Desert Skies

FEBRUARY 1992

GENERAL MEETING - Friday, Feb. 7, 7:30 P.M. at Steward Obs. lecture room.
Dr. David Crawford, of NOAO, will present a talk on "Observations of the Pleiades, variable stars, and extinction coefficients..."

EXECUTIVE MEETING -Thursday, Feb. 13, 7:30 P.M. at Flandrau Planetarium.

30" TELESCOPE DESIGN, LAND AND FUNDRAISING MEETING - Wednesday, Feb. 19, 7:30 P.M. at the home of Duane and Sharon Niehaus*.

STAR PARTIES - Saturday, Feb. 1 - Arivaca Star Party at new site*

Thursday Feb. 6 - Pueblo High School*

Tuesday, Feb.11 - Van Buskirk Elementary School*

Saturday, Feb. 29 - Arivaca Star Party at new site*

Saturday, Feb. 22 - Jupiter Opposition Party at home of Brian Lareau

* see map inside Jan. newsletter

UPCOMING MEETINGS!
March and April: Dean Ketelsen, TAAA president (and UA Optical Sciences Dept.) and Steve Larsen of Lunar & Planetary Lab. will be speakers.

TAAA EXECUTIVE

President	Dean Ketelson	293-2855
Vice-President	Terri Lappin	579-0185
Executive Sec.	Dick West	574-0830
Recording Sec.	Sharon Niehaus	299-7328
Treasurer	Sharon Niehaus	299-7328
Member-at-Large	Bob Goff	790-1452
Member-at-Large	Ed Vega	586-9883
Chief Observer	Andy Meyer	742-4549
Membership Coord.	Terri Lappin	579-0185
Past President	Tim Hunter	299-2972
Desert Skies ed.	Dolores Hill	325-9820
Asst. ed.	Rik Hill	325-9820

Desert Skies Publishing Guidelines

* *All articles, announcements, news etc. must be submitted by the 20th 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

MEMBERSHIP IN THE TAAA

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

Sky & Telescope subscription (optional) $18.00

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.

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 $18 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.

** All articles, announcements, news etc. must be submitted by the 20th of the month.*

****

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. Thanks. -ed.

FOR SALE: Celestron C-8 tripod, wedge, and fork with aftermarket 7" alloy worm gear and two declination drives, one belt and one direct drive...$150.00. Call Dan Knauss at 881-2639.

FOR SALE: Estey (Vermont) antique pump organ, 11 stops, all notes work fine, delightful sound... $995. Contact Stephen B. Smith at (602) 456-9440 or Box 5056, Huachuca City, AZ 85616.

FOR SALE: 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. Call Gilbert Friedman at 571-1662.

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 TAAA brochure.

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

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).

FOR SALE: 6" Dynamax without tripod- legs screw in, 2 diagonals, 1 porro prism, 9mm, 13mm, 30mm eyepieces, camera adapter....$500. Contact Robert L. Smith 14025 Penny Lane, Casa Grande, AZ 85222.

FOR SALE: 65mm refractor with equatorial mount (no motor), manual slow motion controls, carry case, 4 eyepieces, approx. 30 yrs. old.....good for beginner.$65. Call Virginia Breckenridge at 298-3586.

FOR SALE: NEW (never used) 13mm Plossl TeleVue eyepiece...$80; two Celestron polarizing filters, 67mm dia. @ $10.00; 10 rolls of Ektapress print film, 1600 ASA, hi-contrast...$6/roll or $25/Propack (5 rolls). *(This is the film Mike used for the award-winning photo in the September issue of ASTRONOMY)*; calymenina trilobites from Morocco...$10 ea. Call Mike Terenzoni at 577-6857.

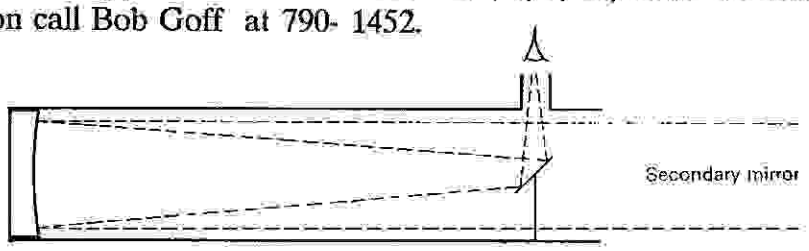
FOR SALE: ASTRONOMY magazine 1974-1990; missing 7 early issues; 14 yrs. complete, in good condition...$150. 8 inch Edmund mirror kit...$40.00. CAVE drive, 1½ inch shaft with housing, only 40 hrs. running time...$80.00. Call Mike Sweetman evenings at 297-2781.

