# SJAA EPHEMERIS

Volume 7 Number 1 Official Publication of the SAN JOSE ASTRONOMICAL ASSOCIATION January 1996


## Eye on the Ephemerides

by Lew Kurtz

How was Dr. McKay's talk on "From Antarctica to Mars, the Search for Life"? I had to miss the meeting (Mary Ann, the girls and I went down to Disneyland over that weekend). I hear that there were about 50 people at the meeting, a pretty good turn out.

We have several good talks lined up for the next few months: an old (but recently solved) murder mystery (January), CCD techniques (February), and then slides of the solar eclipse over India October last year (March).

**Elections.** The annual elections for Board of Directors seats will be held at the start of the February general meeting. There are four seats to be voted on this year, currently held by Bob Brauer, Jack Petersen, Rich Neuschaefer, and Bob Madden. (The other five seats will be voted on next year.) This year's nominating committee is made up of Jim Van Nuland, Ed Erbec, and Bill O'Shaughnessy.

If you would like to run for a seat on the Board, contact one of the above three Board members (phone numbers are on page 7). I will publish in the February Ephemeris any (reasonable) information provided to me by candidates, provided I receive the information by January 12th.

**Budget.** The Board of Directors will set the SJAA's 1996 budget at the January Board of Directors meeting (6:15pm on Jan 6 in Houge Park meeting hall). All members are welcome and encouraged to attend.

SJAA's annual **Swap Meet and Auction** will be on May 4th this year. Mark that in your new calendar right now! Lots of good bargains.

The **Observational Astronomy class** starts this month at its new time, 7pm. Class is (as always) open to all, and meets at Houge Park. Class start time will probably change after darkness squandering time (also known as daylight savings time) begins.

For winter months, the **Houge Park star parties** will start at 7pm.

**Jan 6:** General Meeting 8:00 pm at Houge Park. Speaker is Shiloh Unruh, on an Astronomical murder mystery. Board meeting at 6:15 pm is open to all members.
**Jan 13:** Star party at Henry Coe State Park, Sun sets 5:10 pm, 44% Moon rises at 0:59 am.
**Jan 20:** Star party at Fremont Peak State Park, Sun sets 5:18 pm, 1% Moon sets 6:01 pm.
**Jan 26:** Houge Park star party, 7:00 pm. Sun sets 5:25 pm, 47% Moon sets 0:35 am.
**Jan 27:** Observational Astronomy Class at Houge Park. Open to all, just show up at 7:00pm.
**Feb 3:** General meeting 8:00 pm at Houge Park. Brian Drummond and Benoit Shillings, on CCD Cookbook camera construction and results. Also, Board of Directors' elections. Board meeting at 6:15 pm is open to all members.
**Feb 10:** No activity, Moon up too early
**Feb 17:** Star party at Henry Coe and Freemont Peak state parks. Sun sets 5:48 pm, 1% Moon rises 6:25 am.
**Feb 23:** Houge park star party, 7:00 pm. Sun sets 5:55 pm, 30% Moon sets 11:20 pm.
**Feb 24:** Beginner's All-Purpose Astronomy Class, Houge Park, 7:00 pm. Open to all.

## Gregory Award Presented!

Jim Van Nuland

At the December 9 meeting, the SJAA presented it's A.B.Gregory award to member Bob Ashford, in recognition of his outstanding giving of time and effort to others in astronomy. Bob has been busy teaching astronomy at several schools, both on his own and as part of Project Astro. He is also frequently seen with his telescope at the school star parties.

Dr. A.B.Gregory, a professor of French Literature at San Jose State, was a long-time member, president of SJAA for two years, and lifetime amateur astronomer. For several years, he taught observational astronomy in Adult Education (night) school, and many SJAA members got their start in his classes. He sought out opportunities to help others, and was often heard to say, come over and let's work on it. Dr.Gregory died in 1979, and the award was proposed the following year. The first was given to Kevin Medlock; Bob Ashford received the 11th.



And finally, please look at the mailing label on page 8. If your address does not have a **zip code**, please call Bob Elsberry (408-281-3559) and give him your name and zip code. We have to mail the Ephemeris at first class rate instead of bulk rate to addresses without zip codes.

## Observing Report
by Mark Wagner

Saturday, November 18, the sky over west San Jose was a mixed bag. Broken clouds around the hills, thin stuff overhead. Since the opportunities for observing were going to be fewer as winter approached, and because the weather was still warm, a group of SJAA members and friends trekked up to Fremont Peak. Present were Rich Neuschaefer, Alan Nelms, Jim Bartolini, Ed Erbeck and Gary Heath. Others present were John Hales, of Mt. Lassen glacier fame, Jack Zeiders who arrived after dark, and Lew Kurtz. It was a good group.

