

# SJAA ephemeris

APRIL '81

April 3-4 Annual SJAA Messier Marathon at Loma Prieta. See Don Machholz's article on the Marathon for more information and directions.

April 4 New Moon

April 11 General meeting at DeAnza Community College, room S-34, across the courtyard from the planetarium. 8:00 pm. Our speaker will be Dr. Norm Goldblatt, who was a visiting scientist at the Arecibo Radio Observatory in 1976. His lecture will be three-fold: 1) The similarities and differences between radio and optical astronomy, 2) What's happening at Arecibo, and 3) What an amateur astronomer can do with radio astronomy. This should prove to be an extremely interesting talk on an aspect of astronomy most of us amateurs know little about.

April 17 Board meeting at Jim van Nuland's, 3509 Calico Ave., San Jose. 371-1307. 8:00pm. Everyone welcome.

April 18 Full Moon

April 18 Indoor star party at the Los Gatos Red Cross building, 18011 Los Gatos-Saratoga Rd, Los Gatos. Take Hwy 9 exit of Hwy 17 and continue up Los Gatos-Saratoga Rd. There's an on-going telescope makers workshop. 7:30 pm on.

April 25 Astronomy Auction Night, to be held at the Los Gatos Red Cross building. Details inside.

April 26 Daylight Savings Time-set your clocks forward 1 hour.

May 2 Star party at Henry Coe State Park

May 9 Astronomy Day. So far, the SJAA has stations planned for DeAnza College, K-Mart at Lawrence & El Camino Real, Santa Clara University, and the Rosicrucian Planetarium.

May 15 Board meeting at the Pratt's, 474 Safari Dr., San Jose. 629-2994. 8:00 pm. Everyone welcome.

May 16 General meeting, co-sponsored with the L-5 Society. The speaker will be Jim Gafford from Rockwell International with a post-flight Space Shuttle review. Site to be announced.

May 23 The 12<sup>th</sup> annual Riverside Telescope Makers' Conference. Big Bear, Ca. Contact Kevin Medlock for registration forms.

May 30 SJAA two-day star party at Fremont Peak State Park.

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Kevin Medlock, pres, 654-6796 Denni Frerichs Medlock, edtr 654-6796  
Jim van Nuland, sec. 371-1307

# Observations

The San Jose Astronomical Association presents:  
THE ASTRONOMICAL AUCTION

This event will be held April 25 at the Los Gatos Red Cross building and will be open to all members of the Bay Area astronomical community.

Our fearless leader, Kevin Medlock, has offered his services as auctioneer and up for bid will be telescopes, mountings, eyepieces, camera equipment, filters, lenses, mirrors, pictures, etc., and a good selection of books, posters, and magazines. What an opportunity to clean out your astronomical junk and bid for great values on somebody else's treasures!

The concession will work three ways: 1) You may donate an item to the SJAA and all proceeds go to the club, 2) You may tag a starting bid, an amount you want to get out of the sell, and the SJAA will take everything over that amount, or 3) You may set your own terms. An item registration table will be set up an hour before the auction to take care of that business.

Bidders: Anyone may bid. Cash and checks will be accepted but anyone wishing to bid must have a bidder's card and number. This can be easily done at the registration table before and during the auction. Bidding instructions will be given at the start.

Time: Registration and previewing 7-8pm

Auction 8 pm on.

Where: Los Gatos Red Cross building, 18011 Los Gatos-Saratoga Rd., Los Gatos.

Everyone is welcome to attend. Refreshments will be served.

Next big item of club business is Astronomy Day May 9th. As listed previously, planned telescope stations are at DeAnza College Planetarium (Kevin Medlock, 654-6796), K-Mart at El Camino Real and Lawrence Expressway (Chris Pratt, 629-2994), University of Santa Clara (Frank Dibbell, 733-7208), and the Rosicrucian Planetarium (Gerry Rattley, 732-0202). If you would like to help man these public stations please contact the people listed. If you can think of any other sites or have any new ideas on how to approach Astronomy Day this year, come to the April 17th board meeting at Jim van Nuland's, (371-1307). Astronomy Day is now a national event. Even with cloudy skies last year the SJAA had 400+ people show up at the three stations. It's a great way to advertise the club and show the public your hobby, (besides showing many people their first view of the Moon, Saturn, and Jupiter.) Consider manning a station. You don't need a telescope to help.

