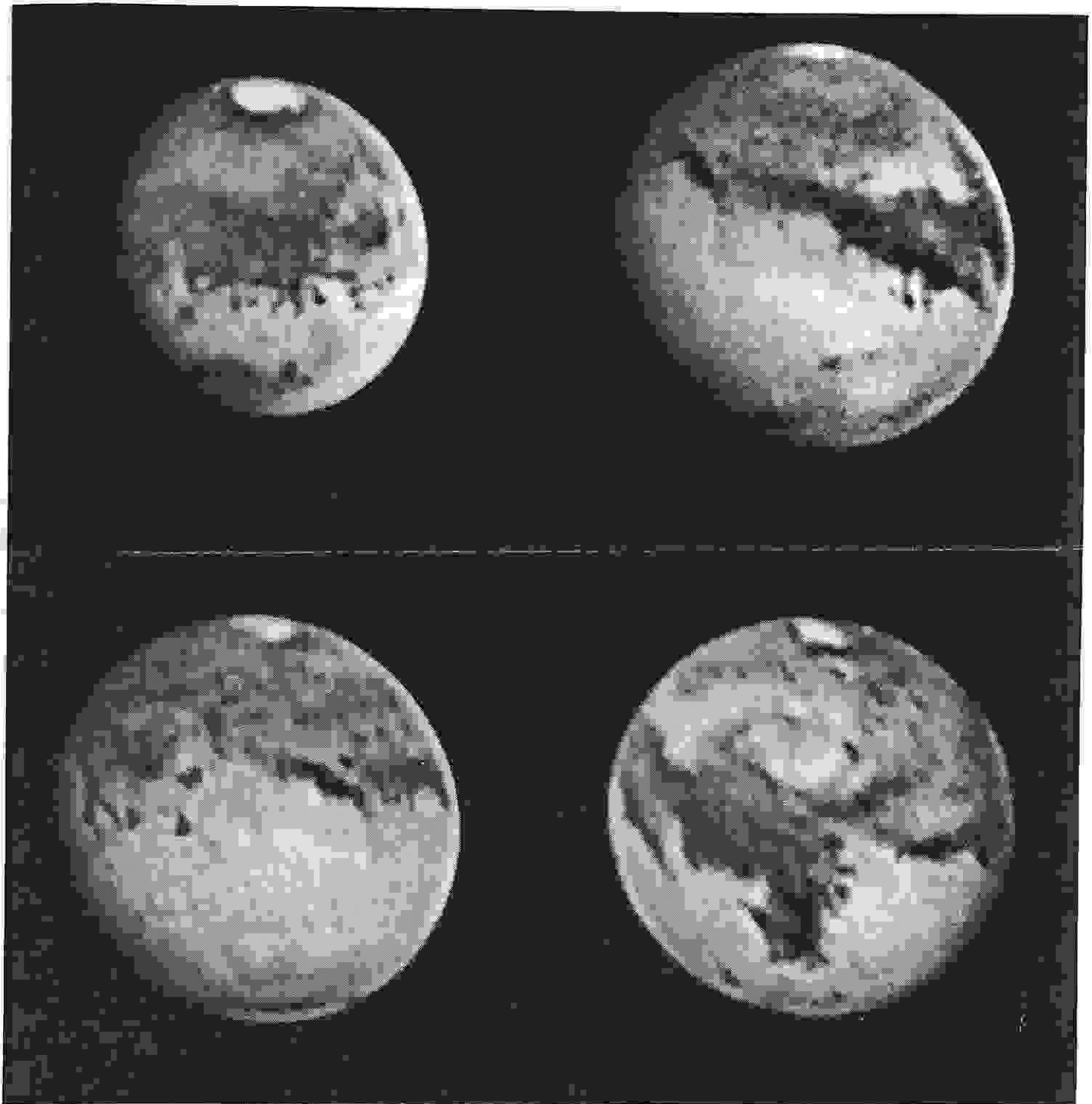


# Desert Skies



## MARS 1988

August 18.4632 UT ( $\lambda=39^\circ$ )      September 9.4439 UT ( $\lambda=193^\circ$ )  
 September 10.2856 UT ( $\lambda=128^\circ$ )      October 3.3278 UT ( $\lambda=300^\circ$ )

These red-light CCD images were taken by S. Larson (Lunar and Planetary Laboratory) and G. Rosenbaum (Steward Observatory) with the University of Arizona 154 cm Catalina Station telescope. Exposure times were all 0.1 sec. and are reproduced at the same angular scale. The images have undergone digital high-pass filtering with the help of C. Slaughter and W. Schempp (Photometrics Ltd.).