FOR SALE: 2" Rack & pinion Novak focuser with 1 1/4" adapter- mint condition (never used).....$90.00. Call Ray Wallace at 294-1197.

FOR SALE: Yashica 35mm SLR camera/50MM lens...$150. Call Patrick Craig at 792-4980 *(new phone#)*.

TAAA MIRROR-MAKING CLASS TO BEGIN!

A mirror making class will be taught with "scaled exercises" by expert opticians Bob Goff and Duane Niehaus. All supplies are included for 4 1/4, 6, 8, 10, or 12 1/2 inch primary mirrors. For more information call Bob Goff at 790- 1452.



OBSERVERS REPORT

Star Parties

Regular:
February 1 New Arivaca site see map
February 29 New Arivaca site
February 22 Jupiter Opposition Party, see map

Public:
February 6 Pueblo H.S., see map
February 11 Van Buskirk Elementary see map

No Sun, no Moon, no stars, lots of weather! That, unfortunately, kind of sums up this past month, at least regarding the big events as seen from Tucson. Those of you who saw the solar eclipse and/or the Quadrantid meteor shower call me or share your experiences at the next general meeting.

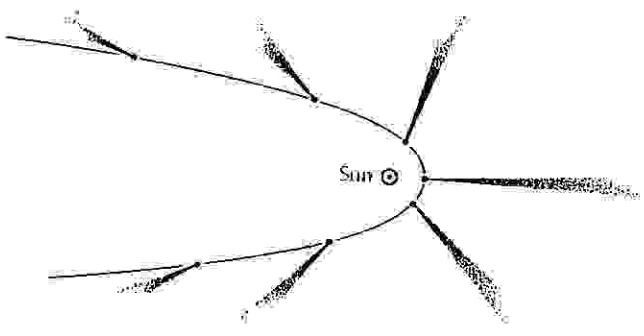
Thanks to all you who made it out to Canyon Ranch for the star party there(use those Spa Day coupons, its worth it, heck, you may even meet Julia Roberts!).Mr. Goff tells me that, though the audience was small it was enthusiastic! I need to apologize to those of you who showed up at Buskirk Elementary 1/9. The teacher sponsoring the event cancelled at the last minute. This brings up an important point that I hope will save you all a lot of wasted effort. If you wish to help out at a public star party (and all help is appreciated) please either sign up at the monthly meeting or call me (745-3372 or 742-4549, leave a message if no one answers). This way you can call me or I can call you about any change in the schedule. Also, if you want to sponsor, or have been approached by any organization desiring, a star party please give your Chief Observer a call - I would like to act as a clearing house for star parties so that we can schedule events and avoid conflicting dates.

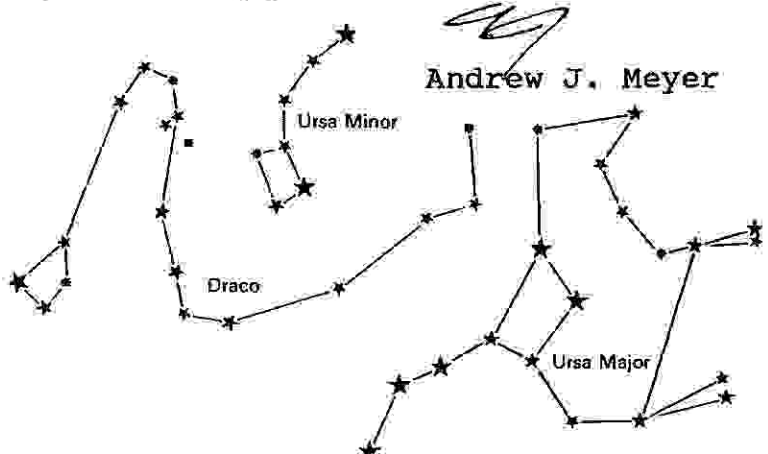
At this time I'd love to tell you about all the observing I did recently, but I can't because I didn't. Hopefully, February skies will be transparent and I'll have lots to tell you in next months issue. Please look for comet Zanotta-Brewington which may reach 6.3m the evening of 2/3 (RA 23:55.5, Dec 18°07').

