27/28 | - - - |
| Th/Fr | 7/ 8 | 19:26 - 4:46 | Su/Mo | 17/18 | 23:07 - 5:42 | Th/Fr | 28/ 1 | 19:42 - 20:11 |
| Fr/Sa | 8/ 9 | 19:27 - 5:38 | Mo/Tu | 18/19 | 0:03 - 5:41 | Fr/Sa | 1/ 2 | 19:43 - 21:21 |
| Sa/Su | 9/10 | 19:28 - 5:48 | Tu/We | 19/20 | 1:02 - 5:40 | Sa/Su | 2/ 3 | 19:44 - 22:29 |
| We/Th | 20/21 | 2:02 - 5:39 | | | | | | |

| Weekend | Sun | Sun | Mercury | | Venus | | Mars | | Jupiter | | Saturn | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sa/Su | Set | Rise | Rise | Vi | Set | Vi | Set | Vi | Set | Vi | Set | Vi | Vi=Visibility |
| 2/ 3 | 17:57 | 7:15 | 6:16 | 8 | 18:16 | 9 | 22:24 | 1 | 5:04 | -3 | 2:51 | 0 | -3 brilliant |
| 9/10 | 18:03 | 7:09 | 5:47 | 4 | 18:31 | 7 | 22:20 | 1 | 4:34 | -3 | 2:23 | 0 | 0 conspicuous |
| 16/17 | 18:09 | 7:03 | 5:38 | 4 | 18:45 | 6 | 22:16 | 1 | 4:05 | -2 | 1:56 | 0 | 3 moderate |
| 23/24 | 18:15 | 6:55 | 5:38 | 4 | 18:59 | 4 | 22:12 | 1 | 3:37 | -2 | 1:29 | 0 | 6 naked eye limit |
| 2/ 3 | 18:20 | 6:47 | 5:41 | 5 | 19:12 | 3 | 22:08 | 2 | 3:09 | -2 | 1:03 | 0 | 9 binoculars limit |

**By Erich Karkoschka**

## Star Parties and Events

### TAAA/TIMPA Joint Activity

February 9 (Saturday)

TIMPA and TAAA will have another fun joint activity. TIMPA will offer flying demonstrations, as well as free flying instruction to TAAA members and their friends from noon until 5:00 PM. Their radio-controller transmitters have dual controls, so learning to fly is easy, fun, and safe!! Their instructors are most skilled, and more importantly, very patient teachers.

For extra excitement, there will be periodic "combat" demonstrations by the TIMPA pilots. You'll have to pay close attention, because these competitions last only 5 minutes or so each.

Bring your own items to grill, and a dish to pass.

After sunset, the usual TAAA star party will begin, and we'll get a chance to show the TIMPA members some of the wonders of the night sky. Don't be surprised if a few of the more skilled TIMPA pilots to a little night flying that night, also. It's really neat to watch. Be sure to dress VERY WARMLY, as the temperature drops rapidly after sunset. Hot drinks can be enjoyable, too.

### U of A Science Students Star Party

Feb. 10 (Sunday) No. of Scopes: 10+

The TAAA has been invited again this year to support a star party for U of A Students taking a variety of science courses. The activity will be held at Saguaro National Park West in the parking lot in front of the visitor's center. There will be an area reserved for telescope operators and their vehicles up close to the visitor's center. Viewing is from 7:00 to 9:00 pm, so set-up should be before 7:00 pm. Between 80 to 100 students are expected to arrive by vans from the U of A at 7:00 pm. John Kalas is the Star Party Leader for this event. There will be a sign-up sheet at the February monthly meeting. If you would like to support this activity but are unable to attend the meeting, please contact John at 620-6502 or <jckalas@aol.com>.

### La Cima Middle School Party Northwest

February 13, (Wednesday) No. of Scopes: 7-8

This star party is a make-up event due to poor weather conditions in December, so these folks are quite eager for our support. The school is located at 5600 N. La Canada Drive. Take Oracle Road north to River Road and turn left (west). Proceed to La Canada Drive and turn right (north)

## Star Parties and Events (cont.)

and go about ½ mile. The school will be on your right. The set-up area is on the north field by the Multi Purpose Room OR on the track. Set-up will be at 6:00pm with observing from 6:30pm to around 8:30pm. A star party leader is needed for this event. A sign up sheet will be available at the February meeting.