**GENERAL MEETING** - Friday, Dec. 4, 7:30 P.M. at the NEW Steward Observatory Auditorium

7:00 P.M.- pre-meeting "Beginners lecture" by Gary Rosenbaum will be about Mars. ALL are welcome!  
("old" Steward Obs. room 204)

**EXECUTIVE MEETING** -Thursday, Dec. 10, 7:30 P.M. at Flandrau Science Center.

**30" Telescope Design, Land & Fundraising Meeting** - Wednesday, Dec. 16, 7:30 at the home of Duane & Sharon Niehaus—call to confirm.

**STAR PARTIES** -  
Wednesday, Dec. 2, 6:00 P.M. - Star Party at Mother of Sorrows Elem. School.  
Saturday, Dec. 19 - Star Party at Empire Ranch  
Saturday, Dec. 26 - Star Party at Arivaca.



#### TAAA EXECUTIVE

President	Dean Katelsen	293-2855
Vice-President	Terril Lappin	579-0185
Executive Sec.	Dick West	574-0830
Recording Sec.	Sharon Niehaus	299-7328
Treasurer	Duane Niehaus	299-7328
Member-at-Large	Bob Goff	790-1452
Member-at-Large	Ed Vega	747-9323
Chief Observer	Andy Meyer	742-4549
Membership Coord.	Terril Lappin	579-0185
Past President	Tim Hunter	299-2972
Desert Skies ed.	Dolores Hill	325-9820
Asst ed.	Rik Hill	325-9820
Publicist	Peggy Brown	571-0654

#### MEMBERSHIP IN THE TAAA

Individual Membership	\$20.00
Family Membership	\$25.00
Senior Citizen (over 60)	\$18.00

Sky & Telescope subscription (optional) \$20.00 (as of July 1992)

Rates for membership in the TAAA are given above. Members can subscribe to Sky & Telescope at the time of membership renewal, saving over 25% off the cost of a regular subscription. The subscription term must match your membership period.

Send one check, made payable to: Tucson Amateur Astronomy Association, to cover both membership and subscription to: TAAA, P.O.Box 41254, Tucson, AZ 85717. It is best to pay your dues 2-3 months before your membership actually expires.

#### Desert Skies Publishing Guidelines

- \* All articles, announcements, news etc. must be submitted by the 15th of the month. Materials received after that date will appear in the NEXT issue.
- \* All submissions are retained by the editor unless prior arrangements are made.
- \* Articles, artwork, and photos should be camera ready. Photos should be screened.
- \* We will not publish slanderous or libelous material!

Send articles, announcements etc. to:

Dolores Hill, Desert Skies  
4632 E. 14th St., Tucson, AZ 85711  
or Lunar & Planetary Lab, UA campus mail

Send ADDRESS CHANGES to:

TAAA  
Attention: "address change"  
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. a) Decide if you want Sky & Telescope, then add \$20 to your membership rate.  
b) Include Sky & Telescope's renewal notice, if possible.
3. Write one check, payable to TAAA.
4. Send it to TAAA, P.O.Box 41254, Tucson, AZ 85717.

Call the Treasurer if you have any problems.



The editor has been reminded that many of the ads below have appeared for quite some time. To keep yours call the editor at 325-9820 (leave a message). This will help members avoid the nuisance of reading the same ad for the 8th, 12th, 20th(?) time.

\*\*\*\*\*

**ITEMS WANTED OR FOR SALE**..... If YOU have placed an ad and sell the item(s) or no longer wish to run it, please call Dolores or Rik Hill at 325-9820 (home) or 621-6951 (work). Otherwise the ad will continue to appear.

**FOR SALE:** Apple IIC, 2 monitors, 2 disk drives, printer, original manual, programs, much more...\$350. Epson computer with monitor...\$350.....Call Harry Nunamaker at 571-9707.

**FOR SALE:** 11 x 14" prints of the winter sky done with Steward Observatory's All Sky Camera...\$10 each; also **WANTED:** Casio Moongraph watches.....Call Mike Terenzoni at 577-6857.

**FOR SALE:** Plastic model of Canadian 72" telescope includes 2" concave mirror, eyepiece, equatorial mount. Makes a nice mantelpiece.....\$10; Small diagonal for Newtonian telescope; 20th wave, 7/8" minor axis, custom made; OR WILL TRADE FOR 1 1/4" diameter eyepiece with 16-18mm focal length; **WANTED:** 25mm eyepiece..... Call Gilbert Friedman at 571-1662.

**FOR SALE:** 8" f/6.0 reflector, Lil Big-Foot equatorial mount, rotating tube, 12V D.C., R.A. and Dec drives, very portable, 3 eyepieces, Barlow, sun filter, 2" focuser...\$500. Call Don Dietrich at 885-5851 or write 8989 E. Escalante, Space 104.

