



Sacnews

Issue 274

Jan 2000

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Reflections

A VISIT TO HARQUAHALA SOLAR OBSERVATORY

Sunday November 7, 1999

By Jennifer Keller,
Secretary

searching for a pencil at night
with a red flashlight.

After a night of off and on cloudy skies, accompanied by a friendly group of well lighted hunter/campers, Jack Jones and I continued down the rest of the dirt road from our Eagle Eye Observing spot as far as two wheel drive would take us toward the top of Harquahala Peak to get a look at the old solar observatory that was abandoned in 1925. The 2 1/2 mile trek the rest of the way up the well graded "new" road was tolerable under the still cloudy sky, even for someone whose idea of exercise is frantically

The views from the top were incredible. You could see many miles in every direction.

The views from the top were incredible. You could see many miles in every direction. You could easily locate Phoenix to the East by the "brown cloud" hovering above. Rows and rows of mountains could be seen everywhere and the sky (except Phoenix's) was a brilliant blue with pure white clouds. Patterns of farmland lay below like a huge monster quilt.

At the top there are the remains of one of the buildings used for the

(Continued on page 2)



The Solar Observatory at the peak of Mt. Harquahala. The observatory was use to search for a Solar Constant. The observatory was abandoned in 1925 and is now on the register of historical landmarks.

*Photo By Jennifer Keller,
SAC Secretary.*

(Continued from page 1)

great quest for a solar constant. It is a small shack originally built from adobe type mud collected near the site, reinforced with wood and later reinforced again with sheet metal. The building itself is totally fenced in and locked (and not worth conquering the fence to peak inside, trust me). The quest for a solar constant did not require a telescope, so you won't see any dome type structures there. The Harquahala Peak Observatory shares the mountain top with a microwave radar type set up with many solar panels which is somehow used to monitor the water in Central Arizona Project's canal.

After signing into the guest book, we hiked around a while, took some photos, breathed in the views, chatted about how difficult it would be to live up there in the roaring 20's, conquered the fence, heard others coming up the trail, then unconquered the fence quickly.

Much to our surprise, the two new visitors were Tom Polakis and Bernie Sanden, infamous local amateur astronomers. They had tried earlier in the day to hike up the original "old" Telegraph Trail from the Wenden side only to succumb to "Posted, No Trespassing, \$1000 Fine". (We think the trail washed out in a storm but will be refurbished in 2000). They then drove up the "new" road as far as Bernie's brand new truck would go and hiked the additional 5 miles to the top.

Tom took an incredible panoramic set of pictures from the top that makes you feel like you are there. These can be viewed at <http://www.psiaz.com/polakis/hikes/harquahala.html> <<http://www.psiaz.com/polakis/hikes/harquahala.html>> . Bernie took measure-

ments with his GPS which indicated altitude at 5740 feet, latitude at 33 degrees, 48 minutes and 40 seconds, longitude at 113 degrees, 20 minutes and 48 seconds.

I really enjoyed this trip and would highly recommend it. It's a nice way to follow up a night of observing at Eagle Eye and a neat way to catch a first hand glimpse at a bit of history related to astronomy. For further information, we have an article in our library by Pieter Burggraaf in the Journal of Arizona History Spring 1993. Tom thinks there is also a book by Mr. Burggraaf at the Tempe Library that contains correspondence to and from the people that worked on this site. There is also



Tom Polakis, Jack Jones and Bernie Sanden pose in front of the Harquahala Solar Observatory. Jennifer Keller photo.

New Look for SACNEWS

Starting with this issue I've switched platforms for publishing SACNEWS from WordPerfect v6.0 to Microsoft Publisher 2000. The switch will allow more flexibility in the type of publication I can produce, as Publisher is a true desktop publishing program. Since taking over as editor of SACNEWS, I've received much positive feedback on my work. First I'd like to thank you for the kind words. Second, I want to continue to produce a newsletter we can be proud of. In that vein here is what I have planned in the way of additions and improvements and what you can do to help.

First and most obvious is the switch to Microsoft Publisher 2000. While I'm still in a learning curve on its use, it is fairly intuitive, so I can get something out now and refine the publication, as I get more adept. Part of the additional flexibility offered by using a true desktop publishing program is the ability to have commercial printing services print the newsletter directly from disk. This will produce a much better quality in the final product vs. copying services. I first need to check on the cost of this,

but hopefully the addition cost won't be prohibitive. I would also like to make SACNEWS a color publication. Not only does this look nicer, it will allow pictures and other graphics to be used with more frequency and with better quality.

