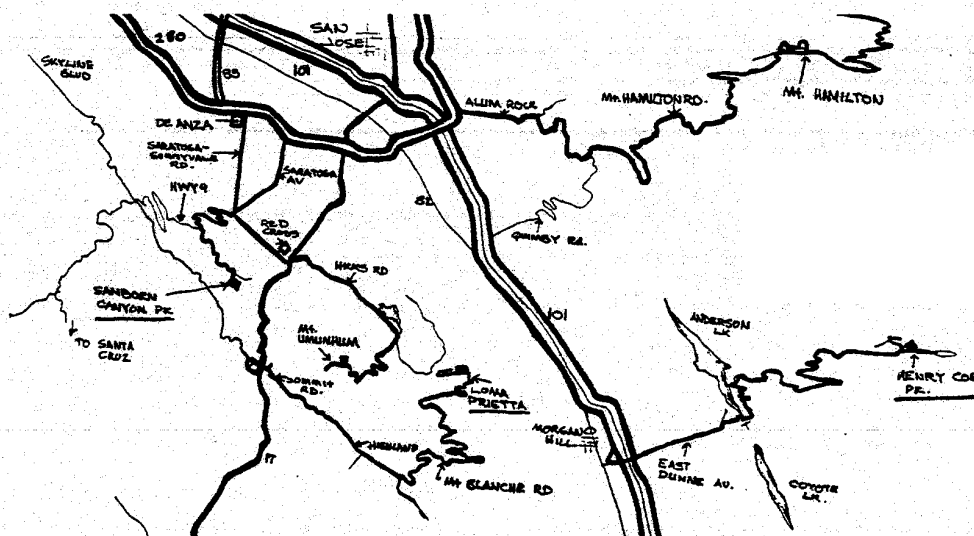


the san jose astronomical association

SJAA

february 1982

- Feb. 6 General Meeting, Room S-34 at De Anza College. SPACE SHUTTLE: Steve Greenberg was there for the first landing of Columbia, and the second launch and landing. Also, MARS: Gerry Rattley and Jim van Nuland tell how to make the most of the upcoming opposition of the red planet. 8 pm.
- Feb. 13 Indoor Star Party, Los Gatos Red Cross. 7:30 pm on. As always: mirror-making class at 8; show and tell at 9; cookie-eating and other spontaneous activities, all evening.
- Feb. 19 Board Meeting. This month at Don van Zandt's, 168 Waverley (between Hawthorne and Ruthven), Palo Alto. 327-3158 for directions. 8 pm. All interested persons invited.
- Feb. 20 Star Party at Henry Coe State Park, with fallback to the Los Gatos Red Cross for an ISP if the weather is bad.
- Feb. 27 Star Party at Sanborn Canyon County Park, reverting to an ISP at the Red Cross if necessary.
- March 6 General Meeting, Room S-34, near the De Anza College Planetarium; 8 pm. TEN-METER TELESCOPE: Terry Mast of Lawrence Berkeley Lab will discuss the status of the University of California's new-generation 'scope.
- March 12 Board Meeting--open to all SJAA members. 8 pm at Chris and Shea Pratt's, 474 Safari Drive, San Jose (near IBM). Directions: (408) 629-2994.
- March 13 Indoor Star Party, Los Gatos Red Cross; 7:30 pm on. Expect a preview of the Messier Marathon.
- March 20 Messier Marathon at our Loma Prieta observing site. Directions: south on Highway 17 to Summit Road; east 5.2 miles to the stop sign, then take the left fork. After 3.2 miles, the pavement ends; go another 1.2 miles to the site. See Don Machholz's column elsewhere in the Bulletin for more details.
- March 27 Messier Marathon again.
- April 10 SJAA AUCTION! See announcement at back of Bulletin.



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Membership rates: Adults \$18/yr.; Junior (under 12) \$12/yr.; both pro-rated from June. Includes subscriptions to the SJAA Bulletin and Sky & Telescope. Bulletin subscriptions available separately to non-members for \$7/yr.

OBSERVATIONS

by Patty Winter and Steve Greenberg

As many members are aware, Mt. Umunhum has become a popular observing site for our club. However, access to the old Air Force Radar Station at the peak could become impossible, if the City of San Jose (through actions now pending before the city council) decides to turn it into a County Jail Facility to hold the present jail's overflow of prisoners. While it seems a shame for us to lose a conveniently located close-in site, it could also be a loss to the entire population of San Jose. As we well know, decent astronomical viewing sites are getting very difficult to find.