The evening started out very promising. Nice fog in the valleys and over the ocean side. Little to no breeze, and the temp was very comfortable. The sky blackened to the point where faces were no longer recognizable without the glow of a red flashlight. The great Cygnus Rift was at its most obvious of the year. Hales and Heath were busy playing with their photo gear, John using the JMI 18 and Gary his 10" Meade sct on a Meade 700 German equatorial mount. Rich brought his 155mm f/9 ED triplet, Crazy Ed his 18" dob, Jim his highly modified 10" Coulter and I was using Dean Linebarger's 14.5" dob.

Alan had his Toshiba laptop running The Sky, which we used to work over the Herschel list. The night's targets were in Cetus and Pisces. It is an amazing list... those two constellations alone can keep an observer busy for months. By limiting ourselves to mag 13.5 and brighter our list had 89 objects. Of course, that was more than a night's worth, and this night would not work out well.

As seems to always be the case, after not observing for a number of weeks, my star-hopping skills were not good. I seem to improve quickly after nailing the first one or two objects. Soon, we had spotted many on the list. Then we came to a pair of galaxies east of the Circlet in Pisces. One day I will learn to move on when I get stuck on an object, and come back later instead of arguing and getting frustrated. Too much time was spent on that one. Alan finally convinced me that we were seeing it, and I agreed, reluctantly. I'm sure he was right. I think.

Shortly after that, I realized the view in my eyepiece was extremely dark. Stars no longer looked bright. I would move the scope here and there, and no improvement. My flashlight revealed heavy dew on the eyepiece, Telrad and then the kiss of death, dew on the secondary. Alan had the same problem. Bartolini, Rich, Ed, everybody had the same condition. Alan and I borrowed a hair dryer from Rich, which dried the secondary, but only for a matter of minutes.

The observing was done. We all pulled up chairs and talked from about 10:30 until 1. It was nice, as the Leonids were still active, and put on a good show. One in particular streaked slowly from Cancer on the eastern horizon, leaving a blue-green trail behind it until it disappeared directly overhead in Andromeda. It was slow and long enough that everyone was able to watch it.

At 1 a.m., we all knew the night was finished. Only Hales and Heath were staying. I don't know about Kurtz, who was set up by the observatory.

I was home by 2:30. It was a worthwhile trip, as this time of year if you are going to get in any observing you have to go just on the chance that a few hours or so here and there will work out. The real test will be the cold weather in the coming months.

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## Thank You
by Jim Van Nuland

To participants in school and Houge Park public star parties:
Teachers, parents, and many students often thank me (since I'm kinda visible) for the views of the night sky. I'm writing to pass those thanks onto the people who do the work: all of you. Whether you are at many or few of the events, it is much appreciated by the kids, parents, teachers, and passers-by.
THANK YOU.

[To participate in this great program of SJAA's just call Jim (408-371-1307), he'll be glad to add you to his list of volunteer's. -Ed.]

## January's General Meeting Talk
by Jim Van Nuland

Shiloh Unruh, historian at Lick Observatory, is completing a book -- this one a murder mystery. This seems to be a break from his usual astronomical topics, but only to a point. The victim was the daughter of Captain Floyd, the latter was James Lick's confidant and administrator of the Lick trust. Killed for her inheritance, the tale takes us to Bosnia, among other places; and numerous well-known astronomers appear in the story, including a fake astronomer. The mystery remained unsolved until this year -- come learn who had a part in the outcome! Shiloh will address SJAA on January 6, 1996. He is an outstanding speaker -- cancel your other engagements!

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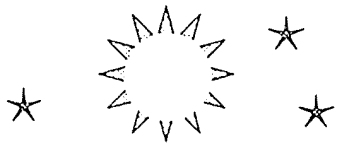


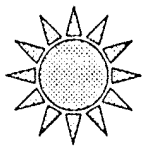
## Eclipse over India
by Ernie Piini

Highlights of a challenging 42-second Total Solar Eclipse over northern India on October 24, 1995 will be shown in a color slide presentation by Ernie Piini, a member of the San Jose Astronomical Association at the club's general meeting on March 2.

His recent expedition, which marks his 17th trip within the path of totality / annularity, also includes unforgettable scenes from Delhi, Jaipur, Mandawa, Bharatpur's famous bird sanctuary, and the unbelievable Taj Mahal in Agra and its amazing Red Fort.

Ernie will also discuss the ancient Observatories of Stone built by Ulugh Beg during the early 15th century, and those built later by Maharajah Sawat Jai Singh in Delhi and Jaipur during the early 18thcentury.

Information of future eclipses will also be presented.



