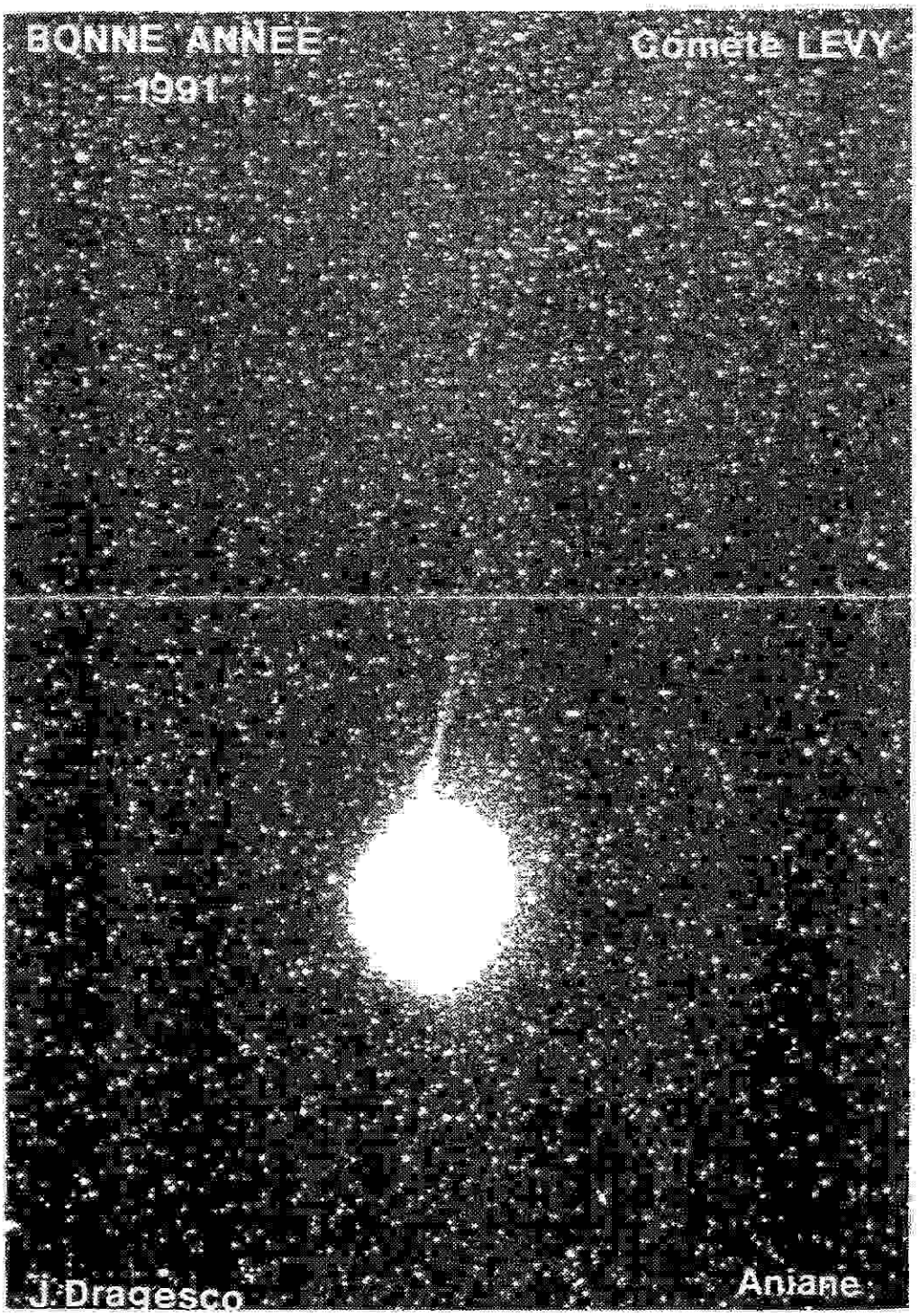
Desert Skies

JANUARY 1991



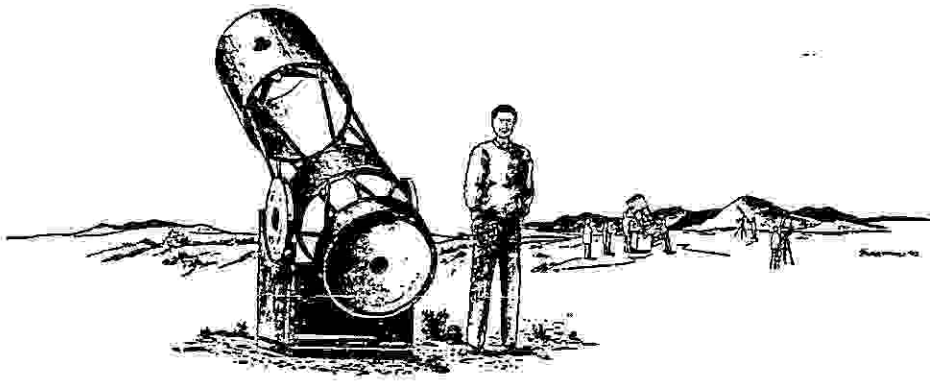
GENERAL MEETING - Friday, January 4, 7:30 P.M. at Steward Obs. lecture room. Terri Lappin will present a talk on "Gathering Gamma-Rays on Mt. Hopkins" and Mike Smith will speak on "Photometry".