Regarding upcoming events, note that we'll again attempt star parties at Pueblo High and Van Buskirk Elementary. The star party on 2/22 is a Jupiter Opposition get-together at a new members house just south of Three Points in Diamond Bell Ranch, bring chairs and munchies, we'll pass the hat around and order pizza early in the evening. A star party the next Saturday is at the new Arivaca location. As I've urged before, please come out and see this promising site.

Until next month, may transparency and good seeing prevail!

Andrew J. Meyer

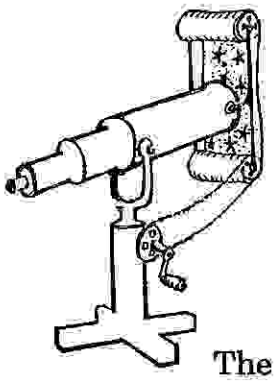




CELESTIAL CALENDAR for February 1992 (all times are in MST).

S	Feb.	1	**TAAA Star Party**, Arivaca site, see map elsewhere.
S	Feb.	2	5am, Moon at apogee, distance 63.7 earth-radii.
M	Feb.	3	12pm, **NEW MOON.**
T	Feb.	4	9am, Mercury 1.5° S of Saturn, both are within 5° of Sol - **be careful please!**
W	Feb.	5	Maarten Schmidt discovers large quasar red shift, 1963.
T	Feb.	6	6:30pm, Star Party at **Pueblo High School**, see map elsewhere.
F	Feb.	7	7:30pm, **TAAA General Membership Meeting**, Steward Obs. 1st floor auditorium, Dr. David Crawford on the Pleiades, varible stars and extinction coefficients.
S	Feb.	8	8am, **Venus 0.3° S of Neptune**, 31° from Sol.
S	Feb.	9	The English telescope maker, William Lassell, awarded the gold medal of the Royal Astronomical Society, 1849.
M	Feb.	10	7pm, Mercury at greatest latitude S of ecliptic (-7.0°).
T	Feb.	11	9:14am, **FIRST QUARTER MOON.** 6pm, star party at **Van Buskirk Elementary School**, see map elsewhere.
W	Feb.	12	2am, Mercury at superior conjunction.
T	Feb.	13	7:30pm, **TAAA Executive Meeting**, Flandrau Science Center conference room.
F	Feb.	14	5:15pm, Moon at descending node (longitude 98.9°)
S	Feb.	15	7pm, Moon passes 8.2° S of Pollux.
S	Feb.	16	Miranda, satellite of Uranus, discovered by G.P. Kuiper, 1948.
M	Feb.	17	4am, Moon at perigee, distance 56.1 earth-radii.
T	Feb.	18	1:03am, **FULL MOON.**
W	Feb.	19	7:30pm, **30" Telescope Design, Land and Fundraising Meeting** at Duane Niehaus', see map elsewhere.
T	Feb.	20	John Glenn becomes 1st American to orbit Earth, 1962.
F	Feb.	21	9pm, Moon passes 3.1° S of Spica.
S	Feb.	22	6pm, **TAAA Star Party and Jupiter Opposition Party**, at new member Brian Lareau's, see map elsewhere.
S	Feb.	23	Supernova 1987A in the Large Magellanic Cloud bursts into view,1987. Brightest supernova in 383 years.
M	Feb.	24	Discovery of the first pulsar announced, 1968.
T	Feb.	25	12:56am, **LAST QUARTER MOON.**
W	Feb.	26	δ Leonid meteor shower, ZHR <5.
T	Feb.	27	4:55pm, Moon at ascending node (longitude 278.1°).
F	Feb.	28	5pm, Jupiter at opposition.
S	Feb.	29	**TAAA Star Party**, Arivaca site, see map elsewhere.