### Turning Point School — Central

February 15, (Friday) No. of Scopes: 4

The school is located at 200 E. Yavapai Road and is between Ft. Lowell Rd and Prince Road (1 block south of Prince Rd). Turn east on Yavapai Road and proceed approximately 2 blocks. The school will be on your right. Go past the school sign. You will see an entrance driveway with an open gate. Turn right and follow the driveway to the basketball courts. This is the set up area. Set up will be at 6:00pm with observing from 6:30pm to around 8:00pm. A star party leader is needed for this event. A sign up sheet will be available at the February meeting.

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

February 16 (Saturday)

Las Cienegas (formerly Empire Ranch) has been our normal dark-sky observing site for quite a number of years. Las Cienegas is about 4000 feet in elevation, so be prepared for cold temperatures, and try to arrive before sunset. Stay as long as you like, but let everyone know when you are ready to leave; someone may be taking astrophotos. Bring a telescope if you have one, but you don't need one to attend. Any member would be glad to let you look through their telescope. There are no restroom facilities at the site, so be prepared. Attendees should park their vehicles either perpendicular to the airstrip facing toward the center of the strip or parallel to the airstrip along either side facing west. That way, when you are ready to leave, you will not have to back up and turn on your bright white backup lights. One nice advantage to belonging to the TAAA is the opportunity to observe among friends. Help in finding an object or the sharing of equipment always goes on at our star parties. If you haven't attended a star party yet, you're missing the best part of belonging to the TAAA. See the directions to Las Cienegas on the outside flap of this newsletter.

### Sunrise Drive Elementary School Star Party [North-Foothills Area]

Feb 18 (Monday) No. of Scopes: 4

The school is located at 5301 E. Sunrise Drive. Go north on Swan Road and turn right (east) on Sunrise Drive. Proceed to the next traffic light and turn left (north) onto Suncrest. This street accesses the school. The set up area is located on a concrete patio north of the parking lot but just south of the school building. Set up is at 6:00pm with observing from 6:30pm to 8:30pm. A star party leader is needed for this event. A sign up sheet will be available at the February meeting.

### Immaculate Heart Middle School Star Party North -Foothills Area

February 19 (Tuesday) No. of Scopes: 6

We will be supporting the 6th and 7th grade science classes of Karen Fisher. The star party is actually going to be located at the Iris Dewhirst Trail parking lot which is located at the east end of Magee Road. Take Oracle Road to Magee Road (1 mile north of Ina Road) and turn right (east). Proceed east for approximately 1.5 miles to the end of the road. The parking lot will be on your right. The set-up area will be located near the center of this parking lot. Set-up is at 6:00pm with observing from 6:30pm to 8:30pm. Note: this parking lot closes at 9:00pm so be sure to allow adequate time to pack up your equipment. A star party leader is needed or this event. A sign up sheet will be available at the February meeting.

### Flandrau/TAAA Star Party on U of A Mall

Feb. 22 (Friday)

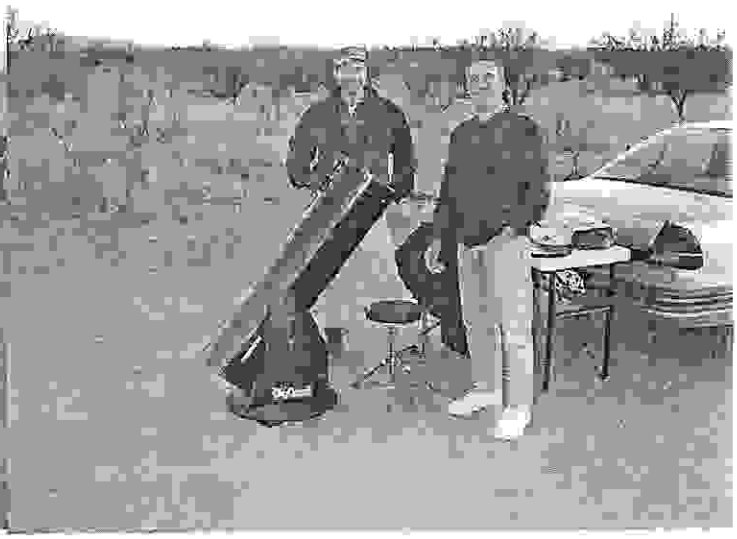
Here's a chance to show the general public Saturn and Jupiter and the Moon on the U of A mall with the folks at Flandrau Science Center. Bring your scope and join Flandrau Science Center volunteers for a night of celestial viewing and public education starting at 6:30 p.m. directly in front of Flandrau on the grassy mall (setup at 6 p.m.). The event should last until 10:00 p.m. and lights on the mall will be specially turned off for the event. Parking on the paved portion of the mall directly east of the observing area will be allowed. If you intend on helping out please let Michael Terenzoni at Flandrau know via e-mail (miket@ns.arizona.edu) or phone (546-4473). A sign up sheet will be available at the February meeting.