EXECUTIVE MEETING -Thursday, January 10, 7:30 P.M. at Flandrau Planetarium.

STAR PARTIES - Saturday, January 5 - at Sunizona site-Chiricahua Mts. (Rain date is January 12).
Friday, January 18 - Jupiter Opposition and Io Eclipse Party 7 P.M. at the home of Gary Rosenbaum and Terri Lappin.

Saturday, January 19 - Empire Ranch star party

Friday, January 25 - Coronado Elementary School 5:30 P.M. See Observer's Report for map...



WELCOME TO NEW MEMBERS! DON'T FORGET TO PICK-UP YOUR "MEMBERSHIP PACKAGE" FROM MEMBERSHIP COORDINATOR, TERRI LAPPIN!

TAAA EXECUTIVE

President	Tim Hunter	299-2972
Vice-President	Dean Ketelson	293-2855
Executive Sec.	Dick West	1-762-5831
Recording Sec.	Sharon Niehaus	299-7328
Treasurer	Debbie Smith	296-4780
Member-at-Large	Bob Goff	790-1452
Chief Observer	Terri Lappin	797-2270
Membership coordinator	Terri Lappin	797-2270
Past President	Duane Niehaus	299-7328
Desert Skies ed.	Dolores Hill	325-9820
Asst. ed.	Rik Hill	

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 Desert Skies c/o Dolores Hill 4632 E. 14th St., Tucson, AZ 85711 (phone: 325-9820) OR Lunar & Planetary Lab, U of A (621-6951).

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 $18.00 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.

SERVICES, OPTICS, AND MATERIALS FOR SALE by Bob Goff.....Call 790-1452.
*MIRRORS TESTED, *STEEL SHAFTS for your next telescope...SAE 1026 carbon steel 2"OD 1/4"wall. Cut your own. I'll supply the saw....$10.00/foot.
*PAIR OF MIRROR BLANKS, C-1, F-1 for 10" achromatic objective....make offer.
*PAIR OF GROUND & POLISHED LENSES C-3, F-3 10" diameter, no cell.
*SET OF GLASS FOR 7" diameter Gregory Maksutov, money raised to be donated to TAAA 30" project.

WANTED: Eyepiece tube, 1/4" I.D., few inches long. May be brass, aluminum, chrome..... Call Gilbert Friedman at 571-1662.

WANTED: 25 lb. counterweight with 1" central hole for a 6" reflector OR use of a furnace/kiln to remake an existing lead counterweight with misaligned hole.....Contact John Lippert 950 S. La Bellota, Green Valley AZ. 85614.

WANTED: Members to bring eyepieces to star parties for comparison through different telescopes...Patrick Craig would like to compare as many as possible before making a purchase. It sounds like an activity that could benefit many amateurs for future reference! (The results would make a great article for Desert Skies!)

FOR SALE:The following issues of the Astrograph, Vol.8 #1 color,Vol.12 #4,5,6, Vol.13 #1,2,3,5,6,Vol.14 #1,2,3,4,5,6,Vol.15 #1,2,3,4,5,6,Vol.16 #1,2,3,4,5,6, Vol.17 #1,2,3 ALL FOR $15.00.
Also, ZX80 Sinclair with 8k basic ROM with hookup wires, Syntax magazine in binder Vol1#2,Vol2#112,Vol3#112,Vol4#1.....$25.00
Call evenings and ask for Mike (297-2781).

FOR SALE: 9 1/2" Meade Fibrelite tube, 48" long with endrings,brand new...$95.
Call Andrew Meyer 883-2193(please before 10 P.M.-leave message on the machine)

FOR SALE:Yashica 35mm SLR camera/50MM lens...$150.Call Patrick Craig 750-8046

FOR SALE: 6" Parks Dobsonian telescope- includes 25 mm Kellner eyepiece, 6x30 finderscope, Novak curved spider...$300
Astroscan 4", f/4 from Edmund Scientific/28 mm RKE eyepiece...$100
50mm Parks Kellner eyepice.....$20
2" Parks rack & pinion focuser.....$20
1.3" Diagonal holder (no mirror) & spider for 6" scope.....$10
7" Parks tube for 6" scope, 37" long.....$20
Call Jeff Bridges at 293-8976 if interested.

FOR SALE: Heavy 8" diameter steel column on a triangular steel base with a rising heavy tube by rack & pinion. Min height 5 ft. and max. height 7 ft. It was a NASA tooling stand- would be good for a large refractor etc....$500.
Will trade 3 1/2" Alvan Clark refractor on tripod mount for Mac II computer.
Call Mr. Sevilli at 327-0665 (450 S. Rosemount Ave., Tucson 85711)

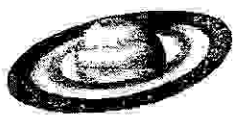
FOR SALE: Cave 6" F/4 Rich-Field Newtonian reflector with 28mm eyepiece, personally refigured primary mirror, on Edmund Scientific equatorial mount with electric clock drive, 1" R.A. and Dec. shafts,$350. Call Duane Niehaus 299-7328.