**WANTED:** Celestron CompuStar-14 owners: Does your telescope track well enough for astrophotography? I am having tracking problems with a new CompuStar-14 and, so far, the manufacturer has not fixed the problem. Is this a widespread problem or a glitch with this particular telescope? If you have any information please call Marvin Vann at 648-1204 or write 441 Paseo Bolsa, Green Valley, AZ 85614.

**FOR SALE:** Celestron 2" Barlow (new)...\$89; Celestron 1.25" Illuminated projection reticle (new)...\$99; Meade Wedge for 10" SC (2120, LX-6, etc.)...\$70. Call Larry Solomon at 743-7924.

**FOR SALE:** Hallicrafters SX-110 General Coventry handband receiver/matching speaker, crystal filtering EFO S(5?) meter.....\$100. Call Mike Hurwitz at 321-1813.

**FOR SALE:** Dobbins achromat 6" f/10 in homemade tube assembly...\$1000. Call Mike Sweetman evenings at 297-2781.

**FOR SALE:** Cave 8" f/6, equatorial mount, rotating rings, clock drive, setting circles, 2" focuser, 2 eyepieces, Cannon camera adapter.....\$600. Call Walt Brown (for Rip Loman) at 325-2189.

**FOR SALE:** Epson LQ-2250 twenty-four pin, wide carriage, color dot matrix printer, \$450. Call Dan Knauss at 881-2639.

**SERVICE:** Newtonian telescope mirrors tested FREE for club members by Bob Goff (call 790-1452).

**NEEDED:** Donations of astronomy magazines to give away at star parties along with the TAA brochure.

**FOR SALE:** CELESTRON binocular viewer (mint condition, like new, used only once); TELEVIEW 2" star diagonal (excellent condition) with 1 1/4" adapter and Schmidt-Cass. adapter. Call John Zajac at 299-3203.

**WILL TRADE:** 4.8mm NAGLER eyepiece (excellent condition) and additional cash for 7mm Nagler eyepiece. Call John Zajac at 299-3203 (answering machine is always on).



## BEGINNER'S LECTURE

### OBSERVING THE RED PLANET



Mars once again is in the night time sky beckoning us to take a peek. With a telescope you see both surface features and atmospheric phenomenon, that is if you know some tricks to make them more visible. Gary Rosenbaum has been observing Mars for many years and is well qualified to give this month's lecture. His 10" telescope is optimized for planetary observing and with this telescope he draws features visible on the martian surface and in the martian atmosphere. Some of his drawings have been published in Astronomy magazine and the Journal of the Association of Lunar and Planetary Observers. In addition, he has worked with professional astronomers in taking some spectacular CCD images of Mars (see Desert Skies cover). He will discuss methods for observing this most interesting planet and tell us some of the martian activity we should expect to see over the next few months.

This lecture will be well suited to anyone wanting to observe Mars. Some observing techniques to be discussed will be applicable to other planets. If you consider yourself a seasoned deep sky observer but want to try some planetary observing or if you have little experience with a telescope, this is the place to pick up some hints on observing our solar system objects. See you at 7pm on December 4th---one half hour before the start of the regular meeting.

**Announcement:** There has been interest in arranging Telescope Users Sessions for those wanting to learn how their telescope works and how to take care of them. I will have a sign-up sheet at this meeting for those interested. These sessions will be held at a convenient location in Tucson (someone's home most likely), and tailored to some amount to fit your schedule. Two or three people will attend each session to keep the groups small. Topics will be: telescope care and cleaning, optical alignment, equatorial alignment on Polaris, accessories in action, etc.

Teresa 579-0185 (before 10pm)



### A NEW NAME FOR TAAA?????

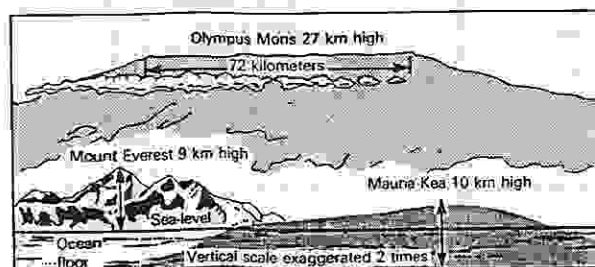
A suggestion was raised at the last Executive Meeting to change the name of the TAAA to avoid use of the word "amateur". It is thought that potential donors would be more likely to contribute to the club and funding through grants and proposals would be easier. Secondly, more professional astronomers might be interested in becoming members. Among the suggestions for a new name are: SAAA - Southern Arizona Astronomy Association and TAAA - Tucson Area Astronomy Association. Although the initials have remained the same over many years, the name has undergone some change. A poll may be taken at the next meeting to determine *whether* to change the name. If you would like to express an opinion or idea call the Members-at-Large, Bob Goff or Eduardo Vega.