Andrew J. Meyer

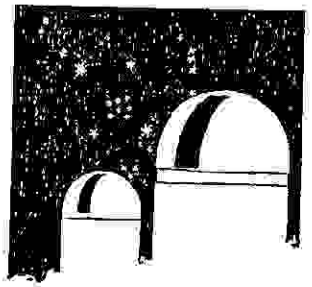


DARK SKIES for February 1992 (in MST):

S/S	Feb.	1/2	7:18pm - 5:55am
S/M	Feb.	2/3	7:19pm - 5:55am
M/T	Feb.	3/4	7:20pm - 5:54am
T/W	Feb.	4/5	7:20pm - 5:54am
W/T	Feb.	5/6	8:01pm - 5:53am
T/F	Feb.	6/7	8:56pm - 5:53am
F/S	Feb.	7/8	9:52pm - 5:52am
S/S	Feb.	8/9	10:50pm - 5:51am
S/M	Feb.	9/10	11:51pm - 5:51am
M/T	Feb.	10/11	12:53am - 5:50am
T/W	Feb.	11/12	1:56am - 5:49am
W/T	Feb.	12/13	2:59am - 5:49am
T/F	Feb.	13/14	3:58am - 5:48am
F/S	Feb.	14/15	4:52am - 5:47am
S/S	Feb.	15/16	5:40am - 5:46am
S/M	Feb.	16/17	none
M/T	Feb.	17/18	none
T/W	Feb.	18/19	none
W/T	Feb.	19/20	7:32pm - 8:12pm
T/F	Feb.	20/21	7:33pm - 9:19pm
F/S	Feb.	21/22	7:34pm - 10:24pm
S/S	Feb.	22/23	7:34pm - 11:28pm
S/M	Feb.	23/24	7:35pm - 12:29am
M/T	Feb.	24/25	7:36pm - 1:27am
T/W	Feb.	25/26	7:37pm - 2:21am
W/T	Feb.	26/27	7:37pm - 3:09am
T/F	Feb.	27/28	7:38pm - 3:52am
F/S	Feb.	28/29	7:39pm - 4:30am
S/S	Feb.	29/1	7:40pm - 5:05am
S/M	Mar.	1/2	7:43pm - 5:28am
M/T	Mar.	2/3	7:44pm - 5:26am
T/W	Mar.	3/4	7:45pm - 5:25am
W/T	Mar.	4/5	7:46pm - 5:24am
T/F	Mar.	5/6	7:47pm - 5:23am
F/S	Mar.	6/7	8:45pm - 5:22am
S/S	Mar.	7/8	9:44pm - 5:20am

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

Andrew J. Meyer



T-Shirt Contest Deadline!

The competition for t-shirt designs has been delayed to the March meeting to allow time for some inspiration for clubmembers. So far we have only had one submission, and if there are no others by March 6th, he will be declared the winner. Get your ideas in order and enter now!

Grand Canyon Star Party

Don't forget, the dates for this year's event is 30 May through 7 June, 1992, so make your plans now. It looks like dorm rooms will not be made available this year (a competing event at the academy where they are located), but they will reserve a block of campsites (six total) for us. Otherwise you are free to make your own reservations. Information for making motel or other reservations will be available in a subsequent newsletter or from me at any time.

-Dean 293-2855

THREE POINTS

AJO WAY
(TO TUCSON)

Please bring lounge chairs.

SASABE ROAD

DIAMOND BELL RANCH ROAD

JUPITER OPPOSITION PARTY

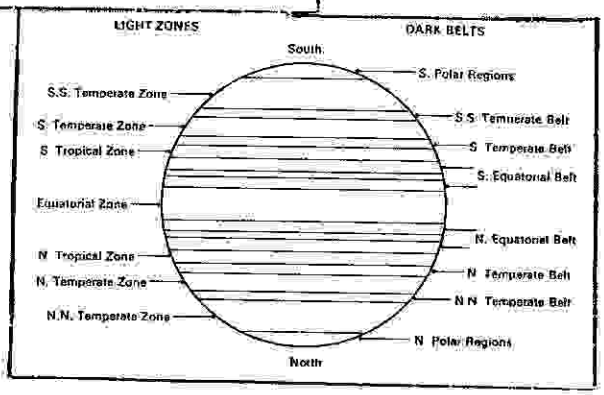
FEBRUARY 22

6 P.M.

AT THE HOME OF BRIAN LAREAU

14135 W. RENEGADE

822-1165



FANNIN ROAD

FANNIN ROAD

Larkdale

SHAW ROAD

DIAMOND BELL RANCH

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Killarney Ave.