1972


1969


1966


1963


1960

OBSERVER'S REPORT

Star Parties:

January 5th	Sunizona Site (rain date is January 12th)
January 18th	Jupiter Opposition and Io Eclipse Party at the home of Gary Rosenbaum and Terri Lappin, 7pm
January 19th	Empire Ranch
January 25th	Coronado Elem. School 5:30pm (see map below)

The Sunizona star party last month was rained out so we have rescheduled it for January 5th near last quarter moon so you will still have a chance see this possible home for the 30" and 16" telescopes. If it rains on the 5th, then we will go out on the 12th. See map elsewhere in newsletter.

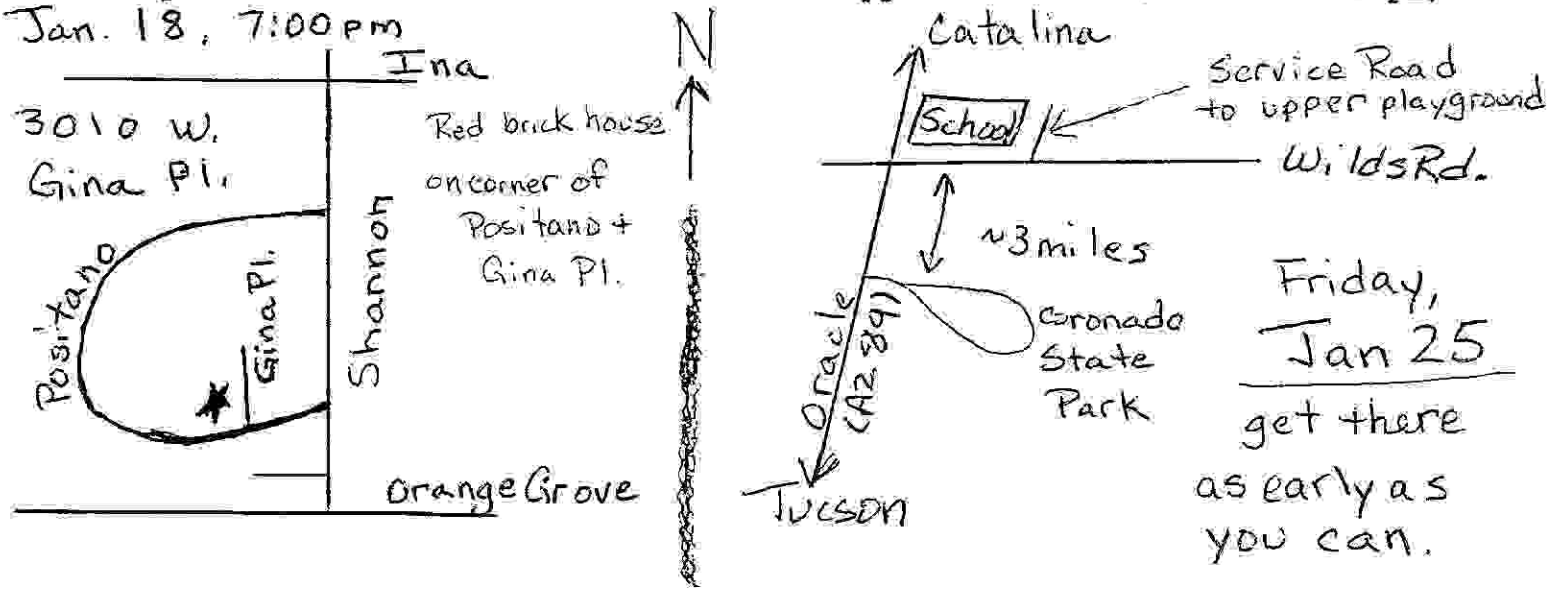
The regular star party for this month is at the Empire Ranch on the 19th. The moon will be a few days past new so there will be a crescent moon at sunset.

There are two special events this month. On January 25th the **Coronado Elementary School** in Catalina is hosting a star party for their 4th and 5th grade classes and needs members with telescopes to attend. It is estimated that there could be 200 people at this event. It is a Friday night and the listed time of 5:30pm may be difficult for some to make, but **PLEASE STILL COME EVEN IF YOU WILL BE AS LATE AS 7:30**. I would much prefer some latecomers than too few who make it on time. Catalina is north of Tucson and a map is provided below. Details will be given out at the next meeting, or please call me if you can't make it to the meeting. I would like some definite commitments for this event.

