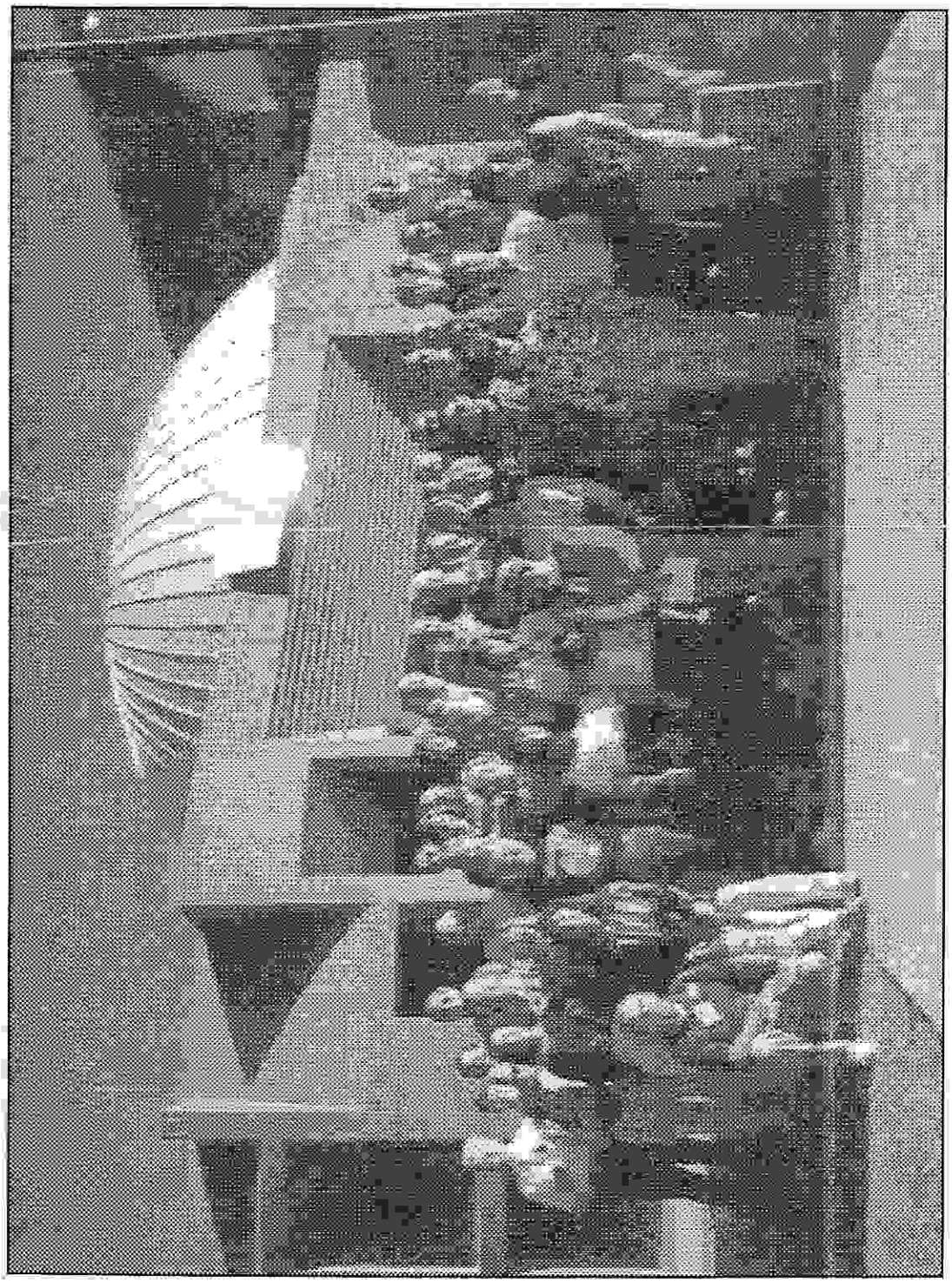
Desert Skies

Tucson Amateur Astronomy Association

Volume XLIII, Number 1 **January, 1997**



If the Sun is a bowling ball... this must be the Project ASTRO-Tucson Training Workshop, November 22/23, 1996! Forty six astronomers and teachers met for two days and learned hands-on activities for teaching astronomy in the classroom. Presenters included Dennis Schatz from the Pacific Science Center, Jessica Richter and Andy Fraknoi from the ASP/Project ASTRO, and Dean Ketelsen from the TAAA. Included in this group photo are TAAA members Andy Keefer, Dave Reynolds, Kathryn Johnson, Mark Trueblood, John Kalas, Bob Gent, Gary Sowinski, Richard Lesnewski, Terri Lappin, and Suzanne Jacoby.

Calendar of Events

BEGINNERS LECTURE-. January 3, 6:30 pm at the Steward Observatory Auditorium - room N210. This month's topic is Basics of Galaxy Classification and Evolution by Jill Bechtold.

GENERAL MEETING -January 3, 7:30 pm at the Steward Observatory Auditorium -room N210. Topic is Watching Galaxies Form by Jill Beachtold.

YOUNG ASTRONOMERS CLUB - Please contact Terri if you are interested in teaching this group.

BOARD OF DIRECTORS MEETING -Thursday, January 9, 7:00 pm at the Conference Room at Flandrau Science Center.

STAR PARTIES & EVENTS:
January 3: General Meeting
January 4: Empire Ranch
January 9: Board Meeting
January 11: Empire Ranch
Mid-January: Mirror Lab Open House
January 20: Flandrau Benefit with David Levy

Newsletter Schedule: Deadline for articles: Monday, January 20. Printing: Monday, January 27,. Folding Party: Tuesday, January 28. The newsletter is scheduled to be in the mail at least one week prior to the following month's General Meeting.

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

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Membership in the TAAA

Regular membership	$ 23
Senior (over 60) membership	$ 21
Add for Family membership	$ 5
Add for Astronomical League	$ 2
Add for Sky & Telescope	$ 27
Add for Astronomy Magazine	$ 20

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

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

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

Call the Treasurer if you have any problems.

Send Address Changes to:
TAAA
Attention: "ADDRESS CHANGE"
P.O Box 41254
Tucson, AZ 85717

Desert Skies Publishing Guidelines
All articles, announcements, news, etc. must be submitted by the newsletter deadline listed above. Materials received after that date will appear in the next issue. All submissions are retained by the editor unless prior arrangements are made. Partial page article submissions should be submitted on Wordperfect compatible files on a floppy. Full page articles, artwork, and photos should be camera ready. We will not publish slanderous or libelous materiall Send articles, announcements, etc. to:

TAAA - Desert Skies
PO Box 91316
Tucson, AZ 85752-1316

OR email: nlwagner@aol.com or ninalehman@aol.com.

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President's Message

Happy New Year!

With the start of the new year, the Board of Directors will be investigating a possible home for the TAAA Van Biesbroeck 16" telescope. Most recently the Van Biesbroeck telescope had been located at the Vega-Bray Observatory in Benson, but for the past 16 months it has been in storage. Thanks to the efforts of John Polacheck, contact has been made with a model airplane group which has leased 160 acres of land about 6 miles west of the Desert Museum. While this site is near Tucson it is reasonably dark and would provide members with a closer observing location than Empire Ranch. While everything is still at the preliminary discussion stages, it looks very good that we could get the 16" telescope back into operation at this location. More information about this site will be made available once the TAAA board has had more time to investigate this opportunity. Please be aware that there are no plans to abandon Empire Ranch (it is darker than this new location) or our search for a dark site. This would be an additional closer observing site.