Some of the club members have been struck by the fact that San Jose does not have a public observatory, such as Oakland's Chabot Observatory, and that if an easily accessible site like Umunhum is lost, it might never have one. Stan Koslowski is checking into the status of Umunhum as a possible jail, or as a possible permanent astronomical observing site (both for the SJAA and the public), and will be reporting back to the board. If you feel that a public observing site, or a public observatory on Mt. Umunhum is a worthwhile idea, please do two things as quickly as possible: let the SJAA board know what your feelings are on this subject; and write to the city council, and mayor, to let them know (politely, of course) that there are other beneficial uses for this "abandoned" property.

Ever think that sky atlases were a subject for heated controversy? They certainly were at the January 12th ISP. Jay Freeman launched the first salvo in the good-natured but spirited debate by stating that "Skalnate Pleso charts are good for something—if you encase them in plastic, they make great astronomical placemats." Pleso devotees rose to the insult, questioning the desirability of always carrying around several pounds of AAVSO charts. The last thing heard was Gerry Rattley challenging Jay to a deep-sky-object-finding contest, squaring off at twenty paces with Pleso and AAVSO charts. Well, guys?

We wish to thank Ernie Piini for a very interesting presentation, at the January General Meeting, about his adventures and misadventures during his trip to the USSR for last July's total solar eclipse. The talk was very well received, and we think that everyone (not just the dedicated eclipse junkies in the club, including us truly) will enjoy seeing Ernie's Indonesian Encore, after the June 1983 eclipse.

CLUB TELESCOPES: If anyone would like to use the club telescopes, please contact Wolfgang Hanish (408) 998-0861 for the 12"; and, George Deiwert (408) 257-6658 for the 6". When they are transferred to your possession, please call the Bulletin editors at (415) 326-8614 so we can keep the club up to date.

IS THERE A LAWYER IN THE HOUSE? Is there a member out there who is a lawyer and can give Jim Van Nuland some very badly needed advice about the SJAA's tax status? If you (or a very close family member) qualify, please call Jim at (408) 371-1307 ASAP.

It hasn't happened yet, but to avoid errors in the Bulletin want-ads, we are instituting a policy of not accepting any ads (or other Bulletin submissions!) over the telephone. (Actually, the real reason is that we can't always read our own writing, much less each other's. This way, we can blame YOUR illegible writing for any mistakes.)

One of your eagle-eyed editors (SG) found this ad in the weekly news bulletin at the national bomb-design factory where he works. If you've ever wondered where fusion research is taking us, here's the answer. "Telescope, 3" refractor type. \$20." Yet another startling advance in the work of our long suffering telescope makers was also announced in the same issue: a second telescope was advertised as coming complete with a large "dewscope". I assume this new art form is meant for those who like to look at such things.

The American Society for the Conservation of Gravity has recently stated that the United States, "with only 6% of the world's population, uses 59% of its gravity," and that "a single moon rocket launching uses more gravity in a few moments than the entire world used in the eighteenth century." To postpone the day when we must inevitably consume all the known reserves of this seemingly inexhaustable resource, and to insure an expanding space program, the ASCG has just launched an intensive research program to develop new or alternate supplies, including "synthetic gravity, artificial gravity, or new gravity mines." USCG chairman Darwin Crum is even talking about black hole towing.

STARDATE: This informative two-minute radio program is heard on KQED-FM (88.5 Mhz) and KCBS (740 khz). Listed below are the scheduled times, but it's a good idea to tune in a few minutes early in case of changes:

Monday-Friday: KQED-FM 7:37 am and 8:40 am
KCBS-AM 9:52 am and 10:53 pm
Tuesday-Friday: An additional KCBS airing at 7:53 pm
Saturday: KQED 8:05 am
KCBS 7:51 pm
Sunday: KQED 8:05 am
KCBS 6:50 pm

A.S.P. JULY MEETING: The Astronomical Society of the Pacific has just announced the program for its 93rd Annual Meeting, which will be held at U.C. San Diego from June 26th to July 1st, 1982. It will include a scientific symposium on Active Extra-galactic Objects; a non-technical lecture series by prominent astronomers on new astronomical developments; a teachers' credit workshop on including astronomy in primary and secondary school curricula; a public lecture by Bart Bok; an awards banquet; and, a special tour of Palomar Observatory. A.S.P. members will receive more information in early spring. If you are not an A.S.P. member, and would like further details, send a stamped, self-addressed envelope to: San Diego Meeting; A.S.P.; 1290 24th Avenue; San Francisco, CA 94122.