The other event is the **Jupiter Opposition and Io Eclipse Party** hosted by Gary Rosenbaum and myself on the night of January 18th around 7pm. A map to the house is given below. From Orange Grove at Shannon, turn north onto Shannon. Take the second left (Positano) and follow it a short distance to Gina Place. Our house is on the southwest corner of Positano and Gina Place. (Shannon is about 1.25 miles east of I-10 and 3.3 miles west of Oracle.) Our address is 3010 W. Gina Pl. Bring a telescope to watch the Io eclipse. We have a few telescopes that we will set up. Munchies will be available.

During the party a pair of "mutual events" will occur. The Io eclipse will occur between 9:52 and 10:05pm when the satellite passes into Europa's shadow. What should you see? Io will dim by 70%! This much dimming will be quite obvious to anyone watching the event. Then from 10:27 to 10:39pm Europa will occult Io, i.e. the two satellites will lie on the same line of sight. The light will dim by 18%, which may not be too obvious, but to see the two satellites so close together should be neat to watch. Before or after any of this happens you can try out the filtered observing techniques on Jupiter or Mars that were discussed at the December meeting. Jupiter's Red Spot will rotate onto the disk around 9pm and will be visible on the central meridian around 11:11pm. Mars will be high overhead and Solis Lacus will be on the planet's central meridian at 8pm.

See you at this months events. Terri Lappin 797-2270 **(before 10:30pm)**



NON-FATAL ATTRACTION

by Rik Hill

[Some months ago I issued an Eastwoodian challenge:"Go ahead, make my day: bump me!" I had no idea the response that would generate. I shall consider myself properly bumped. Now I find it hard to get a word in at all. But, as I said in the article, that is as it should be. This month the editor, with whom I have a passing acquaintance, has been kind enough to grant me space.]

In the October, 1989, Sky & Telescope on page 426 is an article by R.J.Livesey of the B.A.A. on the construction of a magnetometer that measures slight changes in Earth's magnetic field. Well I love projects that are simple, cost little and yet teach you something fundimental about our Universe. This device is all of that. With it you can observe tiny changes in our magnetic field caused by tremendous forces released on the Sun. This device offers we southern observers a means by which we can routinely observe aurorae!

As soon as I read the article I decided to build one these. I learned a number of things along the way not mentioned in the article. They will be of interest and aid to anyone attempting to build a jam-jar magnetometer.

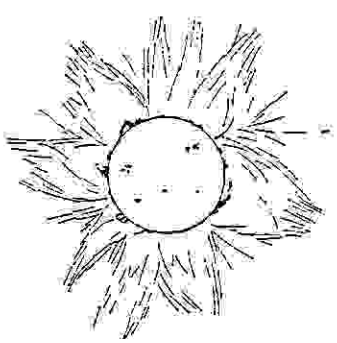
First, though the author only mentions it in passing, any jar used (and here I used a peanut butter jar) should have a plastic lid. This I believe is important to the sensitivity of the instrument. In fact, the less ferric materials near the device the better. You want nothing nearby that can influence the readings. For this reason I would also suggest that you not set it up in a house with all the motorized conveniences of late 20th century living and wiring in the walls. There are just too many potential magnetic influences. I went so far as to set mine up on concrete block columns in the solar observatory (a triangular shed that truncates the southeast corner of my walled in backyard). This area is quite magnetically quiet. I was even able to note a change in readings when I moved some iron pipe into storage in that building! Fortunately, I have never noted any changes attributable to overhead wires or low flying aircraft.

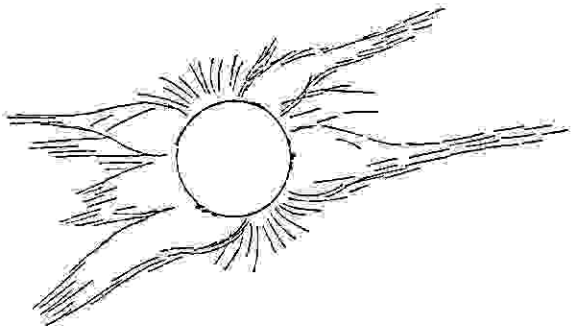
The author mentions,"drilling a tiny hole through the center of this lid and feeding a thin nylon thread through." This thread must be a monofilament thread. I now use a 2 pound test fishing line. At first I used ordinary nylon sewing thread and for the first two days measured the slow untwining of the thread with great accuracy! So use a very thin single strand nylon thread.

I wanted to use materials I had on hand and did not have a bar magnet. A quick bit of rumaging turned up an old ring magnet from the base of an unused CB antenna. Such magnets are quite powerful and the polarity lies on the faces of the ring. The shape of the magnet should not matter since deflection should occur for any magnet. A metal plate was attached to one face so I glued a mirror to this plate, inside the central hole, using a butyl rubber caulking/glue. Though it was not mentioned in the article specifically, it is important that the axis of rotation pass through the mirror. Otherwise, the mirror will orbit about the axis throwing the readings off.

I used the wire damping to steady the magnet. This works well for me since mine is a permanent installation on concrete. Oil immersion is used in magnetometers but it must surely slow increase response time and possibly sensitivity at maxima and minima of deflections. I used a copper clad aluminum wire a quarter of an inch in diameter in the bottom of my jar and the magnetic tides created in this wire by the swinging magnet are enough to damp out spurious vibrations.