Speaking of Empire Ranch, I attended the December 7th star party held there. Since we were late getting out of the house, Gary and I decided to not bring a telescope and instead looked through several others that were there. The best views were through Marilyn Unruh's 16" telescope, the largest telescope that night. The mirror is suburb and the views of the Andromeda Galaxy and the Orion Nebula were marvelous! The Horsehead nebula was visible, albeit with difficulty! Schmidt-Cassegrain telescopes were brought by John Kalas, Glenn Nishimoto, and Bob Cash. I got a good view of NGC55 through Carl Anderson's 8" Newtonian. Also observing that night was Erich Karkoschka with his Coulter 13". John Mitton, one of our winter visitor members, was doing photography through his 4" f/6 Astro-Physics Traveler refractor. The other refractor there was brought by Jeff Brydges. He-easily picked it up and carried around while looking through the other larger telescopes. I got a nice view of the Owl star cluster (also know as the "ET" cluster) through Jeff's refractor. Some of us noticed an unusual number of meteors. The peak of the Geminids was a week later, and most of these were NOT Geminids. Some were pretty bright, but no fireballs! We left about the time I was getting cold, so it was a pleasant evening in all ways.

Clear Skies,
Terri *

Meeting News

January's Speaker: Jill Bechtold
Jill will speak on "Watching Galaxies Form"

During the last year, several groups have found extremely distant galaxies which appear to be undergoing a strong burst of star-formation, perhaps even their initial burst of star-formation, associated with their assembly as a galaxy. These long-sought after "proto galaxies" are of great importance for understanding the history of the formation and evolution of normal galaxies like the Milky Way. This month, Jill Bechtold will present some of the results of these searches for proto galaxies, including the Hubble Space Telescope deep field survey, and the results of two searches which she has carried out at the Steward 90 inch on Kitt Peak, the MMT on Mt. Hopkins, the KPNO 4-meter telescope, the Canada France Hawaii Telescope on Mauna Kea, and IR Telescope Facility on Mauna Kea.

Jill presented the Steward Public Evening Lecture a few months back, but she will have additional information which she will present to us during this lecture.

About our Speaker:

Jill is an Associate Professor in the astronomy department at the University of Arizona. She received her Bachelor of Science degree in astronomy from Caltech and her Ph.D. in astronomy from the University of Arizona. She has been a Telescope operator at the Owens Valley Radio Observatory, a Computer Specialist for the Einstein X-ray Observatory and the Carnegie Postdoctoral Fellow at the Carnegie Observatories in Pasadena (formerly known as the Mt. Wilson Observatories). She also was a Bok Postdoctoral Fellow at the University of Arizona.

Jill decided to go into astronomy in high school. After attending a planetarium show, she started reading books about astronomy, and realized that there were a lot of unsolved questions -- in particular, at the time there was already a pretty good explanation for how stars like the Sun evolved, but there was no good explanation for how galaxies like the Milky Way were formed. Since she grew up in New York City she didn't have much chance to look at the sky. When she was a freshman in college, she went to the Mt. Wilson 100-inch telescope, and has been hooked on observing ever since. Jill is married to Ed Olszewski, who spoke to us last July about the Sagittarius Dwarf Galaxy. *

Beginner's Lecture: Basics of Galaxy Classification and Evolution

This month's Beginner's Lecture will be presented by Jill Bechtold, associate professor at Steward Observatory. Jill is also presenting our regular lecture this month. She will use the Beginner's Lecture to explain some basics of galaxy classification and evolution, including the sizes and distances involved when discussing galaxies. This information will be useful to know before she gives the main lecture. *

February is Member's Night

February 7th will be another chance for members to make presentations. In the past astrophotos have been shown by several members, software has been demonstrated, and numerous other presentations have been given. Member's Nights always prove to be exciting meetings with lots of participation from the membership. There will be a sign up sheet at the January meeting to reserve your time slot. Your presentation can be any length, but if necessary it may be limited to no more than 20 minutes. *

Club News

Holiday Party

NANCY WAGNER

In my opinion, the TAAA Holiday Party was a delightful success. John Polacheck did an outstanding job of organizing and presenting the party.

The owners of China Rose, Tim Hunter and his wife and son, worked mercilessly waiting tables till we were all stuffed. I stopped counting after the seventh course was brought to our table.

The Star Room was exquisitely done and made all the amateur astronomers feel at home, particularly when the lights were turned off, and we got the full effect of the luminous ceiling.

The slide presentations were nostalgic and well done.

The evening was topped off with a raffle of several astronomy related gifts donated by Starizona.

And finally, Terri acknowledged the many volunteers who have helped all year in a multitude of different ways. Suffice it to say that TAAA has an abundance of helpers when we need them. From where I sat, a good time was had by all.*

Let There Be Less Light

BY R. L. GENT

Over the Thanksgiving holiday weekend, my wife and I drove to northern Arizona. While visiting the old historic town square in Prescott, Arizona, the headlines of the local newspaper caught our eyes. There it was in big, bold, letters:

"Let There Be Less Light on SR 69"

The story is so exciting that I thought I would share it with others. It boils down to this. State Route 69 is the center of much commercial development with new shopping areas, restaurants, and motels. In some cases, new businesses have installed lights which were too bright, and they wasted electricity by shooting it needlessly up in the sky. Light trespass and light pollution became serious problems. Some nearby residents were concerned because the lights were so bright, they could read books in their bedrooms with all the lights out!

The 69 Corridor Concerned Citizen's Committee was founded to address these and other issues. After several meetings, the city council and businessmen have agreed to retrofit outdoor lights at the Price Costo shopping center. Other businesses will soon follow suit and install new less intensive lighting.

One might ask why on earth should anyone bother with such a trivial problem? Is it worth the trouble? The answer is ABSOLUTELY! It's possible to light shopping areas very well, conserve lots of electricity, and preserve the beauty of the night sky, all simultaneously. Not only that, but people who'd like to sleep with the lights out can get a good night's sleep. Congratulations to the concerned citizens of Prescott, Arizona for this great achievement.

Do you have an interesting light control story to share? Please send it to IDA, International Dark-Sky Association, 3545 N. Stewart Avenue, Tucson, Arizona 85716 *

Project ASTRO Partners: Trained and Ready for Action!

Twenty three teams of astronomer/teacher Project ASTRO partners have completed the two-day hands-on training workshop and are ready to get to work in the classroom. Evaluation forms completed by participants indicate the workshop was very successful. The two items most frequently mentioned as needing improvement are easy to fix: larger meeting space and healthier food at the breaks! The workshop content, materials, and presenters were all rated very highly. Participants used the allocated time to plan with their partners and all have scheduled their first meeting. Two weeks after the workshop, many astronomers have already gone to "their school". Frank Hill has shown me some hilarious and insightful drawings of what kids expect astronomers to look like. All have returned from their first classroom adventure with a heightened sense of purpose and optimism about the coming semester.

Even with all this accomplished and expected success, our "list of things to do better next year" is quite long. Next year's schedule calls for announcements being out before the end of this academic year. Next year's recruitment brochure for astronomers will emphasize that a degree in astronomy is not required. Next year's recruitment methods will try to bring more community educators to the program, such as Scout leaders and teachers in informal settings including museum docents.

I've come to realize the potential Project ASTRO holds for teachers in rural settings, teachers who are often left out of programs run within the Tucson city area, teachers who in many cases have classrooms with a greater need for enrichment. The many TAAA astronomers who live on the outskirts of town and outlying communities, seeking dark skies away from city lights, provide a perfect recipe for partnerships. This is something we intend to promote in next year's program and we encourage TAAA members to foster connections between schools and community groups in their areas with Project ASTRO. Project ASTRO is definitely not limited to the Tucson city limits.