WESTERN AMATEUR ASTRONOMERS: At the January 15th SJAA Board meeting, Hans Vehrenberg was chosen as the SJAA's G. Bruce Blair Gold Medal nominee, for presentation to the WAA board on January 30th. Stay glued to this space until March 1st, all you Vehrenberg Atlas fans, for the results.

The WAA has also announced its summer 1982 conference schedule: August 27th to 29th, at NASA's Ames Research Center in Mt. View. As further details become available, we will keep you informed. (The tours that are possible at Ames should make attendance very interesting for those of you interested in finding out more about what's happening in and to NASA's research and development programs.)

FOR SALE: Celestron 2" diagonal for C5/C8/C11, with adaptor plate for 1-1/4" eyepieces, less visual back for 1-1/4" eyepieces; mint condition; \$125. Bill Dellings, (415) 792-9206.

FOR SALE: 4-1/4" reflector; f/11 quartz mirror made by professional optician; equatorial mount with clock drive (R.A. and Dec.); 2" eyepiece; \$300. Scott Hares, (408) 629-1600 or (408) 225-0336.

FOR SALE: Coulter 17.5" optics with two diagonals; \$700. Odyssey 13.1" reflector modified with 60mm finder and 2" focuser; superb mirror; \$600. 4-1/8" achromat Jaegers f/15 with 2" guide scope and 24mm finder on a Pacifics equatorial mount; \$550. 5" RFT refractor (Jaegers coated achromat) on Meade German equatorial mount; one eyepiece; \$475. Parks 12" f/5 optics with 3.1" diagonal; \$330. 10" tube assembly with 2" focuser, 50mm finder, and Coulter f/5.6 mirror; \$225. 6" f/5 RFT tube assembly; \$150. C.J. Perry, (408) 866-6128 (any time) or (408) 293-6611 (evenings).

FOR SALE: "The Surface of Mars", by Michael Carr. Coffee table edition. Beautiful. Brand New. Cost \$36; selling for \$30. Denni, (415) 654-6796.

FOR SALE: 12.5", f/6 reflector. Cave optics. Star liner mount, with 2" shaft and setting circles; clock drive; rotating tube; rotating focuser (helical and rack and pinion). Takes 1-1/4", and 2" eyepieces; \$1,400. 6" f/4 reflector on Edmund equatorial mount; clock drive and setting circles; \$275. Tony Bueno, (408) 378-4716.

FOR SALE: Grits, blanks, tubes, pitch, and all sorts of astro-goodies. Earl Watts Optics, 26638 Jamaica Lane, Hayward, CA 94545. (415) 786-2967.

FOR SALE: 1-1/4" Eyepiece, in focusing holder, 8.4 to 21 mm; \$18. 2" eyepiece, in focusing holder e/w adaptor for 1-1/4" holder; \$22. Minitrak II telescope drive; \$55. Foucault mirror-test rig, precision drive; \$9. Mrs. Fred McGrady, (415) 343-1200.

1982 MESSIER MARATHON

With the new moon occurring on March 25, 1982, the Messier Marathon will be held during the weekends of March 19th - 21st, and 26th - 28th. With clear skies, on the first weekend it should be possible to observe at least 108 of the 110 Messier objects.

With a low western horizon, M74 should also be visible in the evening, for a total of 109. It will be interesting to see if M74 will be visible. A few years ago, I observed it on March 19th, but not on March 20th, as it was too close to the horizon as the sky darkened. (Incidentally, of the 110 Messier objects, M30 is the one not visible during either weekend.)

Although one can "marathon" from any observing site, the SJAA has normally set up at Loma Prieta Mountain. I wish to suggest that we do so again this year. I will probably do Part I of the "Massive Marathon" during one of these weekends. To obtain observing lists for either of these marathons, please contact me.