As those of you who attend meeting regularly have noticed, I've brought the new issue to the meetings for distribution there and then mail the rest the following week. This helps save the club on postage. In order to meet this deadline, I have everything ready by the Wednesday prior to the meeting. This means any submissions of articles; news items etc. need to be to me no later than the Friday before the meeting for consideration for that issue. Please keep this in mind when submitting items for the newsletter.

Also notice I've changed the e-mail address for SACnews business to SaguaroAstro@aol.com. Please use this address when communicating with me regarding item fro SACnews.

New SAC Leadership Team Elected

The November meeting saw the final elections of officers of the Saguaro Astronomy Club for the year 2000. Previously nominated at the October meeting was Jack Jones for President, Steve Coe for Vice President, Jennifer Keller for Secretary. At the conclusion of the October meeting Properties and treasurer remained open for nominations. Peggy Kain contacted Steve Coe offering her self as a candidate for Treasurer. She was unable to attend the November meeting but was nominated in absentia. Pierre Schwaar was nominated for Properties. Since there were no opposing candidates for any of the positions a motion was made to accept the slate as it was. The motion passed unanimously.

Please welcome our new officers and lend them the support they need to keep the Saguaro Astronomy Club the best there is. Once again please thank the outgoing officers for their past efforts.

The New Board will assume their new responsibilities Jan 1st. Contact information for all SAC board members is located on page 1 of each issue of SACNEWS.

Fuzzy Spot, Taurus

By Ken Reeves

Let's begin the new millennium (or start the last year of this millennium, however you chose) by looking at the bull. Although Taurus is the bull, really only the front half is seen in the sky, with the "V" of the Hyades forming the head and bright Aldebaran being the eye. Someone at the All Arizona Star Party (I don't remember who it was) pointed out to me that since Aldebaran is red and is the "bull's eye," most dartboards have the bull's eye as red.

Taurus is home to many open clusters, some nebula, and a couple of supernova remnants which are about as different as you can get. There's a lot to go over, so let's jump right into it.

NGC 1514 (04h09.2 +30 47): This is a fantastic planetary nebula. In the 20" scope at 160X, I saw an extremely bright central star (which is probably a coincidental foreground star). Surrounding the star is a very large, pretty bright, round, and very mottled glow of the nebula. The brightest part is perhaps annular around the star. In the 10" scope, I saw a very bright stellar center. At 70X, the nebula is pretty large, fading out smoothly from the center, and with the UHC filter, possibly elongated. Using averted vision makes the nebulosity grow somewhat, and helps better define the edges. This is a fascinating and fabulous planetary.

NGC 1647 (04h46.0 +19 04): This open cluster is very loose, with about 40 stars. There are a couple of doubles in the middle with a fairly bright pair off to one side. This cluster is very easy to find.

NGC 1746 (05h03.6 +23 49): This very large object is a complicated cluster, containing NGC 1750 and NGC 1758 within its boundaries. The main cluster is pretty bright, pretty rich, slightly condensed, and has about 90 stars in 5 or 6 levels. The brightest stars are loose with some tight clumps of fainter stars. On the ENE side of the cluster is a clump of stars, which I guessed is NGC 1758. On the N side is another grouping, but is not one of the sub-clusters. NGC 1750 is on the SE side, and is not at all obvious.

NGC 1807 (05h10.7 +16 32): Along with NGC 1817 (see below), this open cluster forms a nice pair. It is pretty bright, somewhat large, not at all condensed, and quite poor. There are about 20 stars total in 4 levels, and no background stars. The brighter stars form an M. This cluster is even visible in 10x50 binoculars.

NGC 1817 (05h12.1 +16 42): In comparison to NGC 1807, this open cluster is somewhat faint, pretty large, pretty rich, and pretty condensed. There are 4 levels of stars with about 80 obvious stars plus some more that

pop out with good seeing. There is a bright double star on WNW edge, and 5 or 6 more bright stars around the edge. Faint but overall a real nice cluster.