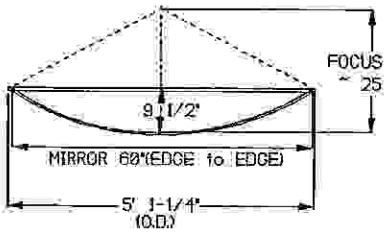
14135 W. RENEGADE

60 " MIRROR

FOR SALE

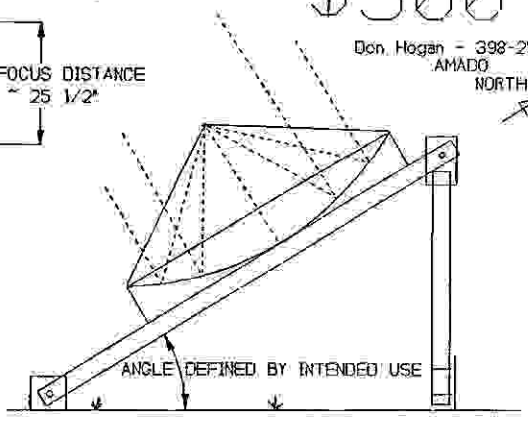
$300

SEARCHLIGHT MIRROR MFG. GENERAL ELECTRIC NOV. 7,1941
RIM DATA P696-8124-16 FL.2556 WT.165 11/7/41
RHODIUM-SURFACED REFLECTOR, METAL MIRROR, (?BRASS?)



Don Hogan - 398-2507
AMADO

NORTH (TRUE)



F/D - .42
MAX. REFLECTIVITY 70 %
BEAM WIDTH 1 1/4 DEGREES
POSSIBLE USES:
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2. SATELLITE DISH
3. RADIO-TELESCOPE
4. 60" TELESCOPE
5. or as BIRD BATH

NOTE: SAT. DISH INFO
ANTENNA GAIN IN DECIBELS @ 3.9GHZ
100% -36db, 80% -35db, 60% -34db, 50% - 33db
*** (DIME SIZE SPOT AT FOCUS POINT)

REF: TM 5-7111 -U.S. ARMY MANUAL

The International Armada of Space Astronomical Observatories, 1992

Compton Gamma Ray Observatory (CGRO): Launched 1991. Second of the Great Observatories.

Cosmic Background Explorer (COBE): Launched 1989. A mission to study the cosmic background and the infrared universe. Two of three instruments still operating.

Diffuse X-ray Spectrometer (DXS): To be carried on 1-week shuttle flight in late 1992.

Extreme Ultraviolet Explorer (EUVE): To be launched in mid-1992.

Galileo: Launched 1989. Primarily a planetary probe, it can also be used for astrometry.

Gamma-1: Launched 1990. Soviet gamma ray satellite.

GRANAT: Launched 1989. Soviet/French observatory for hard X-rays and gamma rays.

Hipparcos: Launched 1989. European satellite primarily for astrometry.

Hubble Space Telescope (HST): Launched 1990. Visible and ultraviolet astronomy; first of four planned Great Observatories.

International Ultraviolet Explorer (IUE): Launched 1978. Still operating after almost 14 years.

Mir/KVANT: Soviet space station module carries an assortment of astronomical instruments, primarily for X-ray and gamma ray observations.

Pioneer Venus Orbiter (PVO): Launched 1978. Primarily a planetary mission, but also used astronomically in the study of gamma ray bursts. Expected to burn up in Venusian atmosphere during 1992.

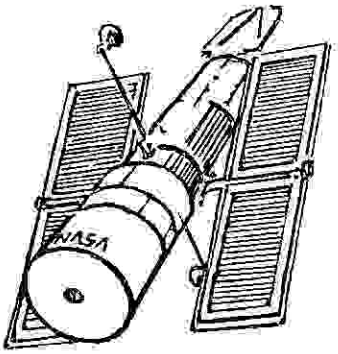
Roentgen Satellite (ROSAT): Launched 1990. German led X-ray observatory.

Ulysses: Launched 1990. European space physics mission; also studies Sun and gamma ray bursts.

Voyager 2: Launched 1977. Having completed its tour of the planets, the Voyager 2 Ultraviolet Spectrometer (UVS) is still used for astronomical observations.

WIND: To be launched late 1992. Space physics satellite with gamma ray instruments.

Yohkoh (previously called Solar-A): Launched 1991. Japanese led satellite to study the Sun in X-rays.