Don Machholz
5234 Camden Av.
San Jose, CA 95124
(408) 448 - 7077

SJAA PROFILES by Frank Dibbell

This month's club member to be profiled is a long-time member, Jack Zeiders. I was able to corner him at a board meeting, where I convinced him to "tell all" about himself and his interest in astronomy, which began when he was eight years old. At that age, he received a Gilbert 2.4" reflecting telescope, which he immediately took apart. He didn't REALLY get interested in astronomy, though, until his college years at West Valley in the early 1970's. He got acquainted with the SJAA through a course he took from Dr. A.B. Gregory; he joined the club in 1973, and has been "raising h---" ever since.

Jack enjoys going to club star parties the most, and misses the caravans to star parties at such places as White Mountain and Death Valley. He likes to talk about the trip to White Mountain when he set Kevin Medlock's van on fire.

Other than star parties, Jack's astronomical interests include building telescopes, designing astronomical equipment, astrophotography, and deep-sky observing. Jack and Kevin, I found out, have designed a cold camera that is superior to the Williams cold camera—about 10-20% faster. Any interested club members wanting to learn more about it can talk to Jack at any club function.

Jack has also built some interesting telescopes. He owns an unusual 10" f/5 reflector which utilizes a plywood fork. Right now, he is designing a mounting for his 20" telescope, which will be an f/8 Cassegrain. Observationally, Jack gets a kick out of viewing FFN's (Faint Fuzzy Nothings), and getting someone who has never looked through a telescope before to behold the wonders of the universe.

Jack has recently been appointed to the SJAA Board of Directors to fill a vacancy. Being a board member is nothing new to him, since he served on the board from 1975-1978. As a board member, his goal is to provide more opportunities for SJAA members to get involved in amateur astronomy, and to stimulate the general membership to take a more active role in its club.

Footnote: I want to continue profiling club members in the SJAA Bulletin, and I need your support to do that. I can corner the more active members at club functions; for those of you who can't attend, don't be modest—call the Bulletin editors, and they'll pass the message to me that you're willing to be interviewed.

SJAA Board Members

| | |
|----------------------------|--------------|
| Frank Dibbell | (Unlisted) |
| Denni Frerichs (President) | 415-654-6796 |
| Steve Greenberg | 415-326-8614 |
| Chris Pratt (V. Pres.) | 408-629-2994 |
| Shea Pratt (Treasurer) | 408-629-2994 |
| Gerry Rattley | 408-732-0202 |
| Rolf Strohm | 408-984-6624 |
| Jim Van Nuland (Secretary) | 408-371-1307 |
| Jack Zeiders | 408-246-6189 |

THE CELESTIAL TOURIST SPEAKS by Jay Freeman

Foul weather somewhat dampened my observing plans in December and early January. I went to Fremont Peak on the evening of December 25th, but although the sky was clear before sunset, the fog came upslope rapidly and totally obscured the sky not long after the end of twilight. Charles Turner, Charles Olson, Velma Warner, and Steve Gottlieb were all present. We sat around in Charles Olson's heated RV and conversed.

The threatened mercury-vapor light at Fremont Peak has arrived. It replaces the light that illuminated the receptacle at which park users are supposed to put money. It's much brighter. (Perhaps that's a hint?) However, there is a neat hand-made sign attached to the pole reading: "Astronomers—to turn this out contact Ranger." On the 25th, we did and she did.

We amateur astronomers have always enjoyed quite good relations with Kate Foley, the Ranger at Fremont Peak State Park, and this courteous favor demonstrated both why we have been making a good effort to get along in the past, and why we should continue to make that effort in the future. Let's all say "thank you" to Kate and the other park people for co-operating with us. And by the way, I recall that Kate is fond of cookies.

There was an SJAA star party scheduled for the Peak the following night, December 26th, but it was thoroughly rained out. The phase of the moon was satisfactory for observing during the New Year's holiday weekend, but by that time we were coming under the influence of the Great Storm of 1982.

There was at least one good thing about that storm from my personal point of view. In early December, I moved to Belmont, and immediately began to feel sorry for myself because the night sky over my new home was too bright for much deep-sky observing. {Wait till Bay Meadows opens for night racing, Jay.—P.W.} My mood improved considerably in early January, when I learned that my former "at home" observing site, the driveway of my previous residence in Davenport, was under water!