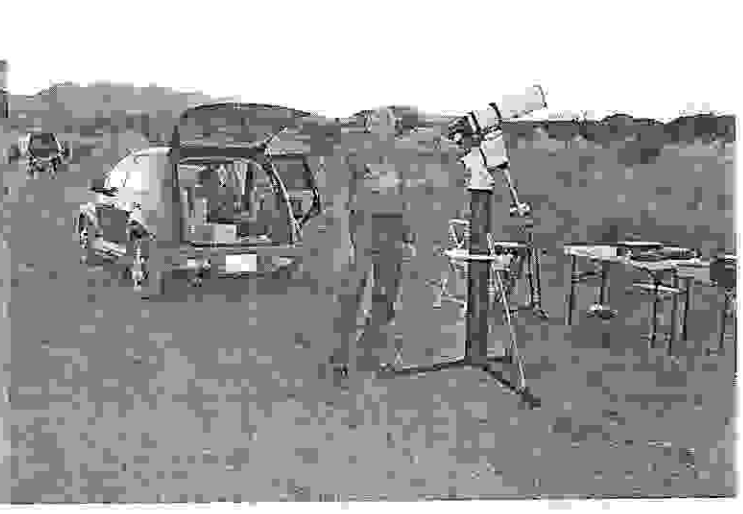
## TAAA Star Party at Las Cienegas (Empire Ranch), January 12. Photos and text by Andrew Cooper

For a midwinter star party the turnout at Las Cienegas on the 12th of January was impressive, I guess everyone was just ready for a night out.

I counted over twenty scopes at sunset and people just kept rolling in after that. A bright light in the sky just after sunset mystified everyone until somebody got a scope focused on it and discovered it was some sort of high altitude balloon shining brilliantly in the sunlight high above us, complete with an instrument package swinging below. Suddenly the balloon burst and the package was tracked for quite a ways on it's long fall.

A few thin clouds hampered the evening, but did not stop us from enjoying the night. Most observers (including myself) lasted until well past midnight. We'll have to make next month's Las Cienegas as good!