## Snatching Victory from the Jaws of Clouds

by Jim Van Nuland

Last month, I wrote about throwing a star party on short notice. We did that again this month (3 days notice?! Success!), but that is not my intended topic. The star party at Dartmouth school was scheduled well ahead of time, intended for the 7th graders and their parents, on Wednesday, November 15.

At Dove Hill school on the day before, the sky was good. But Wednesday gave us many clouds, so at noon, I conferred with the teacher at Dartmouth, Paul Graves. He would have other science activities going, and the kids would be there, clouds or not. Decided to brave the sky.

At about 6:30 I left my house under a mostly clear sky; but at Dartmouth at 6:40 the sky was nearly clouded over! Soon a few others arrived, and I proceeded to set up the scope, and described its operation to numerous students that came by. The clouds stayed. Paul decided to run the slide show as a substitute. We shooed the kids inside, and groused about the clouds.

When the slide show was over, the kids returned, and a tiny opening showed a star! Soon we were looking at Altair, a brilliant electric blue. Bob Ashford and Ed Voss had arrived and wondered whether to set up - a hole over Saturn made the decision for them. Soon the sky was mostly clear! We entertained about 50 kids and parents, showing off Saturn at 245x, the Double Cluster, M45, M57, and probably others. The kids loved it - got to do the slide show *and* the telescopes!

These circumstances are not all that uncommon. If the sky was solidly covered over with stratus, I probably would have cancelled. But the kids would be there anyway, and some of us SJAAers live only a few miles from the school, so we took a chance. With sunset, the big heat engine called The Atmosphere changes gears, and typically goes through periods of clear and cloud before deciding on one or the

continued on page 4, see **Jaws**

## Useful Magnification Limits

by Jay Freeman

[Jay posted this onto sci.astro news group in response to someone's query of what is a telescope's minimum useful magnification. Jay is a member of SJAA. Article reprinted with Jay's permission. -Ed.]

The minimum useful magnification for a telescope is the ratio of the clear aperture to the diameter of the pupil of the observer's eye. Thus if you have pupils 6 mm in diameter when fully dark adapted, and a 150 mm aperture telescope, the minimum useful magnification will be (150 / 6) = 25x. Lower magnifications will result in a beam of light leaving the telescope which is too big around to fit into the observer's eye. The diameter of that beam is the telescope's so-called exit pupil diameter, and it is equal to aperture divided by magnification.

The maximum useful magnification varies with atmospheric steadiness, telescope optical quality, visual acuity of the observer, and several other things. Rules of thumb vary from twice the aperture in millimeters (thus 300x for a 150 mm aperture telescope) to four times the aperture in millimeters; in old-style English units, those are respectively 50 per inch of aperture and 100 per inch of aperture. Those magnifications respectively provide exit pupils of 0.5 mm and 0.25 mm.

Note in passing that high magnification necessarily implies a small field of view; it is difficult to find things with a high-power eyepiece.

I suspect that most of us here would recommend that beginners not buy super-high-power eyepieces until they have had enough experience to learn just what such eyepieces are and are not good for, and how often the atmosphere at their observing site is steady enough to allow their use.

If I were starting out to buy eyepieces all over again, I would start with one that gave a 4 mm or 5 mm exit pupil -- a nice low magnification for deep-sky objects and for finding things. Then I would add one with about a 1 mm exit pupil -- medium-high magnification, but not so much so as to be rendered useless by atmospheric jiggles, at least, not at most of the sites where I have observed. What I bought after that would likely depend on my particular tastes in what I liked to look at.

Thus for a Dobson-mounted Newtonian at f/4.5 or f/5, I might want a 20 to 25 mm focal-length low-power eyepiece and a 4 mm medium- to high-power one. (Some commercial Dobsons don't have bearings good enough to track well at medium to high powers, though.)

With a refractor or SCT at f/10, the medium- to high-power eyepiece becomes a 9 or 10 mm, and the low-power one might be 40 to 50 mm, except that for an eyepiece that long to deliver all the field of view a modern design can, it needs a two-inch barrel. If my f/10 instrument had a two-inch-diameter focuser, I would certainly buy such an eyepiece in a two-inch barrel -- I have a 55 mm Plossl in a two-inch barrel that is wonderful on my C-14. But if the instrument had only a 1.25-inch-diameter focuser, I might compromise on a less expensive eyepiece in a 1.25-inch barrel, of 30 to 35 mm focal length. A Plossl in this focal length range will have a maximum front lens diameter (limited by the design itself) that just about fits inside a 1.25-inch barrel anyway.

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[This note was sent to Mark Wagner. See the article "Live From the Stratosphere, the Last Flight of the Kuiper Airborne Observatory" on page 2 of last month's Ephemeris. -Ed.]