Belmont may have one thing to recommend it as an observing site. I have only set up at my new home once so far, but on that night the seeing was quite good. With my 8" Dobson at 254x, I could see the Airy disc and diffraction rings of a bright star continuously, though the rings were in constant motion. That is much better seeing than I had in winter in Davenport. Perhaps others who live in the brightly-lit suburbs should also test the seeing.

Wishing to take advantage of the good seeing, I immediately pointed the 8" at Sirius. I was able to log the companion as "suspected", but it will definitely take better seeing or more aperture—or both—to show it well. Anyone who wants to get a look at Sirius B this century had better hurry. The separation is still about 9 arc-seconds, but will close up rapidly over the next few years, and not open out again well enough for decent viewing until after the year 2000.

If you want a feel for what a 10" separation double star with greatly differing magnitudes looks like, try Rigel (β Orionis). The magnitude difference for Rigel is "only" seven (for Sirius it's ten), but the improvement of three magnitudes is enough to make Rigel easy in my 8" with fair seeing.

There are several other pretty double and multiple stars in the winter sky. Don't forget Castor, whose present separation is 2.2 arc-seconds, and whose magnitudes are 1.9 and 2.9. It should be easy in a 3". Another easy double is h3945, also known as ADS 5951, in southern Canis Major at (epoch 1950) 7h14.5m,s23° 14'. Magnitudes are 4.8 and 6.8, and separation is almost 30 arc-seconds. The colors of this pair are orange and blue, and very spectacular. I would rate it better than Albireo as a "showpiece" object, although it may take 6" or more of aperture to show the colors well. β Monoceros and 12 Lyncis are both pretty triple stars, the former somewhat easier than the latter. My 8" blew both of them wide apart.

It's time to start thinking about Mars. The planet is in opposition on March 31, 1982, but due to the shapes of the orbits of Earth and Mars, this opposition will not be particularly favorable for observation: the maximum angular diameter of Mars during 1982 will be slightly less than 15 arc-seconds, on March 31. During other oppositions, that diameter can be as much as 25 arc-seconds.

I have heard it said that Mars is not too much worth observing unless its angular diameter is at least 10 arc-seconds. This condition will be met from approximately February 7 through June 7, 1982, so those four months define the interval of best opportunity for telescopic observing. (The best non-telescopic viewing—indeed, the best viewing possible at the present—is via some of NASA's travel pictures.)

It takes Mars 24 hours and 37 minutes to rotate on its axis. This means that if you are following the planet from night to night, and want to have the same view tonight as you did last night, you should look 37 minutes later—e.g., at 9:37 tonight if you looked at 9:00 last night. It also means that if you set up once a week on the same day at the same time (say, Saturday at 10 pm) for six weeks in a row, you will have six different views spaced just about evenly around the planet. (Don't forget to correct for daylight savings time if it comes or goes while you're using this plan.)

During the four-month interval just mentioned, Mars stays in central Virgo, moving mostly to the west. The Martian north pole will be tipped toward Earth, so the north polar cap should be prominent.

I have never looked at Mars very much, so I can't tell you much about what to expect or how to go about it. As a general rule, don't use more magnification than you need, and wait patiently for moments of good seeing. Colored filters—particularly red or orange ones—might help bring out low-contrast surface details against the ruddy Martian surface.

Jim Van Nuland (about the seeing in Los Angeles):
"The sun is ok, but something's got to be wrong when the moon is a deep-sky object!"

Jay Freeman at the January 23rd ISP: "I think that was the second-best view of Sirius I've ever had. I can almost convince myself I might have seen something that looked like the companion."
Chorus: "What did you say?"

COMET COMMENTS

by Don Machholz

In the past month one faint comet has been rediscovered, and another may have been discovered, but is not yet confirmed (see below). Meanwhile, Comet *Bowell* is coming out of the morning twilight and is now visible in the morning sky.

Periodic Comet *Vaisala 1* (1981L): J. Gibson recovered this 20.5 magnitude comet in its predicted position (in south Gemini) on December 7. He was using the 48" Schmidt camera-telescope at Mount Palomar. This comet is not expected to get brighter than mag. 18.

Possible Comet *Shcherbanovskij*: In late December, the Smithsonian Astrophysical Observatory (clearing-house for comet discoveries) received word that a comet was possibly discovered by A.L. *Shcherbanovskij* of the Special Astrophysical Observatory in the USSR. The object moved very slowly between its two observations (December 19 and 22), and was magnitude 16-17. Located in the constellation Leo, it was diffuse and had no tail. But neither Dr. Everhart (of Colorado) nor R. McCrosky (of Massachusetts) were able to locate it on December 30 and 31. They searched to magnitude 19. I would suspect that if we hear nothing more of it within a couple of weeks, it will go into the books as another unconfirmed possible comet.