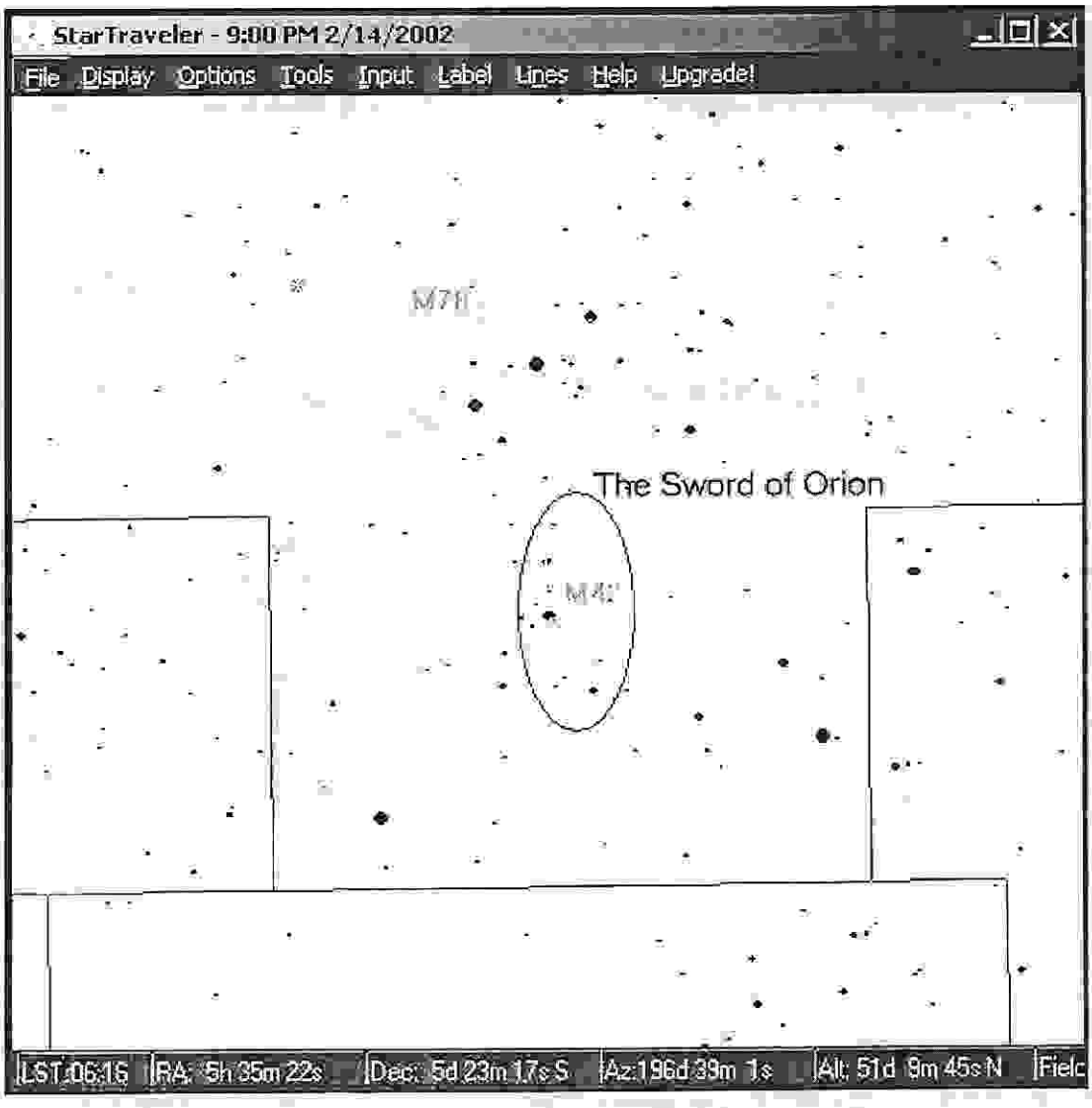
**TAAA Star Party at Las Cienegas (Empire Ranch), January 12. Photos and text by Andrew Cooper**

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

Welcome to my 12th issue of The Object of the Month articles. Hard to believe a whole year has gone by since my first OTM, but it has. 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.

This month, the OTM is a wondrous member of the class of objects known as emission nebulae. This class of nebulae is so named because their light is emitted from gas excited by energetic radiation from nearby hot stars. The gas is rich in hydrogen and it glows with a distinctive red hue. The hydrogen is often mixed with oxygen, which provides green hues. The green and red light together also provide yellow hues. Dust in the emission nebulae, which both absorbs starlight and reflects it, provides blue hues. So emission nebulae are some of the most colorful objects in the sky.

There are many fine examples of emission nebulae in our galaxy. But, February's OTM is the best and brightest of its class to observe with a telescope, binoculars, and/or the unaided eye. Though this nebula is easily visible to the naked eye, there is no documentation of it prior to its official discovery by Nicholas-Claude Fabri de Peiresc, a French lawyer, in 1610. As a side note, it was not added to Charles Messier's Catalog until March 4, 1769.