ANNOUNCEMENT

Electronics Oriented Astronomy 4 Seminar will be held on February 22, 1992 at Hashinger Hall of Chapman University in Orange California, from 0900 until approximately 2200. Typical topics include CCD and other imaging system design, construction and use, photoelectric photometry, stepper control, electronic setting circles, etc. For those not attending, a poster paper area will be available for computer, printed, or videotaped papers. Deadline for contributors is January 20, 1992, so the Proceedings book may be prepared for distribution at the event. Cost of the seminar is $25 for admission, free refreshments at 2 breaks, and the Proceedings book. The book by mail alone is $15.ppd. (please place orders by 1 February).
Papers chair is John Sanford, 2195 Raleigh Ave., Costa Mesa, CA. 92627 Phone 714-722-7900, fax 714-646-7578. Registrar is Charlie Oestdyk, PO Box 1762, Costa Mesa, CA. 92628. Program Chairman is Wayne Johnson, 2630 Raven Cir., Corona, CA. 91720 714-734-8475

JPL Controllers Trying To Free Galileo Antenna

WASHINGTON

Painting shows the failed Harris Corp. antenna that has crippled the Jet Propulsion Laboratory's Galileo spacecraft. Galileo is depicted flying by the Asteroid Gaspra in late 1991. At least three of the high-gain antenna's ribs have hung up in the vehicle's mast, leaving it useless. JPL controllers are in the midst of the fourth of six planned heating and cooling cycles in an attempt to free the antenna. Galileo is to arrive at Jupiter on Dec. 7, 1995. If the antenna cannot be freed, its primary imaging mission will be almost impossible to carry out, although data from the Jovian Atmospheric Probe should still be returned. □

-Aviation Week and Space Technology
Jan. 20, 1992

The Hubble Space Telescope makes a number of nice passes this month, followed later on by the Cosmic Background Explorer (COBE). The Soviet Space Station Mir and Gamma Ray Observatory are not visible in the early evening this month.

SATELLITES FOR FEBRUARY
By Brad Becker

Date	Satellite	1st Appearance	RA	DEC	Last Appearance	RA	DEC
2-7	HST	7:34 p.m.	1.05	- 31.12	7:38 p.m.	6.12	- 23.54
2-11	HST	6:27 p.m.	23.39	- 20.13	6:33 p.m.	7.49	- 15.09
2-12	HST	6:36 p.m.	23.40	- 12.43	6:42 p.m.	8.00	- 03.18
2-13	HST	6:45 p.m.	23.40	- 07.00	6:51 p.m.	8.19	- 04.42
2-14	HST	6:53 p.m.	23.20	- 03.53	7:00 p.m.	8.33	- 09.01
2-15	HST	7:02 p.m.	23.34	- 02.47	7:09 p.m.	8.29	- 15.24
2-16	HST	7:11 p.m.	23.53	- 04.21	7:17 p.m.	7.43	- 23.43
2-22	COBE	6:49 p.m.	02.54	- 08.00	6:55 p.m.	20.48	60.00
2-23	COBE	6:45 p.m.	03.46	- 28.24	6:52 p.m.	21.13	61.42

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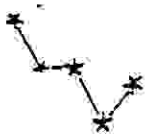

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C O S M O C O N 9 2

A UNIQUE ASTRONOMY CONVENTION IN THE SAN FRANCISCO BAY AREA!

A Joint Convention Hosted by the Astronomical Association of Northern California
Celebrating the excitement, wonder, and spirit of discovery in Astronomy

Co-hosted by San Jose State University
San Jose, California * * * July 13 — 18, 1992

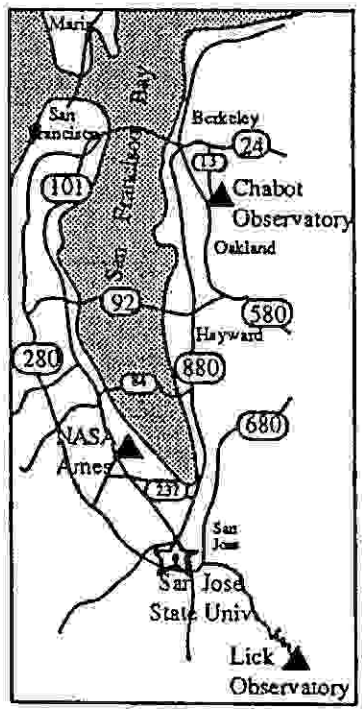
While a number of people celebrate the 500th centennial of Columbus' voyages, this convention is a celebration of the spirit of discovery in Astronomy.