Mark,

Thank you for participating in the Live From the Stratosphere acitivites last Friday. I know the teachers and kids were absolutely enthralled. A couple of the kids told me how neat it was for them to see Saturn. I do hope that you and your colleagues were able to stay and hop aboard the KAO and "look under the hood" so to speak.

If there is some way that I can help you and your Association in the future, please do not hesitate to ask.

Thomas Clausen

## Happy Birthday SJAA, What a Wonderful Meeting We Had

by Bob Madden

The day began with some apprehension on my part; would the bakery have the cakes I had ordered ready, would there be enough to drink, how many members would come, would what I had planned be a good substitute for lack of response to the proposed dinner?

As the day progressed I realized that I was in fate's hand, if there is such a thing.

I had called Richard "Share it with" Barrett, an original member of the SJAA, made arrangements to pick him and his wife up to go to the meeting. I had talked with Jim Van Nuland and Jim had made arrangements to have an original member, John Delaney, talk followed with a excerpt from Jim of early meeting minutes.

I went to pick up the cake and had to wait for them to be finished. I thought, "Was this an indication of things to come?". Everything else was in order except understanding how to set the security alarm at the park. The last several times we had opened the building we'd set off the alarm and brought the San Jose police to the park investigating what had happened.

I arrived at the Park for the Board of Directors Meeting and with Bob Brauer's help disarmed the security alarm with success. Bob covered the agenda with skill and swiftness in under and hour. I drove to the Barrett's, picked them up and back to Houge Park where Mr. Barrett and Paul Barton, long time friends, greeted each other with a great hug. It almost brought tears to my eyes as they hadn't talked to each other in some time. That in itself was a great meeting. Mrs Barrett stood by watching with a pleasant smile on her face. "What a gracious person", I thought.

Inside, I noticed John Delaney talking to some friends with his telescope of many years standing near by.

Shortly there after Bob Brauer called the meeting to order and after several announcements introduced John Delaney. John started with a 1954 notice by Richard Barrett of a meeting of interested amateur astronomers. The result was the beginning of about 40 members that formed the San Jose Amateur Astronomers Club. Then as now there was difficulty in obtaining a place to hold meetings finally ending at San Jose State and under the guidance of Dr. Gregory. Several others, Bob Fingerhut, Ernie Piini, Jim Van Nuland, remember him well. John also mentioned polishing our 12-1/2 inch mirror, taking three years, writing to Robert Cox, of Sky and Telescope, for advice and finally being asked to release it. It then went to Jay Freeman on the condition he would complete it, be allowed to keep it for a year and paint it any color he wished. The telescope is now loaned out, but repainted and is not the color Jay originally painted it.

Jim Van Nuland was next with some early history from a secretary's notebook. Jim gave a description of how he came into possession of it. It was almost discarded and through Denni Medlock, president at the time, it was suggested to be given to Jim. Jim isn't an original founder but has been a continuous member for 23 years, and who knows how long as secretary.

Both speakers gave enjoyable and informative talks.

Then it was to cake and apple juice time. My wife and Linda Fingerhut did honors cutting and serving the cake. Nine-thirty and it was time to return the Bareretts to their home. They were grateful they were asked to attend, but I was more grateful for their attendance. It was wonderful watching long time friends in conversation asking about other friends.

John and Jim we want to thank you for your great talks of early years. John, I hope we see more of you at future meetings.


Periodical Publication Statement

The **SJAA Ephemeris**, newsletter of the San Jose Astronomical Association, is published monthly, 12 times a year, January through December.

San Jose Astronomical Association
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San Jose, CA 95111-1846


## Club Finances

[I pulled this from the not-yet-approved December Board Minutes - Ed.]

| As of December 8 | |
|---|---|
| Checkbook | $2,725 |
| Observatory fund | $6,290 |
| Gregory Acc't | $ 349 |
| Ephemeris pool | $ 135 |
| Loaner scope pool | $ 161* |

*As of August 12 per Paul Barton.

Bob Elsberry's reports include YTD totals. 1995 expenses have been $5703, with income of $6195. So we are in the black.

Ephemeris costs were $85.34 printing and $36 postage, including stamps for out-of-country member. With the January issue, plus the yearly fee for the bulk-mail permit, the Ephemeris Pool will be negative.

Gregory award: $37.17 for this year's award to Bob Ashford, not yet paid out of above figure.

Paul has been maintaining the scopes, and building new ones, with his own material and donations from Ed Erbeck, and rarely charging against the Telescope Fund. Paul Barton: it's not a whole lot. Jim Van Nuland: If it's odds and ends lying around, okay, but when you buy new, you should be reimbursed. (General agreement heard.) Paul Barton: I'll round up the receipts. It will probably use up the existing balance by the end of the year.