Periodic Comet *Bowell* (1980b): Discovered March 13, 1980, this comet will finally be nearest the sun on March 12, 1982. Dr. Ted *Bowell*, using the 13" Lowell Observatory refractor used to discover *Pluto*, picked up this comet when it was at an astonishing distance of 7.4 A.U. from the sun. In December 1980, the comet passed close to *Jupiter* and picked up speed. It will continue nearing the sun, but then leave the solar system at a rapid rate, never to return.

There was a great deal of optimism at discovery, that since it was magnitude 16.5 at 7.4 A.U., wouldn't it be visible in binoculars (mag. 9) when perihelion rolled around (3.36 A.U.)? Well, it seems as though, as with Comet *Kohoutek* (1973), Comet *Bowell* may not brighten as rapidly as most comets. We can probably expect a magnitude of 10.5.

Comet *Bowell* begins 1982 near Beta *Scorpii*, and moves eastward between -20 and -23 degrees. In early April, it will be just north of M20, then travel another 5 degrees east, turn west, and near M20 again in early July. An ephemeris follows.

If you want quick notification of comet discoveries (and other astronomical information), you may wish to subscribe to the International Astronomical Union (IAU) Circulars. They cost \$15.00 for 50 issues, and \$30.00 for 100 issues. (They are issued at a rate of about 100/year.) Send a check (payable to "Central Bureau for Astronomical Telegrams") to:
Central Bureau for Astronomical Telegrams
Smithsonian Astrophysical Observatory
Cambridge, MA 02138

Great Comets: Comet *Stearns* (1927IV). Discovered on March 10, 1927, this rather large comet was under observation for just over four years—a record that

may be broken by Comet *Bowell* (1980b). It never attained great brilliance (its brightest was 8.5 mag.), but then, it never got closer than 3.6 A.U. from the sun. It was then followed to a distance of 11 A.U.—over a billion miles from the sun! With a near-parabolic orbit, it is not expected back for a long time.

Ephemeris for Comet *Bowell* (1980b):

| Date (UT) | R.A. | Dec. | Est. Mag. |
|-----------|-----------|----------|-----------|
| 01-31 | 16h 50.3m | -21° 16' | 11.7 |
| 02-10 | 17 04.7 | -21 38 | |
| 02-20 | 17 18.3 | -21 54 | 11.5 |
| 03-02 | 17 31.0 | -22 04 | |
| 03-12 | 17 42.6 | -22 11 | 11.4 |

TITAN SPEAKS

(Data from *Voyager I*'s journey to *Saturn* and its moons reveal the diameter of *Titan* as being 5140 kilometers, placing it second to *Jupiter*'s moon *Ganymede* by a narrow margin. *Titan*'s atmosphere, like that of *Earth*, consists largely of *Nitrogen*.)

I say fie, a thousand times fie,
For watching me with beady eye
And talking about my atmosphere
As if you think I can not hear.

You call my ambience dark and dreary
That's an unconstructive theory
I have nitrogen - more than *Earth*
You must know what that is worth
And often through the mist and haze
A view of *Saturn* cheers my days.

You say that life is frozen out
Restrain your disbelief and doubt!
We have microbes, lowly now
Beneath my polar clouds of ice,
Where the weather will suffice.

Now check your data - it's misleading
As concerns my relative size
(Or some earthling is misreading) -
I am the largest moon in the skies -
A status I am not conceding
Just because your figures lie.
I say fie, a thousand times fie,
On spacecraft sent to snoop and spy!

© 1982 by Ruth Hoppin

Ernie *Piini* on *Bart* ("The Milky Way") *Bok*'s modesty. In his talks with Soviet astronomers, during their 1981 eclipse trip, "Everyone was calling the small dark areas in the Milky Way, where stars are thought to be forming, *Bok Globules* - except *Bart*."

SPACE PROGRAM UPDATE by Bob Fingerhut

1981 NASA Highlights. The space shuttle Columbia's two successful flights, Voyager 2's Saturn flyby, and a perfect launch record highlighted NASA's 1981 performance. The eleven other NASA launches of 1981 were also successful. (This perfect record is the fifth that the agency has chalked up in its 23-year history.)