**CELESTIAL CALENDAR for December 1992(all times are in MST):**

- T Dec. 1 11:16pm, **FIRST QUARTER MOON.**  
W Dec. 2 6pm, **Star Party** at Our Mother of Sorrows Elementary School.  
T Dec. 3 9pm, Mercury at ascending node through the ecliptic.  
F Dec. 4 7:30pm, **TAAA General Membership Meeting**, Steward Obs. 1st floor auditorium.  
S Dec. 5 Phoenicid meteors.  
S Dec. 6 Earliest sunset.  
M Dec. 7 Last manned flight to the Moon (Apollo 17) is launched, 1972.  
T Dec. 8 8am, Moon passes  $2.1^{\circ}$  S of Pleiades.  
W Dec. 9 Puppis-Valid meteors.  

**Total eclipse of the Moon** - call Mike Terenzoni 577-6857 for more details on viewing this event:  
1:55pm, penumbral eclipse begins.  
2:59pm, umbral eclipse begins.  
4:07pm, totality begins.  
4:44pm, mid-eclipse & **FULL MOON**, the "Long Night" Moon.  
5:16pm, Moon rise in Tucson.  
5:22pm, totality ends.  
6:29pm, umbral eclipse ends.  
7:33pm, penumbral eclipse ends.

T Dec. 10 7:30pm, **TAAA Executive Meeting**, Flandrau Science Center conference room.  
F Dec. 11 sigma Hydrid meteors  
S Dec. 12 12pm, Moon passes  $6.3^{\circ}$  S of Mars.  
S Dec. 13 **Geminid meteors**, ZHR >60, often over 100.  
2pm, Moon at perigee, distance 57.7 earth-radii.  
M Dec. 14 Leo-Minorid meteors.  
T Dec. 15 U.S. Gemini 6 & 7 make 1st space rendezvous, 1965.  
W Dec. 16 o Piscids meteors, slow, ZHR 8.  
12:14pm, **LAST QUARTER MOON.**  
7:30pm, **30" Telescope Design, Land and Fundraising Meeting** at Duane Niehaus', see map elsewhere.  
T Dec. 17 10pm, Moon passes  $6.6^{\circ}$  S of Jupiter.  
F Dec. 18 3pm, Moon passes  $2.6^{\circ}$  S of Spica.  
S Dec. 19 **TAAA Star Party, Empire Ranch**, see map elsewhere.  
S Dec. 20 delta Arietid meteors, ?  
M Dec. 21 7:43am, Winter Solstice.  
9am, **Venus  $1.1^{\circ}$  S of Saturn.**  
T Dec. 22 Ursid meteors, ZHR 9, a few fireballs, at dark of moon.  
9:15pm, Moon at ascending node (longitude  $261.5^{\circ}$ ).  
W Dec. 23 5:43pm, **NEW MOON**, beginning of lunation 866.  
T Dec. 24 11pm, Moon passes  $2.8^{\circ}$  N of Uranus.  
F Dec. 25 12am, Moon passes  $1.7^{\circ}$  N of Neptune.  
S Dec. 26 December fireballs meteor shower, ZHR ?  
**TAAA Star Party, Arivaca site**, see map elsewhere.  
10am, Moon passes  $7^{\circ}$  S of Jupiter.  
S Dec. 27 Johannes Kepler born this date, 1571.  
M Dec. 28 7am, Moon passes  $6.8^{\circ}$  N of Venus.  
T Dec. 29 10am, Moon at apogee, distance 63.5 earth-radii.  
W Dec. 30 Very little happened this day, 1327.  
T Dec. 31 Have a prosperous New Year!