PROGRAMS:

July 13 & 14: Teachers' Workshops that will use classroom activities from Lawrence Hall of Science (Univ. of Calif., Berkeley); portable planetarium; and resources from nearby organizations such as amateur astronomy clubs and the Astronomical Society of the Pacific (ASP). Class credit for teachers is optional through SJSU.

July 15 - 18: Amateur and professional lectures. Solar System topics will be in the ALPO session on the16th. Speakers include:
- Andrew Fraknoi, Exec. Director of ASP.
- Mike Reynolds, Dir. Chabot Observatory.
- John Westfall, Director of ALPO.
- Ashley McDermott, VP of RTMC.
- Present a paper yourself!

Feasts include the Awards Banquet on Friday night and a Saturday evening Star-B-Que at a favorite regional amateur observing site.



TOURS:

▲ Lick Observatory, the world's first mountaintop observatory at Mt. Hamilton. We will see the 120-inch Shane reflector and view through the 36-inch refractor. The road to the observatory boasts one turn for every day in the year (365 of them)!

▲ The Chabot Science Center in the Oakland Hills is home of Chabot Observatory and the Rotary Chabot Planetarium. We will observe through the 109-year old Alvan Clark 8-inch refractor, and the 20-inch Brashear refractor on a Warner and Swasey Mount. The 20-inch is the largest refractor that is regularly available to the general public on the West Coast! Chabot is the home of the Telescope Makers Workshop, founded in 1929.

▲ NASA-Ames Research Center, just north of SJSU. We will tour the world's largest wind tunnels, one of the largest collections of experimental aircraft, and probably the Kuiper Airborne Observatory.

✚ San Francisco Bay Area offers huge variety for your family vacation, so come early and stay late. San Francisco's world-famous attractions include cable cars, the Golden Gate Bridge, Fisherman's Wharf, Exploratorium, Chinatown, and Alcatraz. Wine tasting in the Sonoma vineyards, soaring redwood groves, dramatic Pacific coastline, hot springs, Monterey Bay Aquarium and Yosemite Park are all within easy access.

EXHIBITS: COSMOCON will feature exhibits from NASA SETI, Corporation for Research Amateur Astronomy (La Paz Eclipse Symposium), ALPO and others. Poster papers and astrophotography exhibits will also play a prominent role. Registrants are invited to exhibit their best or wackiest photos and/or a poster paper. For those who wish to view the latest in astronomical products and gadgets, vendors will set up and sell their wares.

San Jose State University, in the heart of Silicon Valley, is the oldest campus of the California State University system, founded in 1857 as a teachers' college. As the Santa Clara Valley evolved from a rich agricultural region into the world famous center of high technology, the University's mission has expanded to fill ever widening educational needs.

For registration packet and further information about the convention, write to:

COSMOCON 92
Krebs Convention Management Services
Pioneer Square, Suite 200
555 De Haro St.
San Francisco, CA 94107-2348
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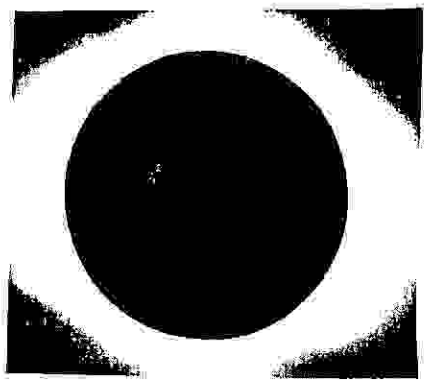
Astrophotography



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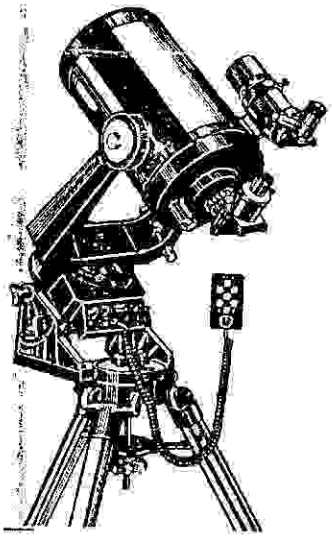