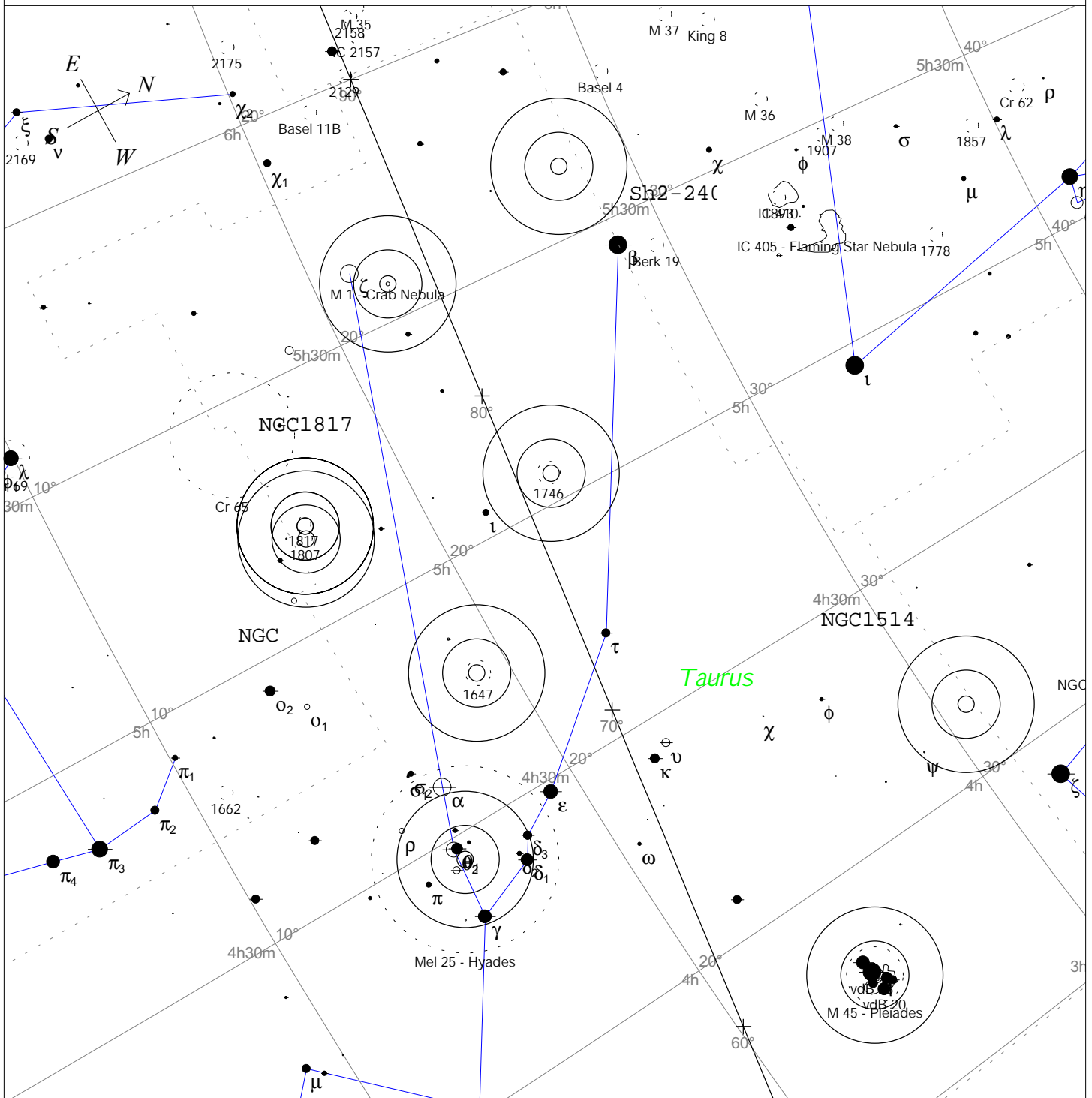
NGC 1952 (05h34.5 +22 01): This is the famous Crab Nebula and the first of Messier list. At 100X it is pretty big, and not real bright. Using the UHC filter doesn't help much. Increasing the power to 140X, it is seen as much an elongated and fairly even gray blob with a star on either end. This is a fairly early observation of mine and although I have looked at it many more times, I don't have anything written down. I do know from memory that there is a lot more detail visible if one takes the time to really study it.