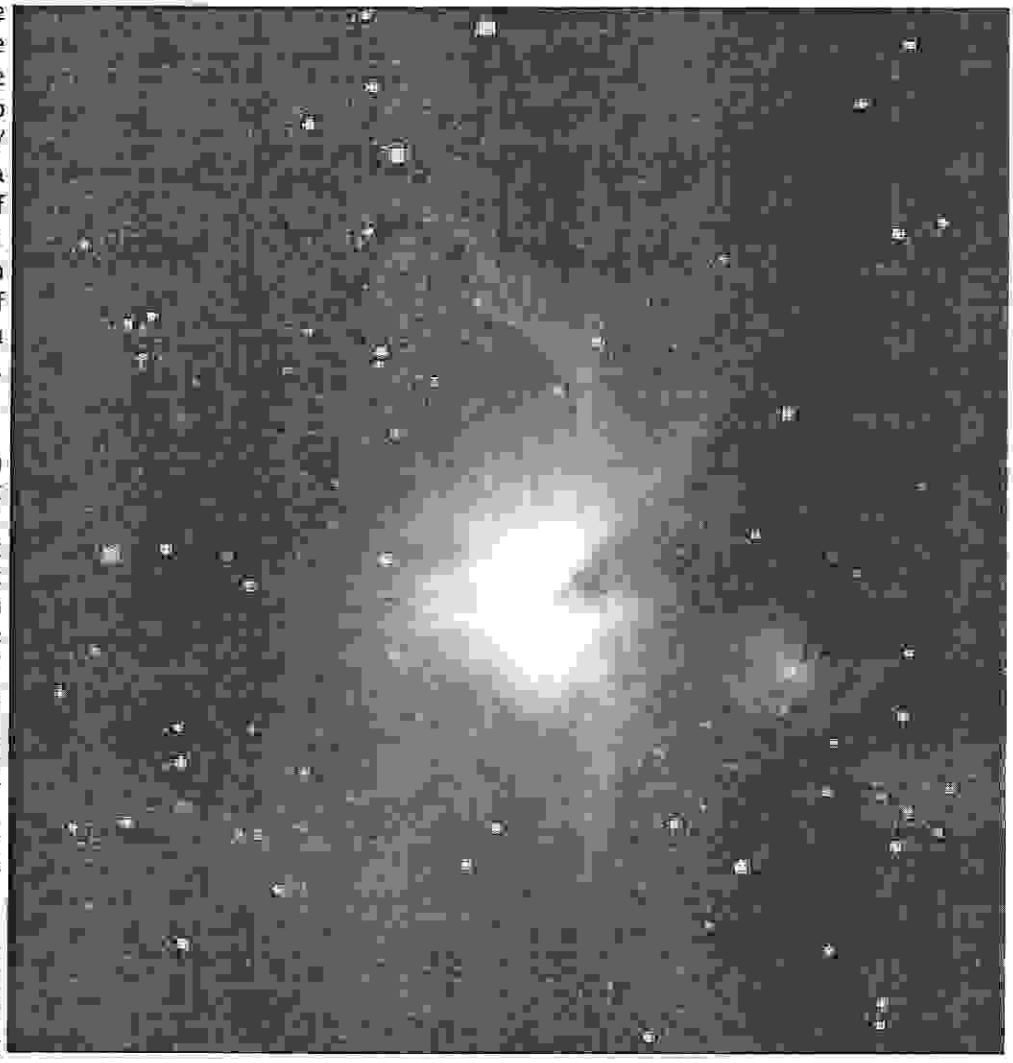



Without any further introduction, I present to you the February 2002 OTM: Messier 42 or the Great Orion Nebula. It is with out a doubt the best emission nebula we can see. M42 is the main part of a much larger cloud of gas and dust which extends over 10 degrees across the constellation of Orion, the Hunter. This giant cloud is several hundreds of light-years across with M42 itself being about 30 light-years across. Long exposure astrophotographs show the entire cloud, which has the Great Orion Nebula near its center. The cloud also contains the following objects, often famous on their own: Barnard's Loop, the Horsehead Nebula, and the reflection nebulae around M78.

The Great Orion Nebula is located about 1,600 light-years from Earth. Its apparent dimensions in the sky are 66 x 60 arc minutes or some four times the area covered by the Full Moon. M42 is a very active and turbulent cloud of gas/dust and an important star-forming region of particular interest to astronomers. There are many hot young stars (most notably the Trapezium stars) which fuel the dense swathes of the surrounding gas, causing it to ionize and produce the red emission glow. M42 has a particularly complex range of emission sources as part of its spectrum, as well as a strong component of reflected broadband light, which accounts for the wide range of visible colors.

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

Past decades of research on the visible part of M42 have revealed that it is a blister of hot, photo-ionized, luminous gas around the hot Trapezium stars. The visible part is only a thin layer lying on the surface of a much larger cloud of denser matter that astronomers call the Orion Molecular Cloud 1 (OMC 1). We are seeing this structure approximately face-on. If you go to the web site at http://vis.sdsc.edu/research/orion.html, you will find a simply remarkable 3D visualization of the Orion Nebula by Rice University. This visualization is definitely worth seeing as it gives a representation of what the nebula would look like in a flyby in and around the nebula. Check it out!



M42 is well placed for observation in February. From Tucson, if you go out at 9:00 PM on 14 February, you will find M42 in the southeast horizon at an altitude of about 50 degrees. It very easy to find since it is located in the constellation of Orion, the Hunter. Once you find Orion, then you look for the asterism known as the Sword of Orion and there you will find M42 (see Map, Figure I) nestled around the bright, multiple star Theta Orionis. M42 has a combined visual magnitude of 4.0, so it is bright and detectable even from the moderate glare of city lights.