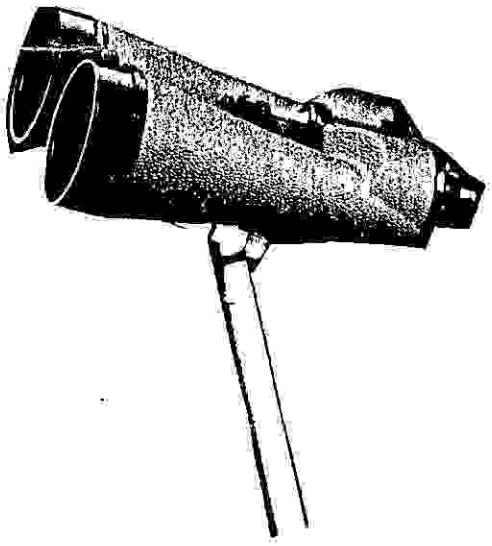

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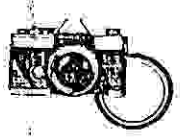

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We are looking for Volunteers of all ages, from all walks of life, and all backgrounds. We do not require prior knowledge of Astronomy. All we are looking for is a willingness to learn. Transportation to the Observatories is provided from Tucson.

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Volunteer Program
P.O. Box 26732
Tucson, AZ 85726-6732
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PROGRAM INFORMATION : 621-STAR
PLANETARIUM OFFICES : 621-4515
ASTRONOMY NEWSLINE : 621-4310

The Asteroid/Meteorite Exhibit:

Flandrau will proudly unveil a "smashing" new meteorite exhibit. Located near the north doors of the Flandrau, "When Asteroids Collide" combines imagination with craftsmanship and ushers in a new era of interactive, interpretive exhibits for us. Thanks to the skills of Dik Castle, Michael Lee and a talented crew, visitors to Flandrau will be able to experience the excitement of a collision between two asteroids in deep space - *from inside the asteroid!* Caught at the moment of impact, the 1:20,000 scale-model of a large asteroid is seen fragmenting; on one side, the interior's molten rock and metal core is exposed, while on the other side, a deep fissure has opened in the body, allowing a spectacular view of tumbling, spinning chunks of rock being blasted out into the chaos of the asteroid belt by the force of the collision.

Inside the mock asteroid will be pieces of genuine fragmented moons and planets; specimens from the world-class meteorite collection of Robert Haag will be on loan to Flandrau and special, lighted display windows will highlight the actual meteorite specimens. Each meteorite will carry an explanation of type, composition, and presumed relative position within the parent body from which it came. Within a real asteroid of the size represented by our scale model, intense heat and pressure would cause melting and deformation of the stone and metal components, which would then settle into various layers according to density. Nickle-iron meteorites, for instance would correspond to the material oozing from the mock asteroid's "molten core". Stony-irons and pallasites probably came from an interface area between the rocky mantle and the core. Stone meteorites would have come primarily from the mantle. These various types of actual meteorites, therefore, are not only fascinating in their own right, but will dramatically illustrate this principle of settling and differentiation within the parent body.

Also within the exhibit will be a diorama display telling the story of the Tucson Ring Meteorite, an interactive computer exhibit which will allow visitors to program the parameters of their own meteorite impact on Earth, a display about Meteor Crater and the associated Canyon Diablo nickle-iron meteorites from northern Arizona and an audio-visual exhibit about mining asteroids for building materials to be used in deep space.

Thanks to Robert Haag for making this exhibit possible, and to the design committee of Rick Greenberg, Dik Castle, William Boynton, Don McCarthy, Terry Wallace and Robert Haag for a truly spectacular design. Tucson and Flandrau will definitely receive national recognition for this exhibit.

The June Patterson Astronomy & Science Store

The new June Patterson Astronomy & Science Store has been completed and the waiting was worth the results. Expanded to 600 square feet of merchandising area, the new store is a one-of-a kind design created especially for Flandrau by local architect Les Wallach. Unique in many ways, the new Science Store has a play area for children to "test-drive" many of the games and puzzles available while their parents browse, and will soon incorporate a fiber-optics system of lighting that will function not only as lighting, but as an exhibit in its own right. We are indebted to Mr. David Patterson for making this innovative and valuable addition to Flandrau possible, and especially to June Patterson, to whom this store is dedicated.