I am pleased and relieved to announce that Ginny Beal has joined the NOAO staff as Coordinator for Project ASTRO. Ginny will split her time between NOAO and the UA Chemistry Department, where she developed the Chem Camp Summer Program and currently teaches undergraduate chemistry labs. As Coordinator for Project ASTRO-Tucson, Ginny is responsible for running the program from this point forward and is the primary contact point for participants (gbeal@noao.edu; 318-8535).

Announcements for next year's Project ASTRO opportunities will be distributed in a couple of months. Make sure any teacher in your life knows about this great program and consider sharing your knowledge of astronomy with students as a Project ASTRO astronomer partner. Please contact us with any questions about ASTRO and keep connected to this exciting project.

Suzanne Jacoby
Director Project ASTRO-Tucson/NOAO *

Moons and Supernova!

By R. L. Gent

December 7, 1996, the International Astronomical Union has made a couple exciting announcements. First, in August 1995, images of Saturn's rings were taken with the adaptive-optics system on the CFH telescope. These images have now been processed, and they show at least nine additional satellites in the F ring. The orbital radius from Saturn was approximately 140,500 km. Will the increasing number of moons of Saturn ever end?

In other IAU news, a new Supernova has been discovered in the galaxy NGC 664. It's estimated magnitude is about 17. Clear skies, Bob Gent *

Job Opening

Randolph Recreation Center is looking for someone to teach a weekly evening introductory astronomy course. This position pays $10/hour. The class will meet on Thursday evenings from 8pm to 10pm. In addition to class time, an additional hour of prep time is paid for. The class starts Jan 9th and will run for 10 weeks. The class repeats each season so there is a potential for continued employment. There are already 7 people signed up to take the class and it is limited to 8 students. The students are all adults, however children are permitted to take the class also. The class description mentions learning about constellations, star charts, how to observe, etc. The title of the course is "Starry Nights". Additional information can be obtained from Daphne Madison at 791-4560. *

Dark Skies for January

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

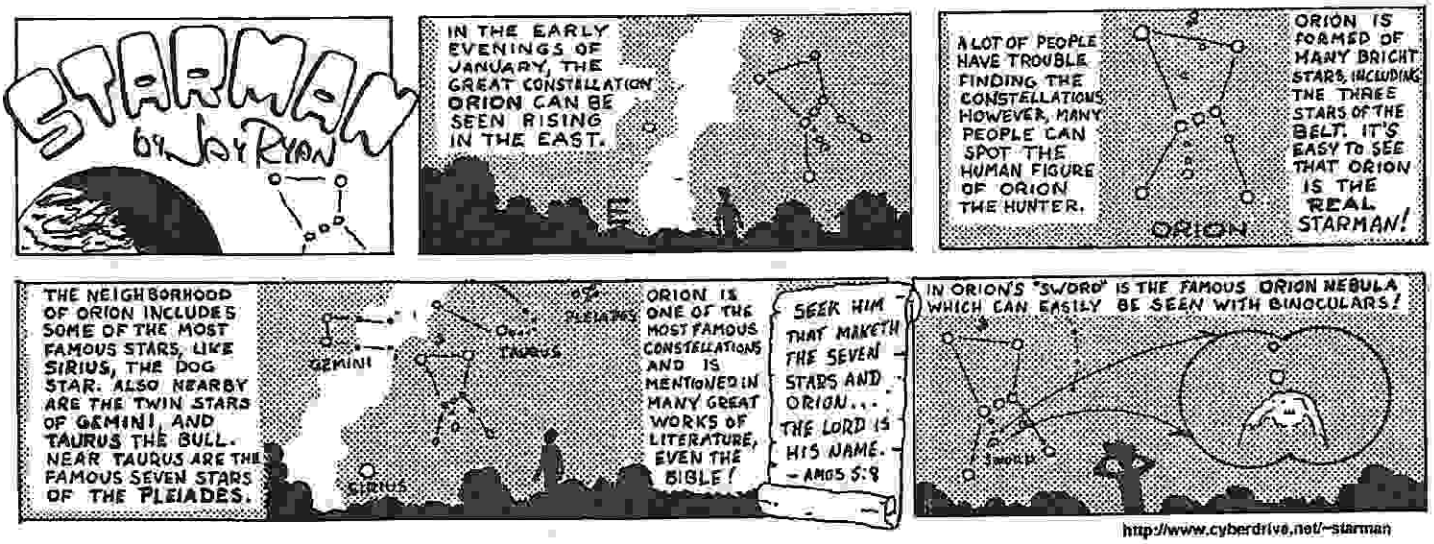
Tu/We	31/ 1	18:57 - 23:51	Sa/Su	11/12	20:55 - 5:59	Tu/We	21/22	- - -
We/Th	1/ 2	18:58 - 0:45				We/Th	22/23	Full Moon
Th/Fr	2/ 3	18:59 - 1:40	Su/Mo	12/13	22:02 - 5:59	Th/Fr	23/24	- - -
Fr/Sa	3/ 4	18:59 - 2:38	Mo/Tu	13/14	23:07 - 5:59	Fr/Sa	24/25	- - -
Sa/Su	4/ 5	19:00 - 3:38	Tu/We	14/15	0:09 - 5:59	Sa/Su	25/26	19:16 - 19:59
			We/Th	15/16	1:10 - 5:59			
Su/Mo	5/ 6	19:01 - 4:39	Th/Fr	16/17	2:09 - 5:59	Su/Mo	26/27	19:17 - 20:51
Mo/Tu	6/ 7	19:02 - 5:41	Fr/Sa	17/18	3:07 - 5:59	Mo/Tu	27/28	19:18 - 21:44
Tu/We	7/ 8	19:02 - 5:59	Sa/Su	18/19	4:01 - 5:59	Tu/We	28/29	19:19 - 22:37
We/Th	8/ 9	19:03 - 5:59				We/Th	29/30	19:20 - 23:31
Th/Fr	9/10	19:04 - 5:59	Su/Mo	19/20	4:54 - 5:59	Th/Fr	30/31	19:20 - 0:26
Fr/Sa	10/11	19:47 - 5:59	Mo/Tu	20/21	5:42 - 5:58	Fr/Sa	31/ 1	19:21 - 1:23

Weekend Sa/Su	Sun Set	Sun Rise	Mercury Rise	Vi	Venus Rise	Vi	Mars Rise	Vi	Saturn Set	Vi	COMET HALE-BOPP Rise	Vi
4/ 5	17:31	7:24	6:42	-	5:54	0	23:21	0	23:31	1	5:55	7
11/12	17:37	7:24	5:58	4	6:06	1	23:02	0	23:05	1	5:34	5
18/19	17:43	7:22	5:44	3	6:16	1	22:42	0	22:40	1	5:13	4
25/26	17:49	7:19	5:48	3	6:24	3	22:19	0	22:15	1	4:52	3
1/ 2	17:56	7:15	5:57	4	6:30	4	21:54	0	21:51	1	4:32	2

Vi=Visibility
-3 brilliant
0 conspicuous
3 moderate
6 naked eye limit
9 binoculars limit

By Erich Karkoschka

Starman



http://www.cyberdrive.net/~starman

Star Parties & Events

Mirror Lab Casting Open House
Mid-January, '97

The Steward Observatory Mirror Lab will be casting its first 8.4 meter mirror blank sometime in mid-January, and you can be there! As the largest currently anticipated single-blank casting in the world, it will certainly hold a place in history. An open house is a part of the tradition, but there are security concerns. To attend, you need to have a badge waiting for you at the door, and for that to happen, you need to call Dean to verify TAAA membership and get put on the list. Please let him know the number in your party (friends or neighbors will likely be allowed). Call him at his office phone at 621-8764 for reservations - the message will give the latest schedule information, as well as the latest registration info needed. It is great fun to check out the Mirror Lab activity, not to mention seeing and feeling 20 tons of molten glass warming your face from a few feet away in its spinning oven. See you there! Deadline to make reservations for the Mirror Lab Casting is January 6.