→





Unless you put in a collimated light source, it does little good to make the return beam longer than 2 meters. With an uncollimated source sensitivity is limited by the observer's ability to read where the returning light spot is. Too long a return beam, instead of improving sensitivity, may well make your magnetometer into a very good seismometer! So don't over-do it at first.
On the meter stick that I use to read the return beam I placed a slide made of aluminum extending above the meter stick so I can set it on the return spot of light and then simply read off the value. I now take my glasses off and with my -3.5 diopter correction and no astigmatism the circular blob of light can be split in half with the slide. This has proven to be very repeatable. The orientation of the device is apparently unimportant so long as the magnet is not restrained from rotating. My magnetometer is aligned east-west with the length of the observatory and the return beam along the northeast-southwest hypotenuse.

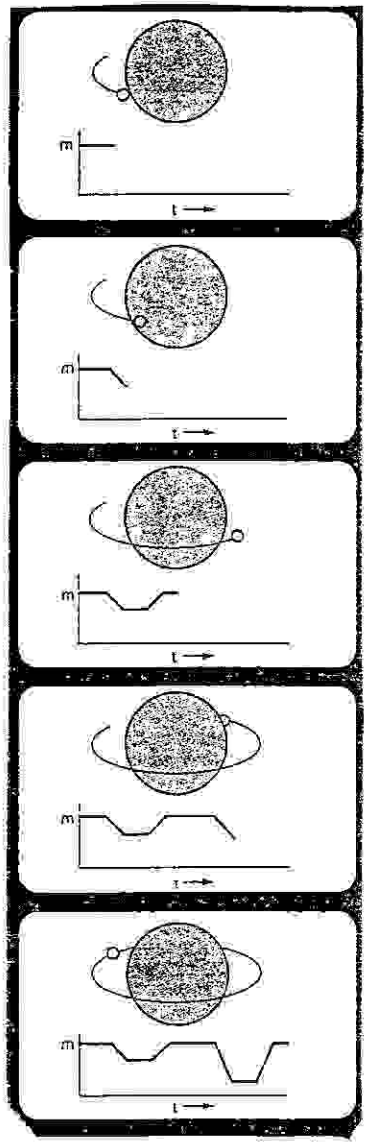
The first month I was using this instrument I was not sure if I was seeing anything! Readings kept falling within 5 millimeters. (The return beam length is 1.8 meters, so 1mm is about 0.95 arc minutes.) Then on October 24/25, 1989, the magnetometer began giving readings that varied by more than 20mm. I told Dolores,"Either this thing isn't working or there's something going on tonight." As I finished, the TV, which was on the CNN news, blared out, "The northern lights are lighting up the skies of the northern U.S. and Canada tonight..." What followed was unintelligible rejoycing. It worked!