If you have an automated go to scope or setting circles, you will find M42 at Right Ascension: 05 hr 35 min 24 sec and Declination: -05 deg 27 min. Though not necessary due to its overall brightness, the Great Orion Nebula is best observed from dark skies with a telescope or set of binoculars. Only then will you truly appreciate the immense beauty of this collection of gas, dust, and stars.

Though M42 presents itself magnificently in a telescope field of view, it is an even greater view in a wide field astrophotograph or CCD image. This author took the 10 minute B&W CCD image (Figure II) through an 80mm f/5 refractor piggybacked on a 10" f/6.3 Meade LX 200 using a Starlight X-Press MX5C CCD camera. Due to its brightness and ease to find, it is an excellent target for beginning and advanced astrophotographers and CCDers alike. You can achieve amazing results with this nebula with either CCD or standard photographic film exposures. Even the smallest of camera lenses will pick up the nebula's pinkish-red color in a short exposure astrophotograph. Give it a try, you won't be disappointed. As a side note, M42 became the first nebula to be successfully photographed in 1880 by Henry Draper.

And one final note on this nebula is that in 1995 astronomers (using the Hubble Space Telescope) discovered protoplanetary discs in and around the nebula. These so-called proplyds are planetary systems in development. Unfortunately, they are interacting with the hot young stars of the Trapezium Cluster. The Trapezium stars' violent radiation is destroying the lower mass proplyds due to the intense solar wind from these stars "blowing off" material from the proplyds. This is possibly preventing lower mass stars from being formed and also causing them to lose the material they need to form planetary systems.

M42 is indeed a remarkable object to view and examine. So if you have the opportunity, get out and observe this large emission nebula. It will indeed present you with distinct beauty, many features to observe, and above all...wonder!

## TAAA Board of Directors Meeting - January 8, 2002

Location: Steward Observatory Conference Room N305 University of Arizona
Call to Order: 7:15 pm
Board Members Present: Andrew Cooper, Thom Peck, Terri Lappin, Jane Tongate, Steve Peterson, Robert Callanan, Bill Lofquist.
Others Present: Past President John Kalas.

1. Changes to the agenda: Add items 5-9.
2. Events: Andrew Copper read and reported briefly on the events through February 14.
3. Treasurer's report: Terri Lappin handed out the monthly balance sheet and briefly explained the activity for the month. Discussion of the holiday party was combined with the Treasurer's report. Thom mentioned that he knew of a couple of volunteers to assist with next year's event.
4. Bob Goff: Andrew announced that a memorial service would be held on Friday, January 11, 11:30 am, in the Duval Auditorium at UMC. A card will be signed by the Board and presented to the family. Andrew asked how the club could recognize Bob. Several ideas were discussed.
5. TIMPA: Andrew led the discussion of the 10" Meade GPS scope that has come into possession of the club. The club was working on obtaining an 11" so this will help greatly. Nothing has been done out at the site for a couple months. We need to get back on track and obtain the necessary permits. The TIMPA group may be able to help with this. Engineering specs are needed for the larger dome. Work can proceed on the smaller 6' to connect power. A work party will be scheduled. Thanks to Terri the insurance has been taken care of.
6. Fourth Avenue Street Fair: Terri asked the Board for permission to apply for a booth. The Board approved. The dates will be March 22-24.
7. Donations: Terri would like to list donations to show appreciation and than all those who have given their time and dollars. The Board approved and Terri will write something for the newsletter.
8. Nominating Committee: Terri began discussion of appointing the nominating committee. Nominations for next year's Board will be taken at the February member meeting. Thom and Steve offered to be the two of the three members to serve on the committee.
9. Bob Schwartz: It has come to the Board's attention that Bob is no longer a member. Bob has been the liaison with the club's investment company. Terri will confirm this, if so, another member will need to be appointed.