The AL insurance carrier has at last notified Bob Brauer that our fee will be $327/year. This is more than the $277 first estimated, but within the budgeted amount. A check will be sent immediately, so the insurance will begin in January.

Jaws, continued from page 3

other. So it wasn't totally risky to go out -- once again, we snatched victory from defeat, mostly by being persistent.

The following night at Buchser school, the sky was perfect. So were the kids. And the food.

[Now, how can you turn down free food? Call Jim today! - Ed.]

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California Institute of Technology
National Aeronautics and Space Administration Pasadena, Calif. 91109.
Telephone (818) 354-5011

GALILEO MISSION STATUS
December 8, 1995
(provided by Ron Baalke)

With their spacecraft on time and on target, Galileo engineers have canceled tomorrow's planned maneuver to fine-tune Galileo's orbital path around Jupiter. The achieved orbit needs no adjustment.

The reduction in spacecraft velocity from the gravity effects of yesterday's 892-kilometer (555-mile) flyby of the moon Io translates into a savings in propellant usage for the spacecraft, said Project Manager Bill O'Neil at JPL. It also means Galileo will carry out its first flyby of a jovian moon, Ganymede, on June 27, 1996, a week earlier than the July 4 flyby previously scheduled.

Transmission of data collected from Galileo's now-vaporized companion probe will begin Sunday at 4:17 a.m. PST and continue with playbacks from Galileo's onboard computer memory to the antennas of NASA's global Deep Space Network through December 13. Results of quick-look analysis of the science data received next week will be announced at a press briefing scheduled for December 19 at 10 a.m. PST at NASA's Ames Research Center, Mountain View, CA.

In addition to the 40 minutes of probe data stored in Galileo's computer memory, the entire set of probe data, up to 75 minutes' worth, was recorded on Galileo's tape recorder.

December 10, 1995, 4:20 a.m.

NASA's Galileo spacecraft, now in orbit around the planet Jupiter, this morning began the first scheduled return of data from its companion atmospheric probe that parachuted into the jovian atmosphere last Thursday.

Receipt of probe data from the spacecraft began at 4:15 a.m. PST and is scheduled to continue throughout the day.

This afternoon at the Jet Propulsion Laboratory in Pasadena CA, Galileo scientists will check this first batch of data to assess the quality of the information collected by the probe, said Galileo Project Scientist Dr. Torrence Johnson.

The probe data is the first-ever direct measurement of the giant planet's atmosphere and should reveal details of Jupiter's composition, climate and circulation. Forty minutes of data collected by the probe stored in the orbiter's onboard computer memory will be radioed to Earth over the next four days and presented to Galileo scientists for analysis. In early February, the full collection of probe data stored on Galileo's tape recorder, up to 75 minutes' worth, will be played back to receivers on Earth.

The Galileo orbiter's mission, meanwhile, is to conduct two years of detailed studies of Jupiter, its moons and the planet's magnetic environment. The project is managed by JPL.

December 10, 1995, 5 p.m. PST

Preliminary indications are that NASA's Galileo Jupiter atmospheric probe transmitted its data to the Galileo orbiter mothership for 57 minutes during the probe's suicidal plunge into Jupiter's atmosphere last Thursday, project officials report.

"We are all absolutely ecstatic that our tremendously ambitious, first-ever penetration of an outer planet atmosphere has been so wonderfully successful," said Bill O'Neil, Galileo Project Manager at NASA's Jet Propulsion Laboratory in Pasadena, CA. "It's especially gratifying because so many of us have worked so hard for nearly two decades to get this first true taste of Jupiter's atmosphere."

The first scientific results from the probe data are to be presented in a press briefing on December 19 at NASA's Ames Research Center, Mountain View, CA. The Ames center, supported by Hughes Space and Communications Co., was responsible for development and operations of the atmopsheric probe and is the lead NASA center for analysis of the probe scientific data, with Marcie Smith as probe manager and Dr. Rich Young as probe scientist. They are leading a team of about 50 scientists who will interpret the first-ever direct measurements of Jupiter.

The Galileo orbiter continues to perform perfectly in orbit around Jupiter, said O'Neil. Given the spacecraft's precise targeting, he said he expects no "orbit trim" adjustments will be required to alter Galileo's orbital path prior to the so-called perijove raise maneuver, the third and last burn of the spacecraft's 400-Newton main engine scheduled for March 1996. That long-planned maneuver is designed to lift Galileo's orbit out of the high-radiation environment of Jupiter's charged-particle belts which could damage the spacecraft's electronics.