David Levy Comet Presentation to Benefit Flandrau Science Center
January 20
By Mike Terenzoni

World famous author, comet hunter and discoverer David Levy will give a special presentation and general overview of comets and in particular the upcoming Comet Hale-Bopp on Monday, January 20 at Flandrau Science Center! Dr. Levy is best known for his co-discovery of the Shoemaker-Levy 9 Comet that exploded into the planet Jupiter in 1994, creating an international sensation. The importance of Comet Hale-Bopp, comets and the origin of Life, and comet impacts, will be discussed in Dr. Levy's entertaining style with music, slides and poetry. Dr. Levy will also show where Comet Hale-Bopp can be seen in the sky from January to May. Dr. Levy will be available to answer questions and sign books after each talk. A second talk will be added if the first one sells out. The first presentation will commence at 7:30 p.m., the second one (if needed) will commence at 9:00 p.m. Tickets are $10 each, available for purchase at the Flandrau Science Center gift shop (phone: 621-4515, 9 a.m.-5 p.m.). Proceeds will benefit the educational programs of Flandrau Science Center. *

The 1997 Arizona Messier Marathon
March 8, 1997

The Saguaro Astronomy Club will again sponsor the Messier Marathon for 1997. The site is planned for Arizona City, AZ and the date Saturday, March 8, 1997.

This is the same place that the All Arizona Star Party was held during October 1997. David Fredericksen and I will get more information to you during January 1997.

For now, mark your 1997 calendars for this event.

Attached is a listing of all Arizona Astronomy Clubs and Organizations interesed in astronomy and are invited. If any have been missed notify them and us. We don't want to exclude any.

Those with e-mail address are being notified via e-mail; others will be snailed a copy. If you have any questions or comments; drop us a line or give a call.

AJ Crayon, Deep Sky Chairman, Saguaro Astronomy Club, 3819 N. 37th. Ave, Phoenix, AZ 85023 ,phone: (602)*938-3277, e-mail: acrayon@primenet.com *

Grand Canyon Star Party '97
7-14 June
South and North Rim

Well boys and girls, it is time once again to make plans for that perfect summer getaway - the Grand Canyon Star Party! Where else can you go to keep the family happy and occupied all day, and the dark nights will keep even the most jaded of astronomers smiling all night long? We have plans to continue last year's successful North Rim version as well, so you have your choice of rims, though as it is closed over the winter, its organization is somewhat less complete.

What is the Grand Canyon Star Party? Its current revision started in 1991 as the first anniversary of Dean and Vicki Ketelsen's honeymoon there. It was noticed that a telescope set up looking at the Canyon or sky soon gathered a crowd, so a public oriented event was planned. Though tens of thousands visit every day, a small fraction stay overnight to be treated to the spectacular views of the night sky there. The appreciative tourists tend to leave early, leaving the astronomers in solitude for observing far into the night.

The Grand Canyon Star Party originally started much earlier as a function of the San Francisco Sidewalk Astronomers who made annual pilgrimages to several western National Parks in the late '70s and '80s, spending several weeks at each stop. The latest version of the star party has been readily endorsed by several of their members who have become regular attendees.

What is there to do there? Well, the Grand Canyon offers world class hiking through Earth's largest canyon system. Even those less physically inclined can spend days exploring the scenic vistas offered from every bend of the rim trail, or from the roads from their cars or park shuttle buses. The place offers lots to explore for the history buff with many original structures preserved and a nearly century old train making daily runs to the rim. The area offers astronomical day trips to Lowell Observatory or Meteor Crater, as well as scenic drives through Monument Valley, the Painted Desert, Flagstaff and Oak Creek Canyon. One could easily spend a couple action packed days or the entire week without repeating yourself.

How is the observing at the Canyon? Conditions are excellent. The nearest town, Flagstaff - population 45,000, is 80 miles away, while Las Vegas and Phoenix are both about 170 air miles away making for very dark skies. Elevation at the South Rim is about 7,000 feet with the North about 8,000 feet. Seeing conditions are usually very good with the exception of very still nights when pockets of cold air move through slowly disrupting the seeing. Early June is Arizona's clearest time of year. We have lost only one night to clouds in 4 years (32 nights) of observing!

Where would we set up our scopes? There are two options for you. Traditionally, the San Francisco group would set up in the parking lot for viewing. The big advantage is that is where the people are and you are sure to attract a crowd, and after all, this is supposed to be a public event. The

Tucson Amateur Astronomy Association
1997 Membership Survey

In an effort to provide you with the best astronomy organization, the board of directors asks you to fill out this survey. Please answer everything on this page,.Then answer those parts which you feel qualified to answer, or those issues you have an opinion about. This survey will be used to set our priorities and plan events over the next few years. If additional space is needed, please attach a sheet of paper. Your input is very important to us. Return this survey to: Tucson Amateur Astronomy Association PO Box 41254 Tucson, AZ 85717 or bring it to the next meeting.

Information About You

I have been a TAAA member for:

- ☐ less than 6 months
- ☐ 6 months to one year
- ☐ 1 to 2 years
- ☐ 2 to 5 years
- ☐ over 5 years
- ☐ over 10 years

How active do you consider yourself to be:

- ☐ Very active
- ☐ Somewhat active
- ☐ Not very active

I have been interested in astronomy

- ☐ for only a short while (less than 1 year)
- ☐ for many years
- ☐ for most of my life

When it comes to astronomy, I consider myself

- ☐ very knowledgeable
- ☐ somewhat knowledgeable
- ☐ just a beginner

Astronomy is

- ☐ my main interest/hobby
- ☐ my profession
- ☐ one of my hobbies
- ☐ a passing interest

List other astronomical organizations you are a member of:

What equipment do you own? (Please identify any equipment you have made.)

Please indicate your interest in the following areas. Indicate your willingness to help others in this area by checking both boxes. Limit yourself to 10-15 areas.