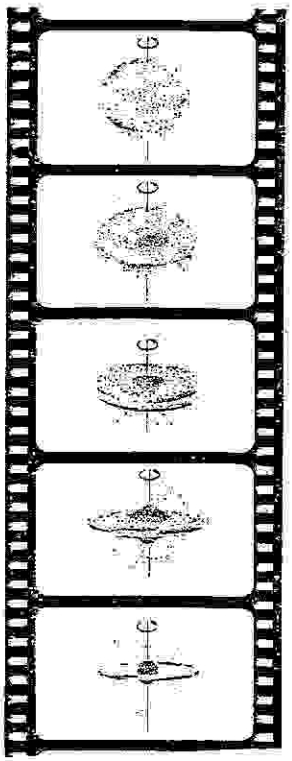
Tycho Brahe's observatory, Uraniborg

CELESTIAL CALENDAR for January 1991

T	Jan. 1	Venus 1.2° S of Saturn, 8am Mars stationary, 9am
W	Jan. 2	Jupiter 2° N of Moon, 4pm Earth at perihelion, 8pm
T	Jan. 3	Mercury stationary, 12am Quadrantid meteors peak, 5pm
F	Jan. 4	Neptune in conjunction w/ Sun, 8pm TAAA General Meeting, T. Lappin, Gamma Ray Astronomy, Stewart Obs., 7:30pm
S	Jan 5	Vesta stationary, 1am TAAA Star Party, Chiricahua/Sunsites site, see map, rain date Jan.12
S	Jan. 6	TAAA Telescope Committee mtg., 2:00pm TAAA Telescope Funding Committee mtg., 4:00pm
M	Jan. 7	LAST QUARTER MOON, 11:35am
T	Jan. 8	Stephan Hawking, British theoretical physicist, mathematician, born 1942
W	Jan. 9	Parallax of α Centauri announced by Henderson, 1839
T	Jan.10	U.S. Army bounces 1st radar signals off Moon, 1946 TAAA Executive Meeting, Flandrau Planetarium Conf. Rm., 7:30pm
F	Jan 11	Antares 0.6° S of Moon, 8pm
S	Jan.12	Moon at apogee, 4am TAAA Star Party, see Jan. 5
S	Jan.13	Mercury 4° N of Moon, 1pm
M	Jan 14	Mercury greatest elongation W (24°), 2am
T	Jan.15	NEW MOON, 4:50pm, annular eclipse in S. Pacific, New Zealand, Tasmania
W	Jan 16	Delta Cancrids, 2-3/hr, in sky all night, radiant α 8:24 δ +20°
T	Jan.17	Moon passes 3° N of Venus
F	Jan.18	Saturn at conjunction w/ Sun, 1am Mars 1.7° S of Pleiades, 8am Jupiter Opposition/Io-Ganemede Event Party, see announcement/map/Observers Report
S	Jan.19	Coma-Berenicids peak, 1/hr, radiant α 12:30 δ +19°, 5am Sun enters Capricornus, 9pm TAAA Star Party, Empire Ranch
S	Jan.20	Venus at greatest latitude S of ecliptic (3.4°), 7pm
M	Jan 21	Geo. Van Biesbroeck , Belgian/American astronomer, born 1880
T	Jan.22	Pierre Gassendi, French philosopher, astronomer, mathmatician, born 1592
W	Jan.23	FIRST QUARTER MOON, 7:21am Mercury 0.4° N of Uranus, 10am Pallas stationary, 2pm
T	Jan.24	Mercury at decending node through ecliptic, 7am
F	Jan.25	Moon 2° N of Mars Star Party at Coronado Elementary, 6:00pm, see map
S	Jan.26	Mercury 1.1° S of Neptune, 7am
S	Jan 27	Fire takes the lives of Apollo 1 crew; Grissom, Chaffee, White, 1967
M	Jan.28	Moon at perigee, 56.8 earth radii, 1am Jupiter at opposition, 5pm
T	Jan 29	Moon at decending node, 3:53am Penumbral eclipse of Moon, 8:52pm Moon passes 1.8° S of Jupiter, 10pm FULL MOON, 11:10pm
W	Jan 30	English telescope maker Andrew Common took award winning photograph of Orion Nebula, 1883
T	Jan.31	Explorer I launched, 1st successful U.S. satellite, 1958