Andrew J. Meyer



# SATELLITES FOR DECEMBER

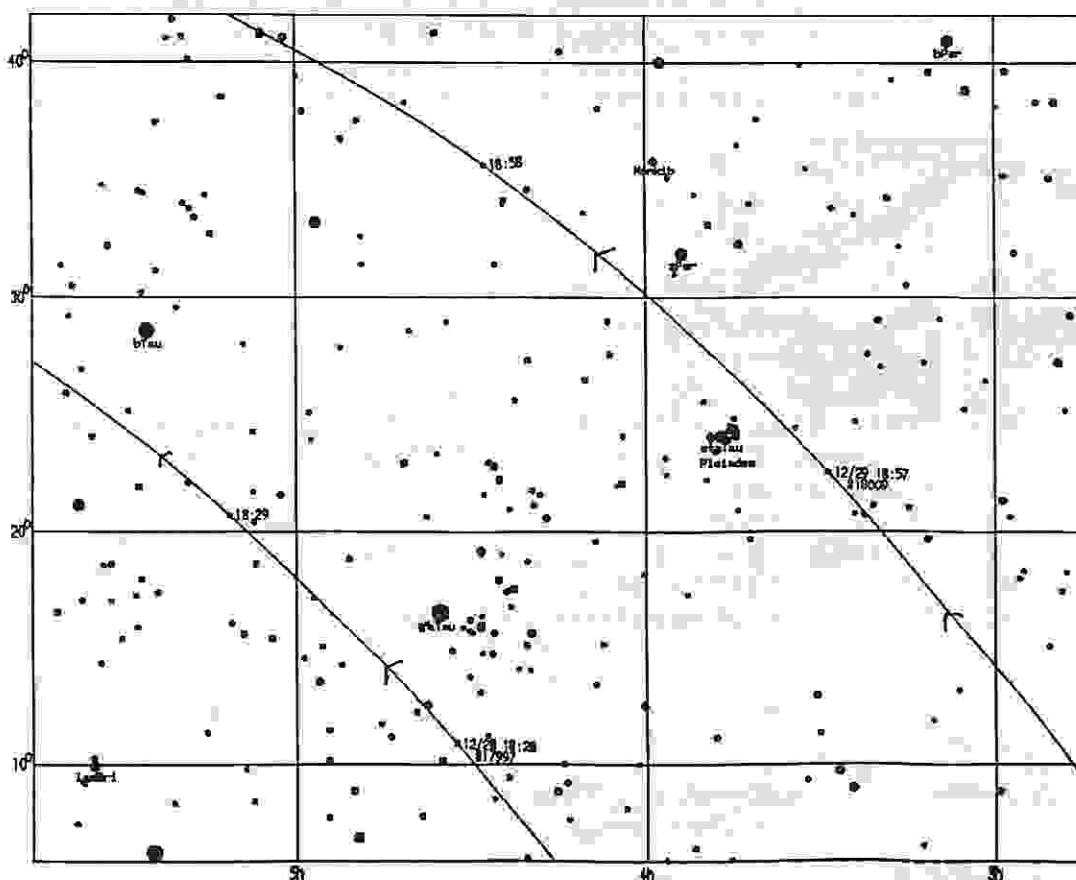
We'll discuss a few of the more interesting U.S. spy satellites visible this month. **LaCrosse 1** and **LaCrosse 2** are all weather day/night reconnaissance satellites with cloud-piercing synthetic aperture radar. Technology similar to this is currently being used with the Magellan probe mapping Venus. Both should be visible around magnitude 2 thanks to solar panels spanning some 150 feet. LaCrosse 1 was deployed during STS-27 in December of 1988.

The **NOSS** (Naval Ocean Surveillance Satellite) program was launched under the code name "Operation Whitecloud". Little is known about NOSS though sources suggest they function as all weather ocean surveillance systems which pick up Russian naval radio/radar transmission. One intriguing feature about NOSS is that they fly as multiple satellites (usually 3 or 4) and are tethered by wire. Club members who attended the star

party at Sunizona last year were treated to a rare view of NOSS appearing as a triangular formation of 3, 3rd magnitude objects moving northeast separated by a degree each. It was quite a site.

The orbital info on these satellites are a little dated due to the secret nature of their missions so I can't promise the projected times will be accurate. Try using binoculars for NOSS as a magnitude estimate is difficult.

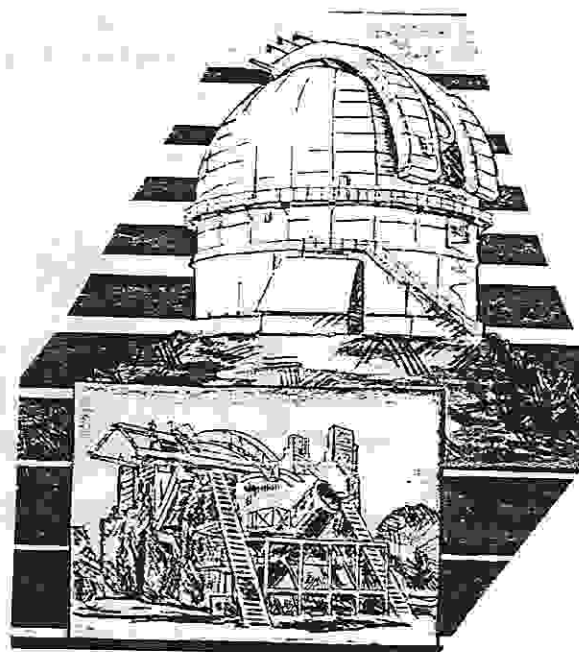
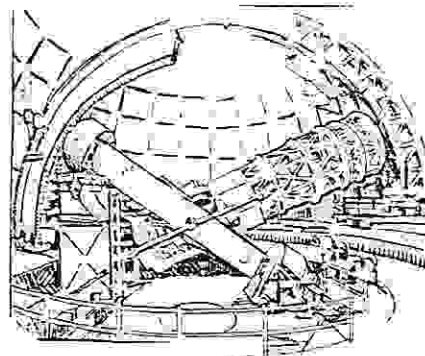
Date	Time	Satellite	Trajectory	General Proximity
12/03	6:49 pm	LaCrosse 2	NW to SE	Gamma Andromedae
12/05	6:14 pm	LaCrosse 2	NW to SE	Gamma Andromedae
12/06	6:48 pm	LaCrosse 2	NW to SE	Epsilon Pegasi
12/07	6:34 pm	LaCrosse 1	SW to NE	Beta Ceti
12/08	6:13 pm	LaCrosse 2	NW to SE	Epsilon Pegasi
12/08	7:06 pm	LaCrosse 1	SW to NE	Alpha Cephei
12/09	5:52 pm	LaCrosse 1	SW to NE	Fomalhaut
12/10	6:25 pm	LaCrosse 1	SW to NE	Alpha Cephei
12/28	6:28 pm	NOSS 8	SW to NE	(see chart)
12/29	6:57 pm	NOSS 8 (E)	SW to NE	(see chart)