December 15, 1995

The Galileo spacecraft, now in orbit around Jupiter, finished delivering the first round of data from its atmospheric probe on Wednesday (Dec 13). Collected during the probe's one-hour plunge through Jupiter's clouds on Dec.7, the data represent the first direct measurement of an atmosphere of an outer planet.

Galileo Project Scientist Dr. Torrence Johnson and Probe Scientist Dr. Rich Young confirmed that all the instruments seem to have worked properly and provided data during the probe's brief descent mission.

Transmission of probe data to Earth has now been temporarily suspended as planned, because Jupiter is passing behind the Sun as seen from Earth and the communications link between the Galileo orbiter and Earth has, as expected, become very noisy. The spacecraft is currently more than 940 million kilometers (584 million miles) from Earth. Data transmission will resume in January, when Jupiter and the Earth move out of this alignment.

Scientists are continuing to analyze the data in preparation for a briefing on the initial probe science results scheduled for 10 a.m. PST on Tuesday, Dec. 19, at NASA's Ames Research Center, Mountain View, CA.

[Briefing has been postponed due to federal budget problems. -Ed.]

## COMET COMMENTS, 12-06-1995
by Don Machholz

Most of our comets are fading, but Comet 45P/Honda-Mrkos-Pajdusakova brightens in our evening sky. Early next year it approaches to within 20 million miles of us. Meanwhile, Comet Hale-Bopp is presently behind the sun, it will emerge in February. This is its first and last conjunction with the sun. With a high inclination orbit, the comet will remain visible from Earth through the end of this decade. Earth's Northern Hemisphere will be favored from April 1996 through April 1997, otherwise the Southern Hemisphere has the better seat. Incidentally, on January 3 Earth passes closest to the orbital path of the comet, we'll be 11 million miles inside its orbit. No meteor shower is expected, but one never knows.

## EPHEMERIDES

### 122P/de Vico

| DATE 00 UT | R.A. 2000 | Dec | EL | Sky | Mag |
|---|---|---|---|---|---|
| 12-24 | 17h37.9m | +18°30' | 43° | M | 11.2 |
| 12-29 | 17h46.1m | +17°59' | 43° | M | 11.4 |
| 01-03 | 17h53.7m | +17°35' | 43° | M | 11.7 |
| 01-08 | 18h00.6m | +17°17' | 44° | M | 12.0 |
| 01-13 | 18h06.9m | +17°05' | 45° | M | 12.2 |
| 01-18 | 18h12.5m | +16°58' | 46° | M | 12.4 |
| 01-23 | 18h17.8m | +16°56' | 47° | M | 12.6 |
| 01-28 | 18h22.7m | +16°59' | 49° | M | 12.8 |

### C/1995 Q1 (Bradfield)

| DATE 00 UT | RA 2000 | Dec | EL | Sky | Mag |
|---|---|---|---|---|---|
| 12-24 | 02h23.8m | +69°06' | 124° | E | 12.4 |
| 12-29 | 02h08.5m | +65°23' | 121° | E | 12.7 |
| 01-03 | 02h00.0m | +62°03' | 118° | E | 13.0 |
| 01-08 | 01h55.4m | +59°05' | 114° | E | 13.3 |
| 01-13 | 01h53.3m | +56°31' | 110° | E | 13.5 |
| 01-18 | 01h53.0m | +54°24' | 106° | E | 12.5 |
| 01-23 | 01h53.7m | +52°28' | 102° | E | 12.7 |
| 01-28 | 01h55.4m | +50°47' | 98° | E | 13.0 |

### 73P/Schwassman-Wachmann 3

| DATE 00 UT | R.A. 2000 | Dec | EL | Sky | Mag |
|---|---|---|---|---|---|
| 12-24 | 22h09.0m | -20°57' | 55° | E | 9.1 |
| 12-29 | 22h24.4m | -19°19' | 54° | E | 9.3 |
| 01-03 | 22h38.8m | -17°42' | 53° | E | 9.5 |
| 01-08 | 22h52.5m | -16°06' | 51° | E | 9.8 |
| 01-13 | 23h05.5m | -14°32' | 50° | E | 10.0 |
| 01-18 | 23h16.9m | -13°07' | 48° | E | 10.2 |
| 01-23 | 23h28.8m | -11°38' | 46° | E | 10.7 |
| 01-28 | 23h40.1m | -10°11' | 45° | E | 11.2 |
| 02-02 | 23h51.1m | -08°47' | 43° | E | 11.6 |
| 02-07 | 00h01.6m | -07°25' | 40° | E | 12.1 |