Galileo Saved. NASA Administrator James Beggs has gotten the Office of Management and Budget (OMB) to restore some funds it had threatened to cut from NASA's fiscal year (FY) 1983 budget, and to reinstate the Galileo Jupiter orbiter/probe. However, this mission's reinstatement was not without a major loss. The Centaur upper stage, which was to send Galileo on to Jupiter after its shuttle launch, was cancelled. Without Centaur, Galileo must be restructured for a two-stage inertial upper stage (IUS), with a new integral solid-propellant motor to be added to the orbiter/probe. Galileo's launch will still be in 1985, but the travel time to Jupiter will increase by 24 to 30 months (for a 1989 or 1990 arrival). The lower IUS velocity will make it necessary for Galileo to fly around the sun, to allow the execution of an Earth "swingby maneuver", flinging the spacecraft out to Jupiter with a "gravity assist" from the Earth. This extra time will cost \$40-50 million per year, plus additional development costs!

Venus Orbiting Imaging Radar. Funds for this mission have been stricken from the NASA FY 1983 budget, killing a program that could have given us extremely detailed radar maps of the entire Venerian surface. (See "Unveiling Venus with VOIR," in the February Sky & Telescope. S.G.)

1982 NASA Budget Approved. President Reagan has signed into law the HUD-Independent Agencies FY 1982 appropriations bill, tentatively including \$6.187 billion for NASA. However, this figure is still subject to further OMB cuts of up to 4%.

Shuttle Fuel Cell Problem Identified. The fuel cell problem that cut short the STS-2 flight has been traced to the corrosion of a tiny aluminum shaving (inadvertently left in the cell during its manufacture) into aluminum hydroxide.

Next Shuttle Flight. The STS-3 mission launch is now scheduled for a date no earlier than March 22nd, 1982, and is planned to last seven days and three hours (116 orbits). Columbia's remote manipulator system will be tested, and the OSS-1 will be a major part of the payload. Mounted on a Spacelab pallet engineering model, the OSS-1 includes solar and space physics instruments and a heat control canister experiment. Jack R. Lousma, of Skylab II, will be the mission commander; and Charles G. Fullerton the mission pilot. Columbia should be moved from the Orbiter Processing Facility to the Vehicle Assembly Building on February 5th, and then to the launch pad on the 26th.

1982 NASA Launch Schedule. Three shuttle flights and twelve expendable vehicle launches have been scheduled by NASA for this year. Delta launch vehicles will be used to put up an RCA C' communications satellite in January, and a Western Union Westar-IV communications satellite in February. For those of you interested in browsing through them: I will bring the 1982 NASA launch schedule to the next Indoor Star Party; as well as the manifests for the first twelve operational shuttle flights and the first sixteen operational flights of the European Space Agency's Ariane launch vehicle.

Ariane Declared Operational. On December 20th, 1981, the fourth Ariane vehicle was successfully launched from the Kourou (French Guiana) Space Center. As a result, the European Space Agency and France's Centre National d'Etudes Spatiales (CNES) declared the system operational. The main flight payload was the Maracs A maritime communications satellite.

Space Telescope Mirror. Perkin-Elmer has successfully coated the 94-inch diameter primary mirror for the Space Telescope with a layer of aluminum only three-millionths of an inch thick. All reflectivity specifications were met, and the aluminum is adhering properly. The Space Telescope is scheduled to be launched in 1985.

HEAO-3 Re-entry. The High Energy Astronomical Observatory (HEAO-3) (the last of the HEAO series of launches of the 1970s) fell from orbit and burned up over the South Pacific on December 7th, 1981. HEAO-3 was launched in September 1979, and had a "design life" of six months. It operated until June 1981, when it was finally deactivated. It was designed to study cosmic and gamma rays, and gathered significant information concerning the relative abundance of elements in the cosmos. (HEAO-1 re-entered the atmosphere and was destroyed in 1979, and HEAO-2 is expected to come down next spring.)

Private Company to Buy 5th Shuttle? Space Transportation Company, a subsidiary of a large U.S. investment banking firm, is considering purchase of the fifth space shuttle for operation as a regular part of the shuttle fleet if the Reagan administration fails to approve NASA purchase of the orbiter. STC is prepared to make a \$300 million down payment in early 1983 towards a total cost of \$1 billion.