NOSS 8 AND NOSS 8(E) TRAJECTORIES

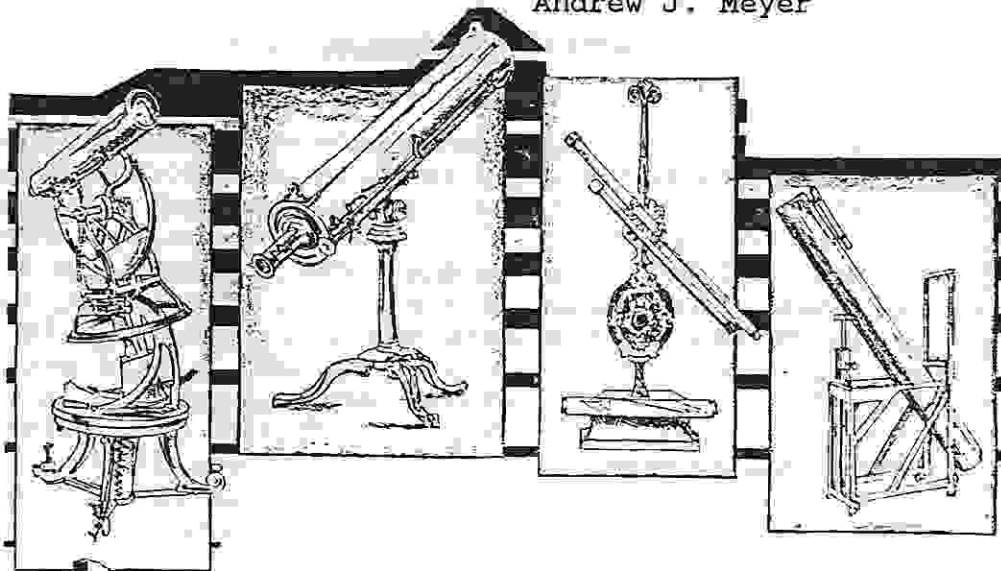
**DARK SKIES for December 1992 (in MST):**

T/W	Dec. 1/2	12:13am - 5:41am
W/T	Dec. 2/3	1:06am - 5:42am
T/F	Dec. 3/4	2:00am - 5:43am
F/S	Dec. 4/5	2:56am - 5:44am
S/S	Dec. 5/6	3:54pm - 5:44am
S/M	Dec. 6/7	4:54am - 5:45am
M/T	Dec. 7/8	none
T/W	Dec. 8/9	none
W/T	Dec. 9/10	none
T/F	Dec. 10/11	none
F/S	Dec. 11/12	6:47pm - 7:24pm
S/S	Dec. 12/13	6:47pm - 8:32pm
S/M	Dec. 13/14	6:48pm - 9:39pm
M/T	Dec. 14/15	6:48pm - 10:46pm
T/W	Dec. 15/16	6:48pm - 11:51pm
W/T	Dec. 16/17	6:49pm - 12:56am
T/F	Dec. 17/18	6:49pm - 2:00am
F/S	Dec. 18/19	6:50pm - 3:05am
S/S	Dec. 19/20	6:50pm - 4:09am
S/M	Dec. 20/21	6:51pm - 5:11am
M/T	Dec. 21/22	6:51pm - 5:54am
T/W	Dec. 22/23	6:52pm - 5:54am
W/T	Dec. 23/24	6:52pm - 5:54am
T/F	Dec. 24/25	6:53pm - 5:55am
F/S	Dec. 25/26	7:18pm - 5:56am
S/S	Dec. 26/27	8:14pm - 5:56am
S/M	Dec. 27/28	9:09pm - 5:56am
M/T	Dec. 28/29	10:03pm - 5:57am
T/W	Dec. 29/30	10:56pm - 5:57am
W/T	Dec. 30/31	11:49pm - 5:57am