Mel 22 (03h47.0 +24 07) and IC 349 (03 46.3 +23 56): This is the beautiful Pleiades open cluster along with the Merope Nebula. It is hard to believe the Charles Messier included this in his list, as one would have to have real bad eyesight (or be really drunk) to mistake this for a comet. But as a cluster, this one must be described with superlatives: very large, very bright, very easy naked eye. I counted 6 stars from light polluted sight. In a 6" F6 scope, it takes about 4 fields of view to get the entire cluster. There are 76 obvious stars seen from town, with a very nice triangle in the center and a very nice string of 7 stars to the SSE. From a dark site at 70X (in the 10" scope), the Merope nebula is seen as somewhat faint and fanning to the S of Merope. It fills about 1/2 the field of view. A little bit of nebulosity is seen around some of the other stars.

Mel 25 (04h27.0 +16 00): The final cluster of this month is the Hyades open cluster. It was fun to try to draw this one from the scope since it took about 10 fields to get the entire object even at 35X. I counted about 130 obvious stars within the "V". The middle naked eye "star" in the Aldebaran arm of the "V" is a real nice grouping. One of the most memorable views of this cluster was one evening when the Taurus was low in the sky and therefore the "V" was upright, the moon was centered in it, looking like the cluster was holding up the moon.

Simeis 147 or Sh2-240 (05 39.1 +28 00): This extremely large supernova remnant is on the Taurus/Auriga border. I have searched many times for this object in both the 10" and the 20" scope, and so far I have at best suspected only a few parts of it. Steve Coe refers to it as the "Veil Nebula as seen in a 2 inch scope", although I would disagree with that as I can easily see the Veil in 10x50 binoculars. According to Chris Schur, this is also a very difficult object to photograph, and I have seen very few successful photos of it. If you want a real tough object to go after, this is the one!

Fuzzy Spot Taurus



STARS	
●	<3
●	>5.5
●	3.5
●	4
●	4.5
●	5

SYMBOLS					
●	Multiple star	⋯	Dark nebula	△	Radio source
○	Variable star	⊕	Globular cluster	×	X-ray source
☄	Comet	⊙	Open cluster	○	Other object
☾	Galaxy	⊕	Planetary nebula		
☐	Bright nebula	⊕	Quasar		

Limiting Magnitude 5.5 Stellar, 12 Deep Sky Objects are labeled only if not obvious or clearly marked. NGC objects are marked only with the NGC number.

Local Time: 21:00:00 15-Jan-2000 UTC: 04:00:00 16-Jan-2000
 Location: 33° 16' 1" N 112° 37' 59" W RA: 4h55m06s Dec: +22° 32' Field: 32.0°

Sidereal Time: 04:09:07
 Julian Day: 2451559.6667

Comet Comments

By Don Maccholz

January 2000

Periodic Comet Machholz 2 is fainter than expected, but might still be glimpsed in our evening sky. It will return every 5.2 years but will not be well-placed until the year 2015.

The Catalina Sky Survey found a faint comet on Nov. 5. It is now pulling away from the sun. Meanwhile, old data from the SOHO satellite was used to find a comet that appeared in May 1997.

COMET HUNTING NOTES: As we head into the new year the visual comet hunter faces competition from programs designed to find comets and asteroids that may hit us. Is there any need for the visual comet hunter? The consensus seems to be that amateurs will still find comets but at a much reduced rate. Searching for over 1,000 hours may become commonplace. Areas near the sun, especially in the morning sky, should yield the greatest number of visual discoveries.

Ephemeris 141P/Machholz 2

Date	R.A.	Dec.	Elev.	Sky	Mag.
12/08	20h 19.5m	-11d 29'	50d	E	11
12/13	20h 42.5m	-11d 41'	50d	E	11
12/18	21h 08.2m	-12d 04'	50d	E	11
12/23	21h 37.7m	-12d 38'	52d	E	11
12/28	22h 12.2m	-13d 21'	55d	E	11
01/02	22h 53.4m	-14d 07'	59d	E	11
01/07	23h 42.1m	-14d 41'	65d	E	11
01/12	00h 37.6m	-14d 41'	72d	E	12
01/17	01h 36.0m	-13d 52'	81d	E	12
01/22	02h 32.0m	-12d 15'	90d	E	12
01/27	03h 21.3m	-10d 11'	98d	E	12
02/01	04h 02.5m	-08d 11'	103d	E	13
02/06	04h 36.3m	-06d 00'	108d	E	13
02/11	05h 03.9m	-04d 12'	110d	E	13