Treasurer Shea Pratt reports that most members have received the Sky & Telescope renewal cards in the mail already, and yes, the magazine's a bit early in their plea, but Shea says why not send in your card and check for membership renewal now and get it out the way and beat the June rush. Memberships are \$18 a year and include a subscription to Sky & Telescope, the SJAA Ephemeris, and voting priviledge in the club. All bulletin subscriptions are due by June 1st and are \$7 a year. If you just joined or just became a bulletin subscriber and are unsure of your renewal obligation, contact Shea Pratt at 629-2994. All checks should be made out to the SJAA and sent (along with the S&T renewal card if you are already a member) to Shea Pratt, 474 Safari Dr., San Jose, 95123, as soon as possible.

The AANC will be holding its annual conference this year on September 12-13 in the Santa Rosa area. They have recently put out a call for papers from amateur astronomers in the area. If you wish to present a talk at the conference here's what you have to do: a synopsis and/or complete transcript of the paper must be submitted. Talks should be limited to 15 minutes in length and are limited to 12 to 20 slides. If you wish to have more time submit your paper early for review by the conference committee. Send papers to Amateur Papers, P.O.Box 3421, Santa Rosa, Ca., 95402. All papers must be submitted by July 31st.

The SJAA board has agreed for the club to become co-sponsors with the L-5 Society and many other science-oriented societies in the area for Space Week, 1981. On July 18 at the San Jose State University there will be multiple exhibits and demonstrations, including NASA films and slides, model rocket launching, vacuum demonstrations, Space Shuttle hypoglycic demonstrations, a "Moon Bubble", a solar telescope, and Trux's rocket exhibit. This bulletin will carry more information later, but for now call (415) 566-3068 or (415) 956-1883.

Also the South Bay Chapter of the L-5 Society and the ASUSC is presenting "The Arms Race in Space," by Jim Heaphy at room 104, Kenna Hall, at the University of Santa Clara April 4 at 7:30 pm.

Did you catch Sky & Telescope (March issue) article on astronomical license plates? Representing the SJAA where Steve Greenberg's "Syzygy2" and Bill Dillinger's "Penumbra".

Also in print is member Doug Buettner's two articles on the Space Shuttle in recent issues of L-5 News and Space Age Review.

For Sale: Meade Model 826 8 inch reflecting telescope with right angle view finder, 2" focuser, and end caps. Excellent condition. Used for only 15 months. \$500. Call George Taylor at 268-2593.

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Note: All ads printed in the bulletin must be for astronomical related objects.

Thanks again to the contributors of this month's bulletin : Bob Fingerhut, Don Machholz, Jay Freeman, Doug Buettner, and Ken Wilson. The bulletin deadline for May will be April 19th.

Denni

## SJAA EPHEMERIS

Published monthly by the San Jose Astronomical Association.

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Vice-Pres.	Frank Dibbell	733-7208
Secretary	Jim van Nuland	371-1307
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Membership (including Sky & Telescope) \$18 yr.  
Junior membership (under 12 yrs. old) \$12 yr.  
Bulletin subscription for non-members \$7 yr.

## COMET COMMETS

As we enter the month of April, one faint comet has recently been discovered, and three additional comets remain visible in our scopes

Comet Bus (1981b): This comet was discovered by Schelte Bus of the California Institute of Technology. The photo was taken by K. Russell of Siding Spring, Australia. The magnitude is 17 and it was discovered in Virgo.

### P/Comet Borrelly (1980i)

Date	R.A.	Dec.	Mag.	Description
3-27	03:34.4	+27°42'	10	Moving through Perseus and Auriga in the evening sky, this comet is getting
4-06	04:07.9	31 54	10	further from the sun and earth. It is
4-16	04:43.4	35 21	10	moving north and east, so it stays about
4-26	05:20.3	38 00	10	30 degrees above the western horizon at
5-06	05:58.2	39 49	10	twilight all month.

### Comet Panther (1980v)

3-27	07:44.8	+72°47'	9.0	Now in the evening sky, this comet
4-06	07:56.3	62 25	9.3	travels through Ursa Major, Lynx and
4-16	08:06.5	53 22	9.6	Gemini. Try and get out and see this
4-26	08:16.3	45 51	10.0	one!
5-06	08:26.0	39 15	10.3	

### Comet Meier (1980q)

3-27	16:11.5	+23°31'	10.1	Travelling from southern Hercules
4-06	15:33.0	23 08	10.3	through Bootes, this comet remains
4-16	14:51.1	21 38	10.5	diffuse and bright. It is about 200
4-26	14:08.8	19 05	10.7	million miles from both the earth and
5-06	13:26.7	15 53	10.9	sun.