Interested	Willing to help others	
☐	☐	amateur research
☐	☐	asteroids
☐	☐	astrophotography
☐	☐	binary stars
☐	☐	binocular viewing
☐	☐	CCDs
☐	☐	comets
☐	☐	computers in astronomy
☐	☐	constellation identification
☐	☐	cosmology
☐	☐	deep sky
☐	☐	electronics in astronomy
☐	☐	general astronomy
☐	☐	history of astronomy
☐	☐	lectures about astronomy
☐	☐	light pollution issues
☐	☐	lunar eclipses
☐	☐	lunar observing
☐	☐	Messier objects
☐	☐	meteorites
☐	☐	meteors
☐	☐	observing in general
☐	☐	occultations
☐	☐	optics
☐	☐	planets
☐	☐	public education
☐	☐	radio astronomy
☐	☐	reading about astronomy
☐	☐	SETI
☐	☐	solar eclipses
☐	☐	solar observing
☐	☐	stars
☐	☐	supernova search
☐	☐	telescope making-not optics
☐	☐	theoretical astrophysics
☐	☐	variable stars
☐	☐	other _____
☐	☐	other _____

Meetings

The meetings are usually
- ☐ interesting
- ☐ boring

The length of the meeting is:
- ☐ just right
- ☐ too short, suggest a length: _____
- ☐ too long, suggest a length: _____

The Beginner's Lectures are
- ☐ helpful
- ☐ too simplified
- ☐ too advanced
- ☐ I don't attend Beginner's Lectures

The featured lecture is usually
- ☐ too advanced/technical
- ☐ about right
- ☐ too simple

I prefer hearing lectures by
- ☐ professional astronomers
- ☐ amateur astronomers
- ☐ no preference

The frequency of Member's Nights are
- ☐ just right
- ☐ too many, suggestion: _____/year
- ☐ too few, suggestion: _____/year

I have the following suggestions regarding meeting format:

I have the following suggested topics or speakers:

Newsletter

Do you receive your Desert Skies in a timely manner?
☐ Yes ☐ No
If NO, what is your ZIP CODE? _____

Do you read Desert Skies? ☐ Yes ☐ No

Is Desert Skies useful or interesting? ☐ Yes ☐ No

Would you change anything or add anything to Desert Skies?

Public Activities

The TAAA should continue its youth activities
- ☐ at the same level as now
- ☐ less than we now do
- ☐ more than we do now

The TAAA should continue its general public activities
- ☐ at the same level as now
- ☐ less than we now do
- ☐ more than we do now

Do you volunteer for school star parties?
☐ Yes ☐ No

Do you volunteer for other public or private star parties?
☐ Yes ☐ No

If you participate in our public activities, why you think it is important?

If you do not participate in our public activities, what would make you more active?

Star Parties

How often do you attend star parties at Empire Ranch or other dark sky site?
- ☐ once a year
- ☐ a few times a year
- ☐ once a month
- ☐ more than once a month
- ☐ never

Would you attend star parties if they were closer to Tucson than Empire Ranch-which is one hour away.
☐ Yes ☐ No

Are you interested in carpools or caravans to star parties?
☐ Yes ☐ No
If YES, what is your ZIP CODE? _____
I would be a ☐ passenger ☐ driver

Do you have any suggestions for improving star parties ?
If you do not attend star parties, why not?

Observing Site

For several years, the TAAA has been looking for a new observing site. It has been assumed that we would purchase a piece of land with very dark skies southwest of Tucson within about an hours drive. So far we have raised about $30,000 for an observing site and our 30" telescope (see next question). The following questions relate to this dark observing site.

☐ **Please mark this box if this is the first time you are hearing about this project!**

How often would you use a dark site ?

☐ once a year
☐ once a month
☐ never
☐ a few times a year
☐ more often than once a month

Indicate the importance of the following facilities (1 is most important, 8 is least important.) for an observing site These are things we could add to a site after we find it.

___ dorm rooms
___ bathroom facilities
___ camping/picnic area
___ resident caretaker
___ clubhouse
___ kitchen facilities
___ RV hook ups
___ other _____

Indicate the importance of the following characteristics of a site (1 is most important, 8 is least important). These are things we have little or no control over.

___ dark sky overhead
___ no direct lights nearby
___ good access to the site
___ vegetation
___ security concerns
___ water nearby
___ power nearby
___ other _____

What distance from your home are you willing to drive to a dark observing site?

☐ within 30 minutes from Tucson
☐ within 1 hour from Tucson
☐ within 90 minutes from Tucson
☐ more than 90 minutes

Assuming mostly paved roads, how much dirt road are you willing to drive on?

☐ paved roads only
☐ a good dirt road only-how long _____ miles
☐ some rough dirt road is okay-how long _____ miles

Should members be permitted to build observatories for their own telescopes on a TAAA owned site?

☐ Yes, free of charge
☐ Yes, for a fee of approximately _____/year
☐ No -Why not? _____

Should a portion of our membership dues be set aside for land even if it is purchased a few years from now?

☐ Yes - How much $_____ ☐ No

Would you be willing to make a monthly donation towards obtaining an observing site?

☐ Yes - How much $_____/month ☐ No

Would you be willing to make observations from a site to help characterize the observing conditions (a selection of specific observations would be made at specific times during a night)? ☐ Yes ☐ No

---

The board of directors recently learned of a possible observing site near Tucson. This site is being leased by another organization and is about 6 miles west of the Desert Museum. Tucson's sky glow reaches about 40 degrees above the eastern horizon. Access includes a 2 mile good dirt road (40 mph). A caretaker lives on the premises. The following questions relate to this "bright" sky site.

Should the TAAA investigate this site further? ☐ Yes ☐ No

Would you use the TAAA 16" telescope if it were located here? ☐ Yes ☐ No

How often would you use this site?

☐ once a year
☐ once a month
☐ never
☐ a few times a year
☐ more often than once a month

Do you think a portion of the $30,000 raised for our dark site/telescope should be used for this site? ☐ Yes ☐ No

30" Telescope

Several years ago Steward Observatory gave the TAAA a 30" telescope mirror blank. This mirror has been ground and polished and is in the figuring stage. The plans call for this to be a classical cassegrain/newtonian telescope and would be used both visually and for photography or CCD work. This project will require a lot of planning and work on the part of TAAA members, but many other astronomy clubs in the US have accomplished this type of project. So far we have raised about $30,000 for this telescope and for an observing site (see previous question). These questions relate to the telescope.

☐ **Please mark this box if this is the first time you are hearing about this project!**

This project is

- ☐ interesting and I would like to take some part in it-list your skills /services _____
- ☐ interesting, but I don't think I have any skills to offer
- ☐ too much for us to undertake
- ☐ I don't care about this project

What would you use the 30" telescope for?

- ☐ Visual observing
- ☐ CCD Imaging
- ☐ Astrophotography
- ☐ Research, what type _____

Where would you prefer the 30" telescope to be built?

- ☐ close to town
- ☐ at our future dark site
- ☐ on public land (state park or similar)
- ☐ at a professional observatory (Kitt Peak, Mt. Lemmon, etc.)

Should a portion of our membership dues be used to build the 30" telescope?

- ☐ Yes - How much $_____
- ☐ No

Would you be willing to make a monthly donation towards the 30" telescope?

- ☐ Yes - How much $_____/month
- ☐ No

General

What would make you a more active member? (Attach a separate sheet if necessary.)

What suggestions do you have for improving the TAAA? (Attach a separate sheet if necessary.)

Optional

Name_____

Address_____ Apt _____

City_____ State _____ Zip _____

Email address_____

Occupation _____ ☐Male ☐Female

problem is that, especially early in the evening, there are lots of headlights, and parking around sunset is impossible to find. The second option is that there is an observing field behind a locked gate just off the parking lot. You avoid the headlight problem as it is perhaps 10 meters below the level of the parking lot. The locked gate also serves as a security device and, particularly if your scope is large or setup is involved, you can leave it set up for the duration of your stay. The disadvantages are that not as many public make it down to the observing field, and you lose about 10-15 degrees of southern horizon, though you can still get down to Scorpio and Sagittarius. Over the years we had slowly been migrating to the observing field, but last year we reversed the trend and most set up in the parking lot. It is a pain to set up/tear down every night, but the rewards of more public interaction really helps make up your mind. Power is available in the restrooms, but is a pain as well as a trip hazard in the dark and I would prefer you run off batteries and inverters.

Unfortunately, in the National Park, camping is not allowed anywhere but the campgrounds, so the options are to pack up your scope every night or leave it up in the observing field. Yavapai Point is close to everything, about 3/4 mile from the campground (Mather) and about ½ mile from Yavapai Lodge (Fred Harvey, Inc).