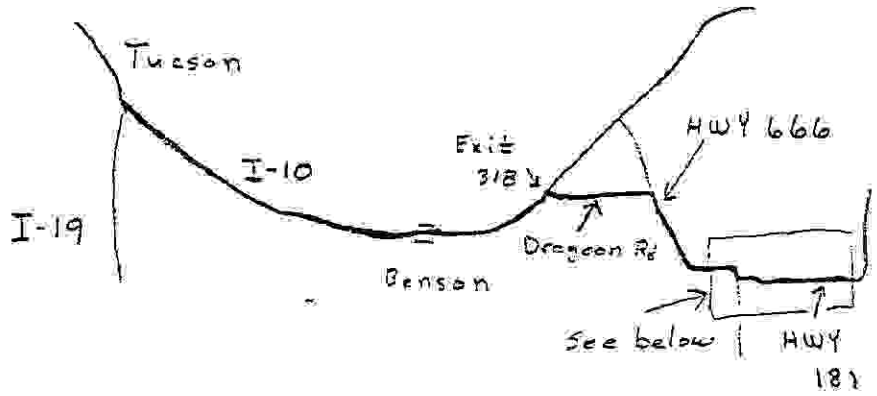
Andrew J. Meyer

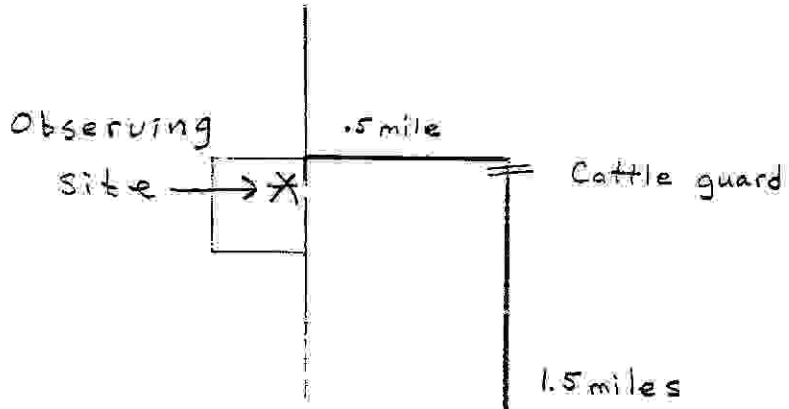




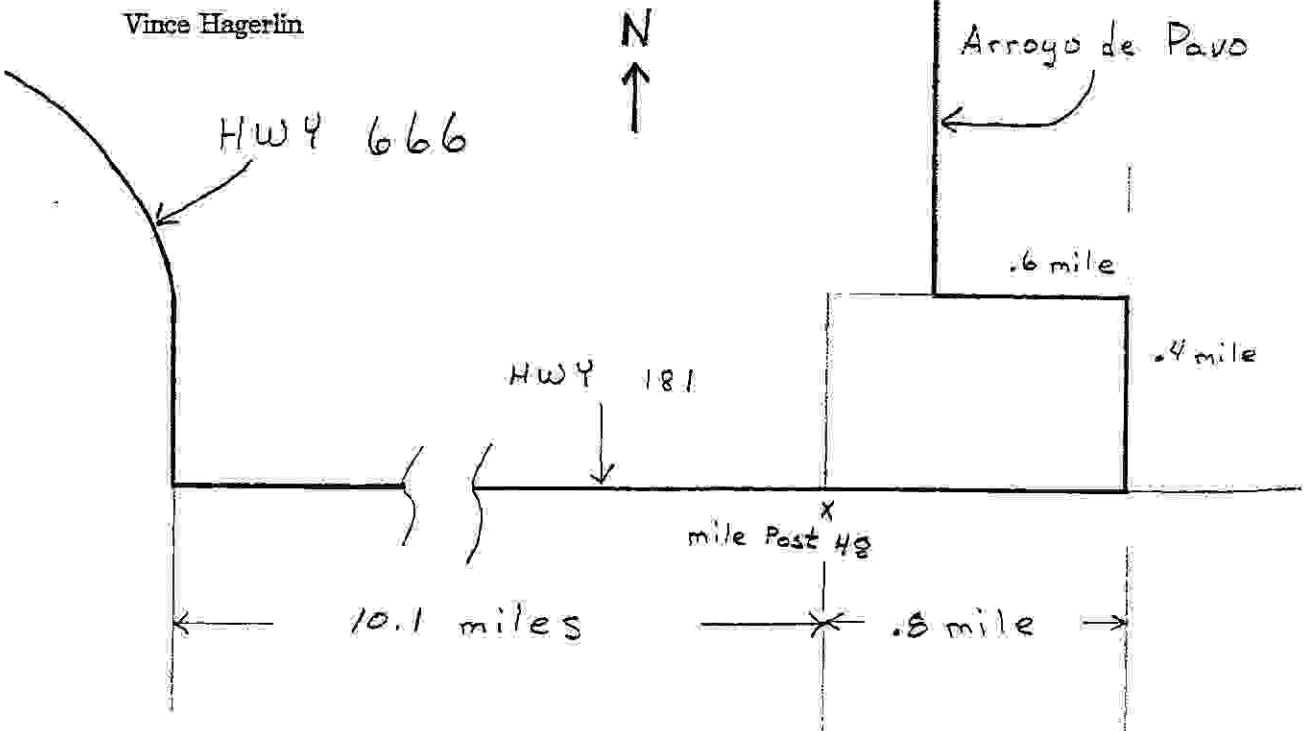
SUNIZONA PROPERTY

Take I-10 east to EXIT 318 (Triangle T, Dragoon Road exit) and turn right (east). Proceed to HWY 666 (approx 14 mi.). Turn right (south) onto HWY 666. Follow HWY 666 to the intersection at HWY 181 and Hwy 666. Turn left (east) on to HWY 181. Mile marker 48 is about 10.1 miles from HWY 666. At .8 miles PAST mile marker 48, turn left (north). Proceed for .4 mile, turn left (west) and proceed for .6 mile. Turn right (north) on Arroyo de Pavo. Follow this road for about 1.5 miles. Just past the Cattle Guard turn left (west). Proceed for .5 mile to intersection. Turn left (south), the Observing site is about 100 yards to the south and on your right (west) of the road.





Vince Hagerlin



NEW MEMBERSHIP LISTS WILL BE AVAILABLE AT THE JANUARY MEETING. A MAILING LABEL WILL BE PLACED ON EACH ONE AND THOSE NOT PICKED UP WILL BE MAILED. SAVE THE CLUB $.25 AND PICK-UP YOURS AT THE MEETING.

JUPITER OPPOSITION AND IO ECLIPSE PARTY!!
Friday, Jan.18 at 7 P.M. at the home of Teresa Lappin and Gary Rosenbaum.
Bring a telescope ...See Terri's Observer's Report for more exciting details!

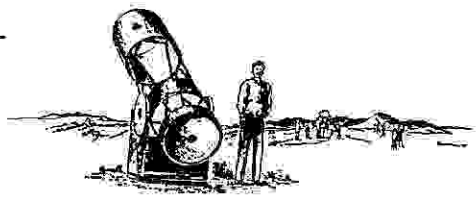
PROGRESS REPORT on 30" from Bob Goff...
The mirror is now 1/4 wave (peak to valley) or 1/20 wave r.m.s. when mounted with even support. It needs to be tested vertically in its mount and then go on to final figuring sometime around June or July....