Elements

Object	P/Machholz 2
Perihelion. Date:	1999 12 09.2752
Perihelion Distance:	.748905 AU
Arg/ Perihelion (2000):	149.2991 deg.
Asc. Node (2000):	246.1434 deg.
Inclination (2000):	012.8116 deg.
Eccentricity:	0.751075
Orbital Period:	5.22 Years
Ref.:	MPC 35815
Epoch:	1999 12 08
Absolute Magnitude/"n":	??/??

January 2000

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Schedule Of Events, January 2000

- January 1st** 365 day till the 21st Century and the beginning of the 3rd millennium!!
- January 2nd** Earth at Perihelion (91.4 Million Miles from the Sun) Quanzrantid meteor Shower peaks.
- January 6th** New moon at 0914 mst
- January 14th** First quarter Moon at 0634 mst.
- January 17th** Enckes Comet discovered by Pierre Mechain in 1786.
- January 20th** Full moon, Last Total Lunar Eclipse of the Millennium. First Umbral contact at 2001 mst. Totality begins at 2105 mst and last until 2222 mst. Fourth Umbral contact at 2325 mst. Don't Miss this one.
- January 21st** SAC General meeting. 1930 at Grand Canyon University. Guest Speaker will be Michael Bakich on "Everything you wanted to know about the constellations, but were afraid to ask"
- January 28th** Third Quarter moon at 0057 mst
- January 29th** SAC Star parties at Buckeye Hills and Eagle Eye. Sunset at 1759, moonrise at 0243

Reflections

Eagle Eye and the Lion

Marjory Vin Williams,
SAC Observer

Wednesday, November 17th.

The sunset was wooly scarlet with rose color at the north and south ends. The goal was to go west, past the White Tanks and into the Harquahala Plain which has the spectacular jagged crest of the Eagle Tail Mountains to the south, the Big Horn Mountains to the east, and the Harquahala (mountain with? or without? water, we're not sure which) Mountains to the north. The landscape is strange with those weird shapes of mountains and the black volcanic rocks sitting on a light volcanic ash ground. Finally, 97 miles from home, it was so good to see the figure of A.J. Crayon setting up his telescope in this spectacular, saguaro-filled site. Finally Bob Gardiner, Jeff Medcaff, Aaron McNeely and others rolled in.

The smart people, knowing it would be nearly 02:00 before the gibbous moon would set, glanced at the yellow flares from the Barry Goldwater [bombing] Range and went to sleep. Those flares, probably dropped at

The landscape is strange with those weird shapes of mountains and the black volcanic rocks sitting on a light volcanic ash ground.

30,000 feet and 50 miles or so away, kept a slow decent, a finger or two above the horizon and numbered up to 14 at a time. If one remained awake there was time to revisit with binoculars the radiance of the Hyades, Pleiades, Double Cluster, and Beehive star groups and look at fuzzys such as the Andromeda Galaxy. Jennifer Keller, with so much time, asked how anyone could name children Castor and Pollux and renamed their stars, with not that much improvement, Telrad and Conrad. Her husband and daughters were there. What were the daughter's names?

Thad Robosson and A.J. were taking star magnitude measurements determine the limiting magnitude through the night. "Alpha, beta, zeta Tauri ... See only four stars ...4.7...

Our first Leonid meteor to be spotted at the Eagle Eye site was seen at 2144. Just after midnight, the whole camp revived. There wasn't the wild yelling of last year's Vekol Lions; after all, the counts then were around 300 an hour. We were alert but sedate as Jennifer and Diane Hope tallied 24 meteors from 0100 to 0200, 43 the next hour, 73 the

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Estrella Park Public Star Party

By Wil Milan

The last public star party at Estrella Park was very well received, so the park has asked us to do another public star party in the spring. I gave them March 11th as the most propitious date, and they've accepted and put it on their calendar. That's a Saturday night with a quarter moon, just about ideal for a public star party because there will be a bit of everything

on display: The moon, the best of the winter objects, etc. Last time we had enough scopes there for the people who attended, but the park expects an even larger turnout this time, so we'll need more scopes, so if you can help out, please attend. Look for more details in the next issue of SACnews and at eh January meeting.