Where would we stay? That is the big question for every Canyon visitor during the summer. By anyone's opinion, the Canyon is overcrowded in June and most housing has been booked up months in advance. If you need a room to stay in, you had best start NOW (I'm writing this at Thanksgiving). Even by March you will likely have to search around for a room. If you can tolerate a 7 mile drive to Tusayan, there are also a number of motels there. Check out the list below. The campground is very nice if you enjoy roughing it a little. It is amazing how well you sleep on the ground when you are up all day and most of the night! Campsites are generally available a day or two ahead of time ($12/night). The Park Service also gives us a few complimentary campsites which we make available first come, first served after March 1st. RV parking with a full hookup is available in Trailer Village ($18/night). Again, early reservations are advised.

Any special activities planned? I'm glad you asked that. As part of our program, we offer a twilight talk every evening to entertain the folks while it gets dark. We always need volunteers to give these talks, so step up especially if you have an astronomical story to tell and have worked with crowds before. Last year, we ground and polished a mirror and made a telescope, donating it to the local grade school at the end of the week. We don't have plans for that this year, though we are open to suggestions. One of my great joys every year is to set up a scope or big binoculars on the rim to show visitors canyon views or sunspots, while telling them about the viewing later in the evening. It is great fun to be one of these "static displays" during our week there. We generally have a couple of social cookouts to get to know the astronomical folk who come volunteer. These are great fun and you get to actually see the faces of the guy you have set up next to the last 4 nights! Last year's day trip to Lowell Observatory and Meteor Crater seemed successful too, so we may repeat that midweek again. Otherwise there is plenty to do.

Sounds great! How do I let you know I'm coming?

If you need further information, or to let us know you would like to volunteer by bringing a telescope, PLEASE let us know at the address below. The space in the observing field is limited and we need to know how many folks we have coming that are bringing scopes. Be sure to have some housing plans before you let us know you are coming, and please indicate the dates you will be joining us. Of course, there has never been a registration fee for this event.

For South Rim information, write: Dean Ketelsen, 1122 East Greenlee Pl., Tucson, AZ 85719, (520) 293-2855, ketelsen@as.arizona.edu

For North Rim information, write: Deloy Pierce, P.O. Box 674, Farmington, UT, (801) 451-8215

SOUTH RIM FACILITIES:

All rim lodging or Trailer Village (Fred Harvey, Inc) (303) 297-2757
This number is often very busy, FAX them at: (303) 297-3175

South Rim Lodging includes:
Yavapai Lodge (modern facility, closest to Yavapai Point)
El Tovar (Victorian era lodge right on the rim, but high prices)
Bright Angel Lodge (newer facilities - also operate Thunderbird Lodge and Katchina Lodge on the rim)
Maswik Lodge (Newest facility, about a quarter mile from rim)

Trailer Village (RV park with full hookups)

ALL ABOVE LODGING IS OPERATED BY FRED HARVEY,INC AT ABOVE NUMBER!
EXPECT LONG TELEPHONE WAITS - TRY THEM EARLY IN THE MORNING, 7AM
MOUNTAIN TIME IS THE BEST I CAN SUGGEST

Campsites (Destinet - no more than 8 weeks in advance) 800-365-2267

Housing in Tusayan (7 miles south of Grand Canyon):
Squire Inn (520) 638-2681
Moqui Lodge (520) 638-2424
Quality Inn (520) 638-2673
Red Feather Lodge (520) 638-2414
Seven Mile Lodge (520) 638-2291

There has been a boom in motel construction in Tusayan and the above may not be your only choices. Rooms are generally a little less expensive than those at the South Rim, and it certainly is easier to make reservations than waiting for Fred Harvey, but then you are not within walking distance to one of the seven wonders of the world!

NORTH RIM FACILITIES:

North Rim Lodging:
Grand Canyon Lodge and Cabins - (303) 297-2757 (Fred Harvey,inc again)

North Rim Camping (Destinet - no more than 8 weeks in advance) 800
365-2267

*

Notes From Other Clubs

Tse' Naat'a'i'

(The following article received on email from Tom Polakis of Tempe AZ, via TAAA's Dean Ketelsen)

About a month ago the annual Festival of Science was held in Flagstaff. This is a week-long event which highlights the many science and technical establishments in town. It's a way for those us working at such places to show our stuff to folks in the city, as well as a way to get kids interested in science subjects.

As part of this event, I offered a numbered but unnamed asteroid to be assigned a name chosen from among suggestions submitted by participants in the festival. Most of the legwork for this was done by my co-author friend Chris Luginbuhl (USNO-Flagstaff), who was also on the organizing board for the festival. We got many entries from school kids as well as the general public from all over Arizona, and even one from England. Among about 120 names submitted, we chose a Navajo name, Tse' Naat'a'i', which appropriately enough means "flying rock". A rough pronunciation for English speakers is: tsay-naht-ah-ee, with hard glottal stops between the syllables indicated by the apostrophes. Now say it real fast....

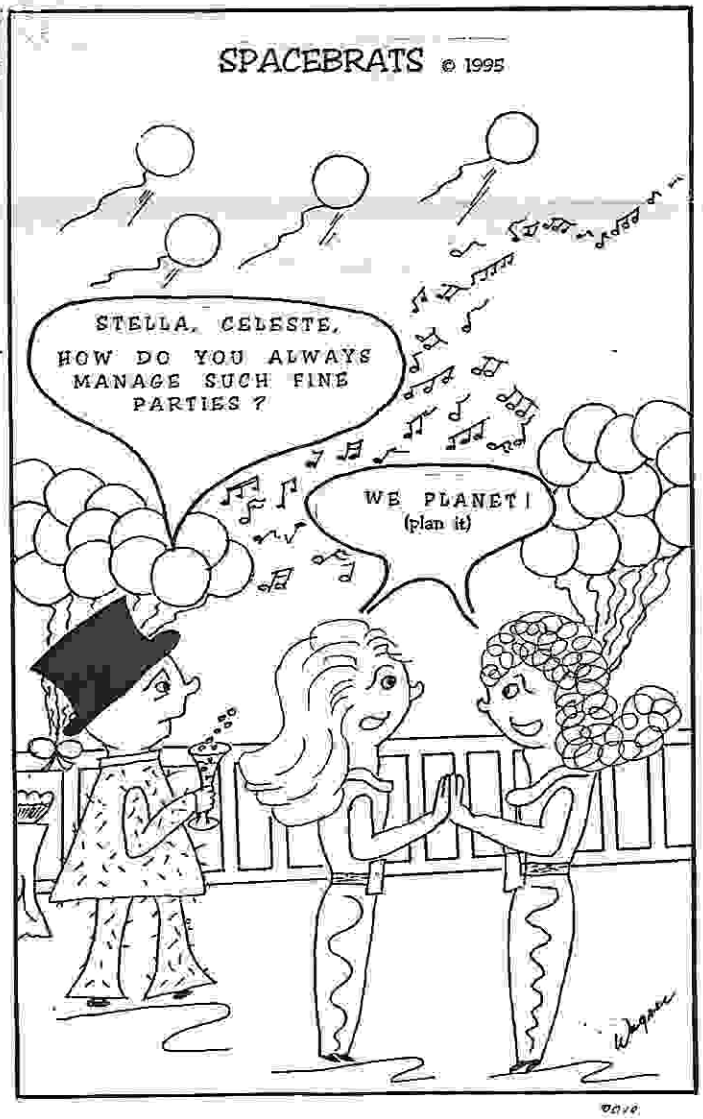
Anyway, this name was suggested by 13-year-old Derekson Bert, an 8th grade student at Rocky Ridge School, located in a place called Denebito out on the Navajo Reservation. The reservation covers most of the northeastern quarter of Arizona. Today's adventure was to go out to the school and present him (and the school) with a small award and a savings bond, which was the "prize" donated by the Flagstaff Medical Center. I went with Chris and with Kathy Dean, the hospital's PR person, who served also as photographer and note-taker for the Flagstaff media.