Times listed are for Tucson, Arizona when:  
 (1) Moon is below the horizon  
 (2) Sun is  $>18^\circ$  below the horizon  
 (astronomical twilight)

Andrew J. Meyer



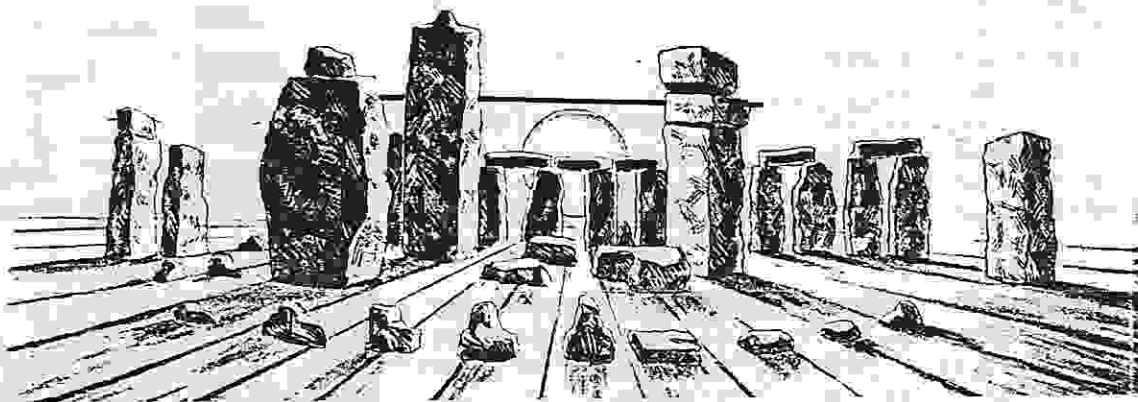


## ACTIVITY LINE PROMOTES TAAA

Activity Line is a voice-messaging service providing tourists and conventioners quick and easy access to businesses and entertainment. Information about Activity Line is available in 37 resorts and hotels on cards placed by phones in rooms, displayed in lobbies and handed out by hotel personnel. In addition, the service is publicized in magazines, welcoming packets and convention information.

The TAAA has a free spot called "A Tour of Tucson's Night Skies" and can be found by dialing 544-2345, pressing "1" for attractions, then "4" for nighttime activities, then "3". Feel free to use this number as I will be using it to provide Mir and Space Shuttle updates for more accurate pass times.

- BRAD BECKER



## SKY PUBLISHING BOOK ORDER

Here's your chance

to order some good books

and save some money too!

Sky Publishing, who brings us Sky & Telescope each month, also makes astronomy books available at a reasonable discount to TAAA members. Their catalog of products will be at the next meeting (in the TAAA Mail Box) so look through it and order something. Payment is needed in advance. If you know the book you want and can't make to the meeting, call Teresa at 579-0185 to place an order. Otherwise, talk to Teresa at the next meeting. The deadline for placing an order for this shipment is the December general meeting. Delivery will be after Christmas. Orders are placed two or three times a year, so if you miss this order watch the newsletter for the next book order announcement.



**Our "Saturday Science" programs for kid's are:**

"Holography"- Kids in grades 6, 7 and 8 can make their own holograms. Each workshop lasts from 9 a.m. to 1 p.m. on November 14th and 21st. A fee of \$12.00 includes all materials.

"Earth, Moon and Stars" - Kids in grades 3 and 4 learn about the fun aspects of astronomy and build their own telescopes. This series runs four consecutive Saturday mornings, February 6th through March 6th. A fee of \$40.00 includes all materials.

"Discovering Geology" - Kids in grades 4 and 5 investigate rocks, minerals, fossils and the geology of other planets. This series runs four consecutive Saturday mornings, March 13th through April 17th (except April 10th). A fee of \$40.00 includes all materials.

"Fun with Physics" - Kids in grades 5 and 6 build and launch rockets, experiment with electricity and investigate force and motion. This series runs four consecutive Saturday mornings, April 24th through May 22nd. A fee of \$40.00 includes all materials.