The TAAA wishes to thank the following for their generous donations of time and materials:

* 30" mirror blank - Roger Angel, Mirror Spinning Lab (Steward Obs.)
* Help in arranging donation of blank to TAAA - Gary Hall.
* Generation of the optical blank - Dean Ketelson, Large Optics Facility, ptical Sci. Dept.
* Grinding, polishing, figuring, and optical design - Bob Goff.
* Mechanical design - TAAA members Gary Rosenbaum, Duane Niehaus, Terri Lappin, Dean Ketelson, Vince Hagerlin.
* Desing checking - Dan Vukabratovitch.
* Guidance software - Dave Harvey, Steward Observatory.
* Steel cut to size for all parts - Superior Steel.
* Offers for use of personal machines- Larry Stepp, Duane Niehaus, Derald Nye, Charlie Burkhart, Scott Henning, Dan Knauss, HEXTEK.
* Site selection - Dean Ketelson, Terri Lappin, Brad Becker, Vince Hagerlin, Tim Hunter, John Zajak.
* Fundraising activities - Brad Becker, Frank Lopez, Andy Meyer, Ed Vega, Dan Knauss, Tim Hunter, Michael Sweetman.

* And THANKYOU to everyone who has participated in the TAAA 30" project through raffles, auctions, and general support!!!

WHAT CAN YOU GIVE???
Needed are: Building materials, help with design for construction of the observatory,
Skills: electrical, electronic, fundraising, public relations, strong backs.....



WHAT!?? DAVID LEVY HAS DISCOVERED 2 MORE COMETS!!

Periodic comet Shoemaker-Levy-I (1990o) was discovered on the night of Nov. 15/16. It was 12.8 magnitude at discovery and has a period of 17.8 years.

Periodic comet Shoemaker-Levy-II (1990p) was first found by Carolyn Shoemaker as an asteroid (1990 UL3) with a Jupiter-crossing orbit on plates taken by Gene Shoemaker and David Levy in November. Then David and Steve Larson discovered a tail, 66,600 km long, on CCD images co-added from Dec.18 & 19! The asteroid was redesignated periodic comet Shoemaker-Levy-II (1990p). It has a period of 9.2 years (magnitude ~17). It has been thought that Jupiter must have captured comets as they pass inward to the sun, but here is real evidence!
Also....
Comet Levy(1990c) was observed by 4 spacecraft: IUE, Galileo, Hubble,& ASTRO!

DARK SKIES for January 1991:

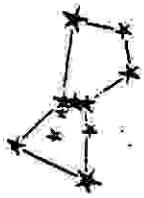
T/W	Jan. 1/2	none	
W/T	Jan. 2/3	6:55pm –	8:04pm
T/F	Jan. 3/4	6:56pm –	9:11pm
F/S	Jan. 4/5	6:57pm –	10:15pm
S/S	Jan. 5/6	6:57pm –	11:16pm
S/M	Jan. 6/7	6:58pm –	12:15am
M/T	Jan. 7/8	6:59pm –	1:13am
T/W	Jan. 8/9	6:59pm –	2:10am
W/T	Jan. 9/10	7:00pm –	3:08am
T/F	Jan. 10/11	7:01pm –	4:04am
F/S	Jan. 11/12	7:02pm –	4:58am
S/S	Jan. 12/13	7:02pm –	5:49am
S/M	Jan. 13/14	7:03pm –	5:59am
M/T	Jan. 14/15	7:04pm –	5:59am
T/W	Jan. 15/16	7:05pm –	5:59am
W/T	Jan. 16/17	7:05pm –	5:59am
T/F	Jan. 17/18	7:35pm –	5:59am
F/S	Jan. 18/19	8:34pm –	5:59am
S/S	Jan. 19/20	9:33pm –	5:59am
S/M	Jan. 20/21	10:32pm –	5:59am
M/T	Jan. 21/22	11:34pm –	5:59am
T/W	Jan. 22/23	12:39am –	5:58am
W/T	Jan. 23/24	1:46am –	5:58am
T/F	Jan. 24/25	2:55am –	5:58am
F/S	Jan. 25/26	4:03am –	5:58am
S/S	Jan. 26/27	5:06am –	5:57am
S/M	Jan. 27/28	none	
M/T	Jan. 28/29	none	
T/W	Jan. 29/30	none	
W/T	Jan. 30/31	none	
T/F	Jan. 31/1	7:17pm –	7:55pm

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

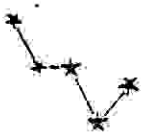
Andrew J. Meyer

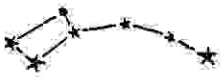
Telescopes • Binoculars • Microscopes

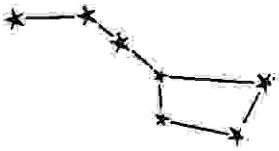
Tucson's Complete Astronomy Shop



- We SELL & BUY
- NEW & USED Equipment
  from Celestron to Questar & Accessories
- Books, Posters, Maps & Star-Charts
- Custom work - Machine & Wood shop work available
- Observatory Construction & Repair
- Featuring The Stellar-Dome manufactured by S.V.
  in Tucson
- Repair work - Telescope cleaning & Colimating
- Knowledgeable Professional Staff
  Trade-ins welcome & Consignment







90 Days Same As Cash
Credit cards accepted

Telescope class

STELLAR - VISION

& ASTRONOMY SHOP

571-0877

1835 S. Alvernon #208
Alvernon & 29th St.

Come in for your Discount Card