Indian Bhaskara 2 Launched. The Indian Space Research Organization has declared its Bhaskara 2 earth resources/meteorological spacecraft operational following receipt of television images of the Indian subcontinent from the satellite. Bhaskara 2 was launched November 20th on a Soviet SS-5 Sskean booster from Kapustin Yar (USSR). The 980-pound satellite was put into a 346 by 319 mile orbit, with an inclination of 50.7 degrees.

SPACE TRAVEL

Far from the old familiar ground
Let the world be turned around
Underneath a higher dome
And wider sky than home
Let distance tell us what is true;
While silence and space keep rendezvous
Over the vastness - guardian twins
A world ends and one begins,
Time fades, and scattered stillness rings;

Like angels borne on cosmic wings
Bent with universal sight
To probe the outer rim of night
Or spirits from the body fled
To climb the heights of heaven instead,
Joyous in the sky we hover
Not one - but many worlds discover
And see the old familiar ground
With unaccustomed grandeur crowned.



sjaa

the san jose astronomical association

ASTRONOMICAL AUCTION

APRIL 10th, 1982

DON'T MISS IT! THOSE WHO ATTENDED LAST YEAR KNOW WHAT GOOD FUN AND GREAT BARGAINS ARE TO BE FOUND AT THE SJAA AUCTION!!! ASTRONOMICAL GOODIES OF ALL TYPES WILL BE PUT UP FOR BID: TELESCOPES, BOOKS, EYEPIECES, CAMERA EQUIPMENT, CLOCK DRIVES, PARTS & SUPPLIES OF ALL KINDS, etc., etc., etc.

THIS YEAR, TO HELP BOTH THE BIDDERS AND THE SELLERS, THE SJAA IS INVITING SELLERS TO PRE-REGISTER YOUR LARGER, RARER, OR MORE EXPENSIVE ITEMS AHEAD OF TIME, BY MAIL. THIS WAY, WE CAN SEND OUT A FLYER BEFORE THE AUCTION LISTING SPECIFIC ITEMS WITH THEIR MINIMUM BIDS, GIVING THE BARGAIN-HUNTER AN EXTRA ADVANTAGE.

REMEMBER: YOU DON'T HAVE TO PRE-REGISTER YOUR ITEMS BY MAIL TO PUT THEM UP FOR SALE AT THE AUCTION (just register them the night of the auction), BUT IF YOU HAVE SOMETHING LARGE, SOMETHING MORE EXPENSIVE, OR SOMETHING RARE, TAKE ADVANTAGE OF PRE-REGISTERING BY MAIL! A HANDY FORM HAS BEEN PROVIDED WITH THIS ANNOUNCEMENT.

TERMS (your choice of one)

1. The SJAA will receive 10% of the selling price on all items. You set the minimum bid. If a minimum bid is not received, the item will be returned to you unsold.

2. Total donation to the San Jose Astronomical Association. You set the minimum bid. (The SJAA is a non-profit organization. All monies collected from the auction go to support amateur and public astronomical activities.)

PLEASE RETURN THE PRE-REGISTRATION FORM BY MARCH 15th, 1982, SO WE CAN GET THE ITEMS LIST IN THE MAIL WELL IN ADVANCE OF THE AUCTION. WATCH FOR FUTURE FLYERS!

Auction location: Los Gatos Red Cross building, 18011 Los Gatos-Saratoga Road, Los Gatos.

Item pre-registration 6:30-7:30 pm

Auction begins at 7:30 pm

astronomical auction

U.S. POSTAGE PAID
PERMIT NO. 757
MENLO PARK, CA 94025

San Jose Astronomical Association
3509 Calico Avenue
San Jose, CA 95124

SJAA AUCTION PRE-REGISTRATION FORM

PLEASE SEND TO: SJAA Auction
15022 Broadway Terrace
Oakland, CA 94611

FOR MORE INFORMATION, CALL: (415) 654-6796

| ITEM DESCRIPTION | MIN. BID | TERMS (#1 or #2) |
|------------------|----------|------------------|
| | | |
| | | |
| | | |
| | | |
| | | |

Name _____
Address _____
Phone (____) _____

Note: This is not a contract in any way between seller and the SJAA.