## Great Comets

De Cheseaux's Comet: This comet was first discovered December 9, 1743, by Klinkenberg in Holland, and four days later by De Cheseaux in Switzerland. In early March, 1744, the comet displayed at least six tails. You have probably seen drawings of this comet, the head is below the horizon and the tails rise up into the night sky. This drawing was made by De Cheseaux and that is probably why the comet is named after him.

Don Machholz  
(408) 448-7077

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## The 1981 Messier Marathon- A Mid-Point

The skies were cloudy the weekend of March 6-8, so the first planned part of the Messier Marathon was clouded-out. Despair not, however, we'll get another chance on the weekend of April 3-5. Should the weather be good, I'll be up at Loma Prieta those nights. At least 108, and perhaps 109 of the 110 Messier objects will be visible in one night, along with planets, comets, and asteroids. Observing times will be between 7:40 pm and 4:40 am. I was, however, able to get up to Loma Prieta the night of March 5-6, when I observed 109 of the Messier objects.

(continued on next page)

## Massive Marathon

This is a project I've been working on for about 8 months now. It's similar to the Messier Marathon but it's far more advanced. This consists of over 500 non-Messier galaxies, clusters, and nebula, all north of 40° south declination. Scattered throughout the sky, it will take two nights to observe them, and these observing sessions must be 5-7 months apart. Of course, one needs not limit himself to only two nights to observe all the objects; they could be spread out over years. Additionally, the list of 500 objects need not be universally set--one could draw up their own list of objects. I would encourage this, as I have learned a lot from drawing up my list, and you may enjoy it, too!

As of this writing I have 470 objects accumulated, many objects rejected for being too faint or small. This is how I put my list of objects together--first, I listed 252 objects I normally see while comet hunting--that's half of my list **right there**. Then: I've gone through books and magazines looking for objects recommended by others. Each of these is then checked out at the telescope. These two methods will yield just over 500 non-Messier objects.

If you combine these 500+ with the Messier objects, you get about 610-650 galaxies, clusters, and nebulae. It would be possible, during some parts of the year, to observe 500 of these objects in one night, if one is well prepared, has good weather all night, and doesn't tire and fall asleep or become bored. If the weather is good I will attempt this during the night of April 3-4, from up at Loma Prieta. Darkness lasts nine hours that night, so to locate, observe, and identify 500 objects, I'd have to do one a minute. This might seem difficult, but I have seen them all before, some are "old friends", and I think I'll be well prepared for this. I'm not sure if such an exercise will have any practical value; I'll know more about that when I get done.

Please contact me if you wish to have more info on it.

Don Machholz  
(408) 448-7077

295-9750: This is the number I call to find out what the current weather is in the Bay Area. From San Jose this is not a toll call. Developed for pilots, these recorded messages give hourly weather reports (from Napa to Salinas, and from 6am to 10 pm), forecasts, and a summary of the weather pattern. Try it.

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Editor's note: To get to Loma Prieta Mountain take Hwy 17 south towards Santa Cruz. Exit at Summit Road and go east for 5.3 miles to the first stopsign. Go left up Mt. Blanche Rd. After 3.2 miles the road turns to dirt. The observing site is another 1.2 miles along. Dress warmly!

This would also be an excellent time to sign up for the AANC Messier Club. To qualify, one must view 110 Messier objects over a two year period and a plaque and parchment are awarded for that. View 70 objects in a year and receive a certificate stating so. Registration forms will be available at Loma Prieta from Don Machholz and Gerry Rattley. The SJAA has more members in the Messier Club than any other society. Keep up the good work!

## RETIRED MACHINISTS, EAT YOUR HEART OUT

Every so often an amateur telescope maker who is a machinist does a telescope as a retirement project. These instruments usually turn out to be immaculate -- nothing so much as a thousandths of an inch out of true, possibly so well assembled as to require no provision for collimation adjustments. Well, in March I had an opportunity to take a look at an unusual telescope in a laboratory at Stanford, whose construction was so incredibly good as to make even the best of the "machinist's dream" telescopes look as if it were built with an axe!

The telescope in question was a 5-1/2" catadioptric, featuring three mirrors and a Schmidt-type corrector plate. The corrector, primary, and secondary were located as on a garden-variety Schmidt-Cassegrain. The primary was perforated, and the tertiary sat in the perforation, facing the secondary. The secondary was also perforated, so that the beam from the tertiary came out through the perforation. Attached at the back of the secondary -- just in front of the corrector plate -- were a beam-splitter and two image dividers, to split the image of a star into four parts for electronic guiding.