### 45P/Honda-Mrkos-Pajdusakova

| DATE 00 UT | R.A. 2000 | Dec | EL | Sky | Mag |
|---|---|---|---|---|---|
| 12-24 | 20h24.2m | -21°30' | 32° | E | 7.4 |
| 12-29 | 20h29.5m | -20°35' | 28° | E | 6.9 |
| 01-03 | 20h28.1m | -19°43' | 23° | E | 7.0 |
| 01-08 | 20h18.4m | -18°49' | 16° | E | 7.1 |
| 01-13 | 19h59.4m | -17°44' | 07° | E | 7.4 |
| 01-18 | 19h29.6m | -16°10' | 08° | M | 7.8 |
| 01-23 | 18h47.4m | -13°39' | 23° | M | 8.1 |
| 01-28 | 17h51.7m | -09°36' | 42° | M | 8.5 |
| 02-02 | 16h44.1m | -03°50' | 64° | M | 8.9 |
| 02-07 | 15h32.1m | +02°46' | 88° | M | 9.6 |

## ORBITAL ELEMENTS

| Object | de Vico | Bradfield | Schwassmann-Wachmann 3 | Honda-Mrkos-Pajdusakova |
|---|---|---|---|---|
| Peri. Date | 1995 10 06.02 | 1995 08 31.42 | 1995 09 22.76 | 1995 12.25.93 |
| Peri. Dist.(AU) | 0.6589 | 0.4364 | 0.9328 | 0.5319 |
| Arg/Peri.(2000) | 012.973 deg | 331.163 deg | 198.776 deg | 326.061 deg |
| Asc. Node(2000) | 079.612 deg | 178.052 deg | 069.947 deg | 089.167 deg |
| Inclination (2000) | 085.391 deg | 147.393 deg | 011.423 deg | 004.250 deg |
| Eccentricity | 0.9627370 | 0.9980457 | 0.694799 | 0.824302 |
| Orbital Period(yrs) | 74.36 | ~3337 | 5.34 | 5.27 |
| Source | MPC 25715 | MPC 25714 | IAU Catalog | MPC 20124 |

## Celestial Calendar - Jan 1996
by Richard Stanton

| Lunar Phase | time | date | rise | trans | set |
|---|---|---|---|---|---|
| FM | 12:52pst | 05 | 17:22 | 23:45 | 06:59 |
| LQ | 12:46pst | 13 | 23:38 | 05:49 | 11:33 |
| NM | 04:51pst | 20 | 07:08 | 12:33 | 18:03 |
| FQ | 03:13pst | 27 | 11:36 | 18:33 | 00:38 |

Mercury Dist: 0.67AU Mag: -1.6

| date | rise | trans | set | RA | Dec |
|---|---|---|---|---|---|
| 07 | 08:28 | 13:29 | 18:31 | 20:28.9 | -18:54 |
| 17 | 07:19 | 12:25 | 17:31 | 20:06.8 | -17:20 |
| 27 | 06:04 | 11:05 | 16:06 | 19:23.8 | -18:47 |

Venus Dist: 1.22AU Mag: -4.5

| | | | | | |
|---|---|---|---|---|---|
| 07 | 09:25 | 14:37 | 19:30 | 21:37.4 | -16:02 |
| 17 | 09:18 | 14:45 | 20:12 | 22:20.8 | -11:58 |
| 27 | 09:08 | 14:50 | 20:33 | 23:05.8 | -07:06 |

Mars Dist: 2.34AU Mag: +1.0

| | | | | | |
|---|---|---|---|---|---|
| 07 | 08:15 | 13:09 | 18:02 | 20:08.8 | -21:15 |
| 17 | 08:02 | 13:02 | 18:02 | 20:38.8 | -19:34 |
| 27 | 07:47 | 12:54 | 18:02 | 21:10.8 | -17:24 |

Jupiter Dist: 6.15AU Mag: -1.9

| | | | | | |
|---|---|---|---|---|---|
| 07 | 06:20 | 11:06 | 15:51 | 18:04.9 | -23:12 |
| 17 | 05:50 | 10:36 | 15:22 | 18:13.8 | -23:11 |
| 27 | 05:20 | 10:06 | 14:52 | 18:23.2 | -23:07 |

Saturn Dist: 10.1AU Mag: +1.1

| | | | | | |
|---|---|---|---|---|---|
| 07 | 10:42 | 16:26 | 22:11 | 23:26.4 | -05:54 |
| 17 | 10:05 | 15:50 | 21:36 | 23:29.2 | -05:35 |
| 27 | 09:27 | 15:14 | 21:01 | 23:32.7 | -05:11 |

SOL Star Type G2V Intelligent Life in System ?

| | | | | | |
|---|---|---|---|---|---|
| 07 | 07:23 | 12:14 | 17:05 | 19:14.3 | -22:20 |
| 17 | 07:21 | 12:18 | 17:15 | 19:54.2 | -20:51 |
| 27 | 07:15 | 12:20 | 17:26 | 20:36.4 | -18:36 |