President's Message

Jack Jones

Hello Everyone!

I am hoping that this new year 2000 will be a year of interesting, fun, and informative activities for the members of the Saguardo Astronomy Club. You may ask yourself, well, what is the definition of interesting, fun, and informative activities? The answer is, it is exactly what you, the club member, say it is! I want to invite all club members to come to our Board meetings so that we can all participate in identifying exactly what it is that we, together, most want to do in 2000.

Some of the activities for 2000 we have already identified:

1. We want to finally get into that Arizona Science Center and have at least one meeting this year in the Planetarium, either comprised of our club only or in conjunction with another club, and with a speaker of world renown.
2. We want to hold a Light Pollution Symposium, with invitees from the International Dark



Sky Association and Lowell Observatory. This will be in conjunction with other area clubs.

3. We want to take a field trip to Mt. Graham to see the Vatican telescopes and the new Large Binocular Telescope under construction.
4. We want to revisit the Mirror Lab at the University of Arizona and meet Roger Angel. What is he planning to do with that \$330,000 grant he just won?

These few ideas are at the top of our list at present, but you have many more ideas too, and some of those ideas I am sure are even better, and will take precedence over these. We want to know and we need to know what those ideas are, and the only way we will know what they are is for you to communicate those ideas to the club. Come to the Board meetings - they are for all members. If only the officers come to the meetings, than we

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next , ending in 70 meteors from 0400 to 0500. There were also many wrong-way, anti-Leonids, Taurids and just wild streaks.

Around 0430 it was nippy 40 degrees F. with a slight breeze. Aguila, up the road, is at 2160 feet. Sentinel is only 669 feet; I wondered how much warmer it was there and how much colder it was on top of Harquahala at 5861, which is as high as Crown King.

Steve Redman stayed to the end to photograph the sunrise, full of bright and dark crepuscular rays, emanating from both moun-

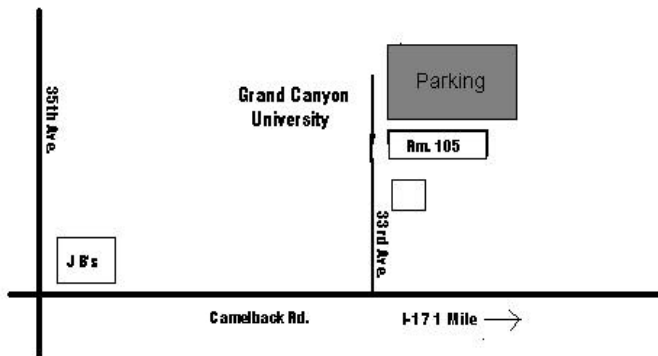
tains and low clouds, which were so vivid as to recall Scottish plaids. The Big Dipper was sticking high in the air and Cassiopeia's throne landed flat and upright on the Harquahalas; I imagined Cassy got up and went to bed in the 1920s solar. observatory ruins there.

While driving in, Radio Announcer Paul Harvey reported the Saudis had been able to see a over 1600 Leonids an hour and then Harvey told the story of the first burial on the moon which occurred this year; but that's another story.