Denebito is in the middle of proverbial nowhere in a desolate, treeless, and nearly uninhabited land of rocky mesas, a very quiet landscape of profound beauty. Even here, a hundred miles from Flagstaff, the San Francisco Mountain was visible on the horizon, like the focal point of the world.

Passing through reservation towns is like going into a grimy third world village, and Denebito was no exception. The school was bustling with activity at lunchtime, the sand parking lot packed with pickup trucks. It turned out that the local "chapter" (administrative district on the reservation) was having a meeting dealing with the very serious land-dispute issue between the Navajo and Hopi, which was recently settled. The school principal and the "asteroid" class teacher arranged for us to come in to the assembly hall for the presentation just before the chapter meeting broke for lunch (mutton and fry bread). Thus Derekson was to be embarrassed not just by having to stand in front of his classmates, but about 100 tribal elders, too. The Navajo don't like being singled out for attention, so this was especially acute for Derekson ---as any 13-year-old would be.

Derekson Bert turns out to be a fairly ordinary kid, though obviously sweet-natured and shy. Apparently he is known as being somewhat creative, his teacher told us, and so really needed a little recognition like this despite the self-consciousness he suffered. Both the teacher and the principal were quite pleased we were doing this both for one of their students and for the school. We were briefly introduced (in Navajo) to the assembly by the principal and we made the presentations without much ceremony. Chris had cleverly prepared three-paneled picture frames with enlargements from the discovery photographs with the asteroid marked along with a printed citation. One was done up for Derekson and another nearly identical to it for the school to keep.

The audience, who, apart from the eighth graders, had been dealing with the land dispute stuff all morning, were evidently ready for some light relief, and clearly quite pleased. It is not certain they were fully aware of what it was that had been named by one of the young people, but that they saw that his idea was appreciated was enough. The Navajo myth for the origin of the night sky (in short form) is that a committee of Old Ones (ghosts to you, son) were sitting around trying to decide on the specific arrangement of the stars when Coyote came along and said "this is taking too long", and took them and strew them out all at once. There is naturally no Navajo word for asteroids, but perhaps this new name will do. Brian Skiff (bas@lowell.edu) *



Observing Reports

January Observing

BY GIL ESQUERDO

The month of January brings some of the coldest observing conditions, yet, in my opinion, it is one of the nicest. The cold night air is stable, providing crisp views of the planets. In addition, while it maybe cold, it is always possible to bundle up even more. It is difficult, on the other hand, to take off enough during the summer!

Saturn can be found high in the southwest as darkness falls. Set up your telescope just after sunset to allow the optics to reach equilibrium with the surrounding air. The rings are returning to their usual glory, and the shadow of the globe on the far side of the rings should be readily visible under high magnification and steady skies.

If you can, leave you telescope out for a few hours, or do some more observing, until Mars rises. The Martian disc is increasing in size, and will be nearly 11" at month's end. By that time, good seeing and high magnification will allow you to begin to discern surface details. We can look at Mars with great anticipation for the arrival of Mars Global Surveyor and Mars Pathfinder to arrive in the latter half of the year.

For those early risers, Hale Bopp will have begun to emerge from the muck of twilight near midmonth. Look in Aqulia, southwest of Altair for the comet. If binoculars are still required to see the comet by his point, then the prognosis is not good for the comet's performance. On the other hand, if it is easily seen by the naked eye, we could be in for a show! The comet can be seen about 10 to 12 degrees off the horizon just as morning astronomical twilight begins.

On the 19th, we will be able to see the moon make a close pass to Aldebaran in Taurus. For our neighbors roughly north of Edmonton, an occultation will be visible. This is a continuation of the series of occultations that have occurred for the past few months, observable near the north pole. Over the next few months, the occultation path will steadily make it's way to the south for us desert dwellers to enjoy.

Finally, for those very willing to brave the elements, the Quadrantid (Bootid) meteor shower, which usually produces a ZHR of 100 meteors, peaks on the morning of the third. For those wiling to brave the elements, a good show is usually in store.

Despite the cold, get out there and enjoy the winter skies.

Good Observing,
Gil Esquerdo *

An Occultation Adventure

BY BOB GENT

On a cool and breezy morning before sunrise on November 9, I headed south to the Tucson Airport. Was I about to depart on a flight? No, I was meeting with a team of observers to record a grazing occultation.

Now some of you are probably asking, "is this legal?" It sounds pretty bad, but an occultation is perfectly legal. Briefly, here's what happens. Each night the moon passes over stars and blocks their light -- eclipses of stars. But once in a while if you're in the perfect position, you can witness a "graze," when the star and the moon barely touch on the edge. The first time I heard about a graze, I thought of cattle on green fields, but this is not the same thing.

By setting up telescopes and recording timing signals perpendicular to the path of the shadow of the star, a team of observers "times the occultation." From these recordings, it's possible to calculate a very accurate profile of the mountains in that region of the moon. Also, the positional accuracy of the moon and star can be improved. Fortunately for us, the National Institute of Standards transmits timing signals on several easy to receive shortwave radio frequencies.

All the occultations are managed by a group known as the International Occultation Timing Association, or IOTA for short. Lucky for us, one of the Vice-Presidents of IOTA, Jim Stamm, lives right here in the Tucson area. Jim was the team leader of the occultation on November 9, and by the time we met at Denny's on Valencia Boulevard, he had already mapped out extremely accurate coordinates and locations for us to observe from. At about 5:30 am, I drove to my assigned observing site on Tucson Boulevard just north of Valencia. I used a 6-inch Newtonian with a clock drive, a portable shortwave radio, and a small cassette recorder to record the WWV time signals and my voice calling "on and off" as the star passed behind the mountains of the moon. This event was a little tricky because it was low in the sky with windy conditions and poor seeing. All that said, it was a very exciting observation and a successful occultation outing. Jim was able to compute the mountain's profile and complete the IOTA report.

Besides stars and the moon, there are many other kinds of occultations. If you were at the December 6 TAAA meeting, you heard the forecast of the December 16-17 occultation of a star and an asteroid. These are exciting events because for the first time, amateur and professional astronomers can actually calculate the shape of an asteroid.