Astronomical Twilight

| | | Begin | End |
|---|---|---|---|
| JD 2,450,090 | 07 | 05:50 | 18:38 |
| JD 2,450,100 | 17 | 05:49 | 18:46 |
| JD 2,450,110 | 27 | 05:46 | 18:56 |

Sidreal Time

| | | | | |
|---|---|---|---|---|
| Transit Right | 07 | 00:00 | = | 06:57 |
| Ascension at | 17 | 00:00 | = | 07:36 |
| Local Midnight | 27 | 00:00 | = | 08:15 |

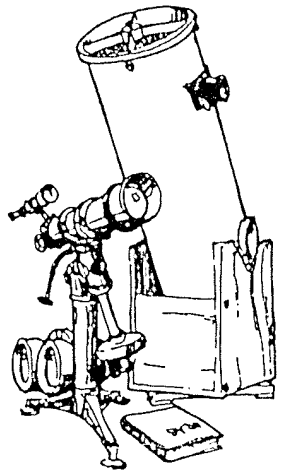
Darkest Saturday Night: 20-Jan-1996

| | |
|---|---|
| Sunset | 17:18 |
| Twilight End | 18:49 |
| Moon Set | 18:03 |
| Dawn Begin | 05:49 |

## 1995/1996 SJAA Calendar

| | General Meeting | Houge Park Star Party | Observational Astronomy Class |
|---|---|---|---|
| Jan | 6 | 26 | 27 |
| Feb | 3 | 23 | 24 |
| Mar | 2 | 22 | 23 |

**Please read your *Ephemeris* each month for changes**



## Telescope Loaner Status

by Paul Barton

| No. | Name | Borrower | Due Date |
|---|---|---|---|
| 1 | 4.5" Newt/P Mount | | **available** |
| 2 | 6" Dobson | John Paul Dasilvia* | *due back* |
| 3 | 4" Quantum | Bob Madden | ----- |
| 6 | C-8 Celestron | Steve Wincor | 2/9/96 |
| 7 | 12.5" Dobson | | **available** |
| 8 | 14" Dobson | | **available** |
| 9 | C-11 Celestron | Paul Barton | ----- |
| 15 | 8" Dobson | Bob Elsberry | 2/9/96 |
| 16 | solar scope | Bob Madden | ----- |
| 18 | 8" Newt/P Mount | Jerry Lovelace | 1/6/96 |
| 19 | 6" Newt/P Mount | | **available** |
| 21 | 10" Dobson | Timothy Sandstrom | 1/14/96 |
| 23 | 6" Newt/P mount | Bob Ashford | 2/6/96 |

There are several small refractors available.

If you want to borrow a telescope call Paul Barton (408-377-0148) and get your name on a general list (any telescope) or on a specific telescope list.

*Unable to contact Mr DaSilva. Will he contact Paul Barton, please.

## ASTRO ADS

**ASTRO ADS** are free to all noncommercial advertisers wishing to sell astronomically related products or services. Please send your ad directly to the Editor, (my address is in the header on the last page).

**Star Instruments 12-1/2 inch**, f/9, Ritchy Chretien, German Equatorial Mount - stepper driven, 2-inch star diag. and 3 - 2-inch EP. Complete w/battery and drive. Newly recoated primary. All overhauled and works great. Exceptionally easy to collimate. Very compact for a large scope (like a Cassegrain). Designed for photography. $1,800 or $1500 without EPs.
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**Odyssey 10.1 inch** with Telrad, Tele-View 1.8x Barlow, T-V Plossl 32mm ocular, Lumilite K-2AA, and Tiron Sky Atlas. Hardly used. $450.
Contact Robert Szabo:
(408)353-4352 (home, fax);
(408) 924-4682 (work);
(408) 697-6281 (page).

**Wanted:** Left over cabinet grade plywood for use in homemade dobsonian. What I don't use will be donated to the Chabot Telescope Maker's workshop.
Call Doug (415)961-2826
email dferrell@adoc.xerox.com

Members are encouraged to submit articles for publication. Articles received by the 12th will be put in the following month's newsletter. All submissions should be sent to the editor, Lew Kurtz. e-mail to lewkurtz@aol.com is best, a text file on a 3-1/2" IBM or MAC diskette is fine, but typed or written is accepted. My home address is 1336 Bobolink Circle, Sunnyvale, California, 94087.

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Please bring this form to any SJAA Meeting or send to Bob Elsberry, Treasurer San Jose Astronomical Association, 5380 Pebbletree Way San Jose, CA 95111-1846 Telephone: (408) 281-3559

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