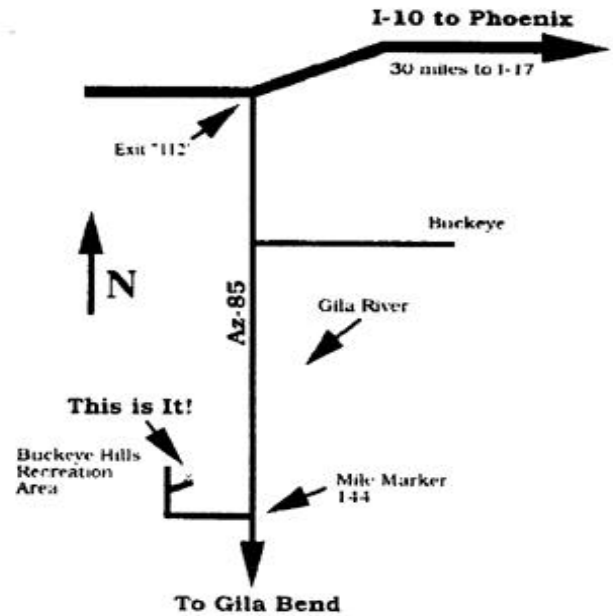
SAC Meeting and Observing Sites

General Meetings

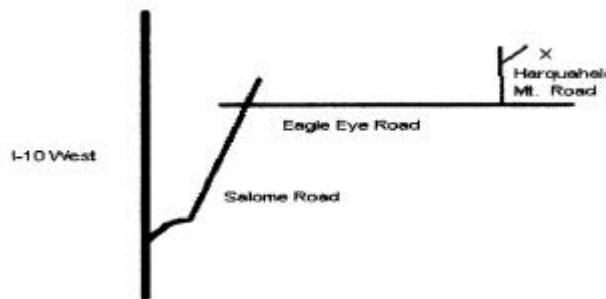
7:30 p.m. at Grand Canyon University, Fleming Building, Room 105: 1 mile west of I-17 on Camelback Rd., North on 33rd Ave., Second building on the right. Note: The I-17 exit at Camelback Will be Closed through October due to construction.



Buckeye Hills Star Parties



Eagle Eye Star Parties



(Continued from page 9)

would end up doing only what the officers want to do. So I hope to see you there! The next one is right before the next club meeting at GCU on Friday, January 21st at 6:30 pm. This is where these ideas are hatched; this is where we identify and plan those activities that we all want to do, and have been always hoping we could do.

Jack Jones

P.S.: Not hooked up with your Club yet? Want to be in the thick of things and have your finger on the pulse of the Club? Subscribe to the Club Inter-

net Information List! Just send an email with "subscribe" in the subject line to: sac-mls-request@saguaroastro.org. You will receive only single notices with details of any upcoming club event. No conversational traffic will occur. All replies that are made to this list are diverted to the sac-board list for a response from the cognizant club officer or committee member. If you are interested and want to see the responses and other board activities, "subscribe" the same way to sac-board-request@saguaroastro.org. That's all there is to it

SAC Membership Services

Membership

Memberships are for the following calendar year and are pro-rated as follows:
Jan.-Mar. 100%, Apr.-Jun. 75%; Jul.-Sep. 50%, Oct.- Dec, 25%

- \$ 28.00 Individual Membership
- \$ 42.00 Family Membership (one newsletter)
- \$100.00 Business Membership (includes advertising)
- \$ 14.00 Newsletter only
- \$ 4.00 Nametag for Members

Subscription Services

The following magazines are available to members. Subscribe or renew by paying the club treasurer. You will receive the discounted club rate only by allowing the club treasurer to renew your subscription.

- \$ 30.00/yr Sky & Telescope
- \$ 29.00/yr Astronomy

Please Print

Name: _____

Address: _____

Phone: _____

E-mail: _____

Make Checks Payable to SAC

Mail Completed form to:

Peggy Kain
SAC Treasurer
4030 E Windrose Dr
Phoenix AZ 85032-7435

SAGUARO ASTRONOMY CLUB

5643 W. Pontiac Dr
Glendale, AZ 85308-9117

Phone: 623-572-0713
Fax: 632-572-8575
Email: SaguaroAstro@aol.com



Videmus Stellae



[www. Saguaroastro.org](http://www.Saguaroastro.org)

SAC Schedule of Events

SAC Meetings

January 21, 2000	July 14, 2000
Feb 18, 2000	August 11, 2000
March 17, 2000	September 15, 2000
April 14, 2000	October 13, 2000
May 17, 2000	November 10, 2000
Jun 16, 2000	December 9, 2000 (Holiday Party)

Deep Sky Group Meetings

February 24, 2000	August 17, 2000
April 20, 2000	October 19, 2000
June 22, 2000	December 14, 2000

SAC Star Parties

Date	Sunset	Astronomical Twilight Ends	Moonrise
1/29	1759	1924	0245
2/26	1824	1947	0131
3/25	1846	2010	2320
4/22	1907	2036	2350
5/27	1932	2111	0224
6/24	1944	2126	0056
7/22	1937	2114	2329
8/19	1911	2040	2204
9/23	1825	1948	0244
10/21	1750	1912	0141
11/18	1727	1853	0039
12/16	1725	1854	2336