If you'd like to know more about occultation timings, there are usually several IOTA members at each TAAA meeting. We'd be pleased to invite you to the next adventure. *

THE RABBIT'S FOOT

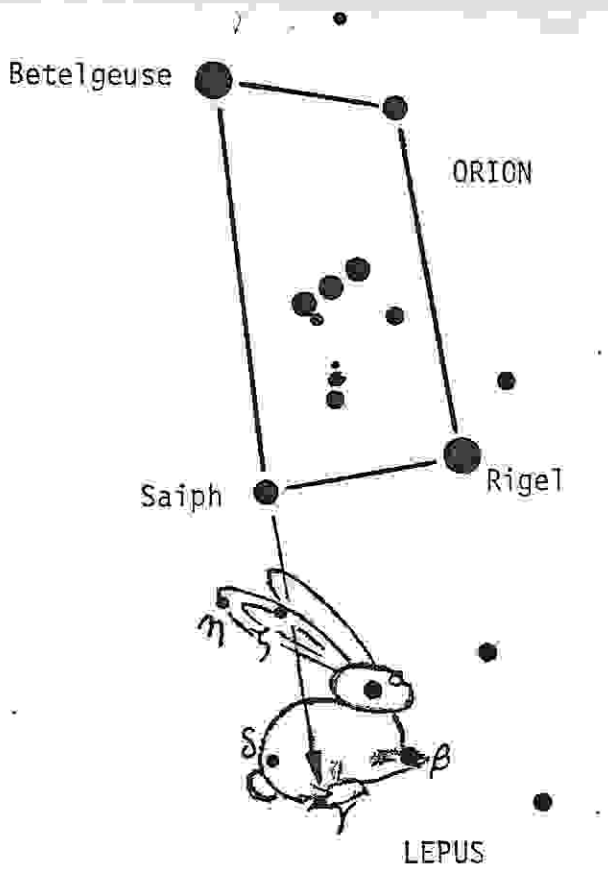
During mid January Orion crosses the meridian at 10 P.M. with his two hunting companions Canis Major and Canis Minor following close behind. Charging toward Orion from the west is Taurus the Bull, with orange Aldebaran marking the Bull's angry eye. Below Orion is Lepus the Hare, no doubt being chased by Orion's dogs. Lepus is a rather dim constellation forming two curved rows of three stars each. I am hard pressed to see a rabbit formed out of all these stars. I can imagine a rabbit by using the stars α,β,δ,γ,ζ,η, Leporis. Arneb, α Leporis marks the head with his ears curved back represented by ζ and η Leporis. Delta Leporis marks the hare's cottony tail, while β and γ Leporis represent the front and hind paws respectively. The hind paw third magnitude γ Leporis is a solar neighbor and a fine binary star system lying 26 light years from us.

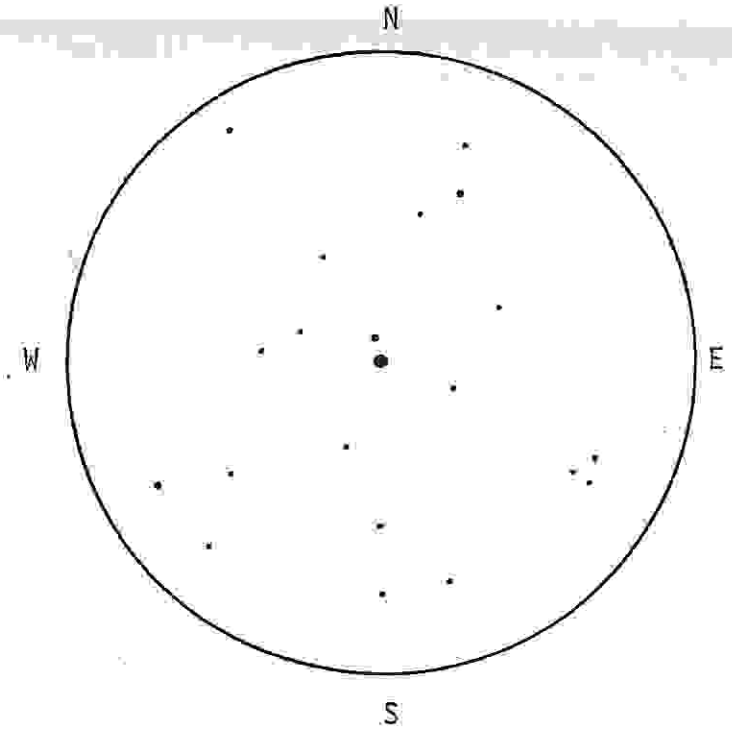
Gamma (γ) Leporis is easily resolved with binoculars and small telescopes, it offers a fine color contrast of topaz and garnet. The primary γ^1 Leporis is a little hotter and brighter than our Sun with a spectrum of F7 V. Gamma^1 Leporis has a luminosity of 2 suns, and its diameter is about the same as our Sun. This star glows at a magnitude of 3.6 and the companion has a magnitude of 6.2. Gamma^2 Leporis is quite different, it's a dwarf star much smaller and fainter than the Sun. It has a spectrum of K2 V, and its luminosity is about one-fifth that of the Sun, with a smaller diameter of half the Sun. The separation of 96.3" makes the gap between the two stars to be 900 A.U. Our Solar System could be placed end to end about 11 times across this distance. The dwarf companion can be seen to the north of the primary at a P.A. of 350°. The P.A. has remained fixed for the past 175 years now, but the separation has shown a slight increase.

To find γ Leporis first locate the stars of Orion. The red star in the upper left corner of Orion is Betelgeuse, now draw a line southward through Saiph (κ) Orionis a second magnitude star in the lower left corner of Orion. Extending this line southward 13° to γ Leporis.

On a cold Winter's night γ Leporis shows its warm hues nicely across the barren landscape of deep space. So dress warmly to enjoy this golden glowing duo below Orion.

Jeff Brydges





Gamma Leporis in a 60mm refractor at 35x.

TAAA Board of Directors Meeting

There has been no Board of Director's Meeting since the last issue of Desert Skies.

Desert Skies Classified

FOR SALE: (1) Freq. Drive Corrector. input: 12VDC 1.0A output: 115VAC 7W Freq adjustable from 50-65Hz Hand Paddle with Fast/Slow buttons 40/63Hz, and map light 12VDC accessory plug on unit. Low battery indicator. $100 OBO. (2) Stepper Motors. Manuf: Fuji Electric Co. Ltd. Model: GPF2945-2A (PM type) Step angle: 1.8deg Volts: 1.8DC Current: 4.8A/Phase 6 wires $20 OBO for both. Contact Enrique, 520-882-9525, home, 520-318-8226, work or email: chavez@noao.edu. (01-97)

FOR TRADE: Three telescopes: (1) - 6-inch f8 reflector, DOBS mount; (2) - 6 inch 44.3 RFT reflector with a 2-degree field of view. DOBS mount; (3) - 60mm Celestron refractor, alt-az. Mount. Want to trade all three for a 4-inch refractor with alt-az mount. Call Gilbert Friedman at 571-1662. (01-97)

WANTED: 1.52 inch diameter (minor axis) secondary mirror for Newtonian telescope. Call Frank at (520) 825-5540 or email fcathell@aol.com.
(02-97)

FOR SALE: Eyepiece; Celestron 12mm focal length, excellent condition; $35.

Solar prominance viewer suitable for Celestron C5; C8, etc.; has set of occulting discs for different sizes of solar image and hydrogen-alpha filter. Uses Herschel sedge to reduce excess light and heat; $275.

Maksutov telescope, 3 inch aperture, star diagonal and eyepiece. Good optics. Can be mounted on your camera tripod. Suitable for spotting scope, photoguide scope, finder, astronomical telescope, or telephoto lens (f/10). Light weight aluminum construction; takes standard 1 1/4 inch eyepieces. Approximately 800mm E.F.L., $195. 9 inches overall length with star diagonal in place.

Celestron 4" refractor; fluorite objective lens, star diagonal included. Heavy duty mounting. Excellent condition, $1,500. For more information or to see contact Duane Niehaus, at 797-4189. (03-97)

TRADE: Pro Optic 32mm Plossl eyepiece (1.25" dia) for any similar Plossl eyepiece in the 15mm to 22mm range. Call Frank at (520) 825-5540 or E-mail at fcathell@aol.com for details or questions.

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 Nancy or Nina at 579-1382 or email to nlwagner@aol.com or ninalehman@aol.com.