Meeting adjourned at 8:40 pm.
Respectfully submitted,
Jane Tongate, Secretary

## Desert Skies Classified

FOR SALE: Meade 10" SCT LX5 with Lumicon Sky Vector II (3500 objects), 3 eyepieces, many accessories, e-mail or call for more details. Pete in Wickenburg, 928-684-3635, peteb@w3az.net

FOR SALE: Orion Premium Deep Space Explorer Dobsonian, 12.5" F / 4.8, 1524mm FL. Full thickness PYREX mirror with 96% enhanced coatings. 2" with 1 1/4" adapter JMI focuser. Handles on Tube for easy carrying. 9X50 Celestron finder scope. Base, and Dust cover. Price $ 700.00 firm. Colin Butler, 8851 N. Oracle Rd # 255, Tucson AZ, 85737. (520) 877 - 8438 (02/02)

FOR SALE: Celestron Nexstaar 8" SchmidtCassegrain with 40mm Plossel eyepiece. As new, used once. Includes all original packaging and manuals. $1300 OBO. Will consider trades. Jim Berger, 744-3858. <jberger@theriver.com> (02/02)

FOR SALE: Mead 4" Schmidt-Cassegrain Model 2045. Clock drive with tripod table-top legs. Asking $375. Please contact Mike Saganich at 881-3919. (05/01)

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

Constellation Report by Chris Lancaster

# Canis Minor

The Little Dog

The other, less conspicuous hunting dog of Orion is found south of Gemini and on the opposite side of the winter Milky Way from its companion, Canis Major. The bright star Procyon marks the heart of the constellation and forms the northeast point of an equilateral triangle with Orion's Betelgeuse and Canis Major's Sirius. Canis Minor, as its name might suggest, is a small constellation. It encompasses only two bright stars but, even though it lies on the edge of the Milky Way, no deep sky objects.

Procyon's magnitude is a bright 0.4, making it the 8th brightest star in the sky. Its distance of 11.4 light years ranks it as number 13 in the nearest stars to Earth, and 5th nearest of the naked eye stars. Other vital statistics include a spectral type a bit hotter than the sun at F5, a luminosity of about 6 times the sun, and a diameter approaching 2 million miles, or over twice that of the sun. The name Procyon comes from the ancient Greeks. It translates "before the dog," since it rises mere minutes before the real dog star, Sirius. Because of its proximity, Procyon has a comparatively large proper motion, or movement relative to more stationary background stars. Its annual motion is 1.25" toward the southwest, which means that it will traverse a full degree in about 2,900 years.

Beta (β) Canis Minoris, or Gomeisa, is a hot B7 star 170 light years away. Gomeisa is a much brighter star than Procyon, but appears dimmer from its larger distance. If equally placed relative to the Earth at the standard distance of 10 parsecs, or 32.6 light-years, Procyon would glow at magnitude 2.7, while Gomeisa would shine much more brightly at -1.1.

Similar to Sirius, Procyon has a dim white dwarf companion about 4.7" distant at a PA of 78°. It was predicted to exist in 1861 due to the 40 year cycle of irregularities in the proper motion of Procyon, but because of the extreme differences in luminosity (Procyon B is 15,000 times fainter at magnitude 11), it was not visually observed until 35 years later through the 36-inch refractor at Lick Observatory. If you've been successful at observing the companion of Sirius, then you might want to try this one. However, Procyon B is a little more challenging with over a full arc second less separation.

Two other double stars of Canis Minor share this characteristic of large luminosity differences. Eta (η) Canis Minoris at high power shows a magnitude 5.5 primary and a magnitude 11 secondary 4" apart. Nearby Gamma (γ) is a more comfortable 30" apart but presents a more challenging secondary. It shines at magnitude 13 compared to the primary at magnitude 4.

Canis Minor is also home to some dramatic variable stars. All of them are classified as Long Period Variables, or LPV's. The three we will look at are all in a west to east line in the northern half of the constellation. U (RA 7h 41m 20.7s Dec +08d 22' 50") goes from a moderate 8th magnitude to a practically invisible 13.8 over a period of 413 days. U is 44' northeast of a 7.1 magnitude star, which itself is 2.7 degrees due north of Procyon. Look 2.1 degrees due west of U (or hop 46' southeast from Gamma (γ) to a star of 7.1 magnitude, and then another 30' in exactly the same direction) for S Canis Minoris (RA 7h 32m 42.8s Dec +08d 19' 07"). Here we see a star which fluctuates between 6.6 and 13.2 magnitudes during a 332 day period. On the extreme western edge of the constellation is V, a similar variable which goes from 7.4 to 15.1 over 366 days. This star is 5.2 degrees due west of Gamma (RA 7h 06m 58.8s Dec +08 52' 41").