***Cosmic Catastrophes - TUESDAYS through SUNDAYS***

Explore a wide-range of catastrophes including those arising from natural events, such as exploding stars and meteor collisions, to life threatening problems created by modern technology and life-styles. **Suitable for all ages.**

***The Dinosaur Chronicles -SATURDAYS***

Learn about dinosaurs, fossils and the geological ages in which dinosaurs existed. Also, find out how fossils are made and what may have been the causes for the extinction of the dinosaurs. **Suitable for all ages.**

***The Last Question -TUESDAYS through THURSDAYS***

If you could live for millions of years, what would the future hold in store? This show takes the audience through a time warp to see just what the future of humankind may be. **Not suitable for children.**

***The Live Sky Show/Movie - SUNDAYS***

Join one of Flandrau's sky tour guides as they present fascinating objects and phenomena in Tucson's night sky. The audience is invited to participate by asking questions. With the sky show is a fifteen minute movie featuring some of Arizona's incredible geology. **Suitable for all ages.**

***The Star of Wonder - TUESDAYS through SUNDAYS***

Explore the skies the Wise Men knew in this traditional holiday show that searches for The Star of Bethlehem. **Suitable for all ages.**

***Laser Shows - WEDNESDAYS through SUNDAYS***

Multi colored laser lights choreographed to a variety of music including country, rock, popular and classical music. These spectacular shows magically twist lasers into beautiful patterns on the dome. Current shows include; Garth Brooks, Metallica, Queensryche, Pink Floyd, The Red Hot Chili Peppers and more. **Suitable for all ages.**

**FREE EXHIBITS and TELESCOPE:** Flandrau has an exhibit hall which is continually being updated with new hands-on science exhibits. Our 16 inch telescope is open Tuesday through Saturday nights, weather permitting.

As TAAA applies for grant money to fund the permanent observatory complex, a very important component will be a profile of club membership. Potential grantors will look at this profile with special view towards skills, services and expertise the membership can provide gratis to the project.

This survey is designed to compile the needed information. Please fill it out as fully as possible and return to us by (Date).

### AGE

10 & under	_____	35 - 44	_____
11 - 17	_____	54 - 54	_____
18 - 24	_____	55 - 64	_____
25 - 34	_____	65 & over	_____

### YEARS OF COMPLETED EDUCATION

8	_____	Masters Degree completed	_____
12	_____	PhD Degree completed	_____
16	_____	Post Doctoral	_____

### PROFESSION

Administrative	_____	Mechanic	_____
Advertising/PR	_____	Medicine	_____
Architecture	_____	Optician	_____
Astronomer	_____	Plumber	_____
Contractor	_____	Student	_____
Electrician	_____	Teacher	_____
Engineer	_____	Technical	_____
Landscaper	_____	Welder	_____
Law	_____	Other	_____
Mason	_____		

Would you be able to contribute your professional services to the project, if so what services? \_\_\_\_\_

### SPECIAL ABILITIES AND EXPERTISE

Below please list any abilities you have that can help move this project forward. Some categories are listed, but they are not comprehensive. Please think of anything you might do that we can include in our grant proposal.

Administrative	_____	Mechanic	_____
Advertising/PR	_____	Medicine	_____
Architecture	_____	Optician	_____
Astronomer	_____	Plumber	_____
Contractor	_____	Student	_____
Electrician	_____	Teacher	_____
Engineer	_____	Technical	_____
Landscaper	_____	Welder	_____
Law	_____	Other	_____
Mason	_____		

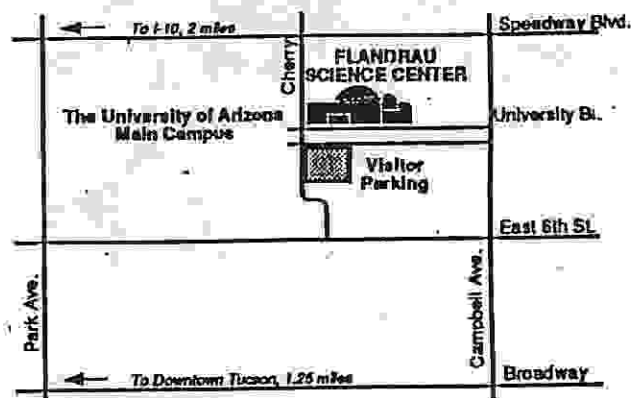
NAME \_\_\_\_\_

PHONE \_\_\_\_\_



## THE FLANDRAU STAR THEATER

PROGRAM INFORMATION : 621-STAR  
PLANETARIUM OFFICES : 621-4515  
ASTRONOMY NEWSLINE : 621-4310



**PLANETARIUM PARKING**-Free evening parking is available directly North of the building. Additional parking is available in the visitor parking lot, south of the building, across University Blvd. +

This unique facility provides entertaining, educational programs in our Star Theater for over 100,000 visitors annually. In addition, science exhibits provide challenging and memorable experiences on such subjects as meteorites, the Milky Way, moon rocks, the sun and telescopes.

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- \* Repairs
- \* General contracting, machine and fabrication service

Call Aaron Brown 571-0654