To a first approximation, the mechanical assembly of the telescope was conventional: there was a tube, a back plate to support the primary and tertiary, some jigs and supports for the beam-splitters and image dividers, and for the prisms that route the four beams off to the guide electronics.

Now comes the first surprise: Excepting the guide electronics and the metal coatings on the mirrors, everything I have so far described was made of fused quartz. Not just the optics -- everything! The tube, back plate, mechanical supports and all, were of fused quartz.

And the second surprise: There was no glue or fasteners used to hold things together. All mechanical joints were optically contacted. (When you bring two very clean surfaces which match in shape just about perfectly together, they sort of weld.)

The instrument was a guide telescope for a spacecraft experiment due to fly in the mid-1980's -- Stanford's so-called "Relativity Gyroscope Experiment". They want to measure gyro precession with an accuracy of one thousandth of an arc second, and the telescope must run at liquid helium temperatures. (Yes, I know that the diffraction disc for a 5-1/2" telescope is more than an arc-second across; but if one can measure where the center of the disc is to one part in a thousand or better, one can get the accuracy required.)

There was a lot of neat technology at that lab. Some other time I'll tell about the dial gauge with an accuracy of twenty-five Angstroms.

-- Jay Freeman

## STAR PARTY AND OBSERVING NOTES

My star party notes are again short. The session at Fremont Peak on February 28 was clouded out. A bunch of us gathered impromptu at the Los Gatos Red Cross for conversation and mirror-making. On March 6 there were scattered to broken clouds over Santa Cruz, so I drove up Loma Prieta, wondering if any other suckers -- er, optimists -- were going to be up there. None were, and although the upper end of the road was occasionally above the clouds, I did not think conditions there were good enough to

set up. I later learned that Jack Zeiders, being just as poor a judge of the weather as I am, had in fact also driven up the mountain; but had left before I got there, thereby demonstrating better sense in at least one respect. Although clouds were thick at the mountaintop, conditions were better elsewhere -- I got in two hours of observing in beautiful dark skies from my driveway when I returned home.

March 7 looked much too cloudy to observe, so I went to the Red Cross instead. I worked on a mirror while Steve Greenberg kibitzed. Jim van Nuland and Bob Fingerhut spent several hours discussing the intricate details of precise numerical calculation of orbits on fast computers. Someone whose name I didn't catch brought an infrared flux collector made by pulling a slight partial vacuum behind a sheet of flat aluminized Mylar: One of these was described in Sky and Telescope a few years back. On the way home, I noticed that the clouds were breaking up over the Santa Cruz Mountains. When I arrived at my house, at 2:30 AM, it was clear and dark. I suspect that if anyone had gone to Loma Prieta and stuck it out, it might have been possible to observe, but I don't know if anyone did.

Messier observers might also want to look at NGC 4216. This 10.9-magnitude, almost edge-on spiral is one of the brightest non-Messier galaxies in Virgo -- indeed, it is brighter than several of those that Messier did find. My Meade four-inch elongates it easily at 50X. The galaxy is located about two degrees south of the star 6 Coma Berenices, and is marked 35<sup>1</sup> in the Herschel-object notation used in Norton's Star Atlas. Messier hunters should know about this galaxy if only to avoid confusing it with the swarms of Messier galaxies to the north and east.

Another bright non-Messier object in the springtime sky is NGC 4361, also known as Herschel object 65<sup>1</sup>, in Corvus. At 50 X and 143 X in my four-inch, this planetary nebula shows as a featureless gray disc. Burnham gives 1950 coordinates of 12°21.9', +18°29', and a magnitude of 10.5.

The Skalnate Pleso atlas shows a chain of three faint galaxies extending about a degree northeast of the star 81 Leonis -- which in turn is roughly in the middle of the lion's hindquarters. The galaxies are NGC 3681, 3684, and 3686, in order from southwest to northeast; and are of magnitudes T2.6, 12.4, and 12.0, respectively. My six-inch hand-braced Newtonian pulled in all three at 36X, and also captured 13.1 magnitude NGC 3691, which lies about a quarter degree southeast of the middle of the chain and is not shown on the Skalnate Pleso.

About two degrees north of delta Leonis is a wide double star -- easily resolved in a 10X40 finder -- with both components about ninth magnitude -- just bright enough to show on the AAVSO Atlas. About twenty arc-minutes to the west, and a few arc-minutes south, is the dwarf galaxy Leo II, a faint member of the local group of galaxies. On the night of March 5-6, I seemed to glimpse this elusive object in my Celestron 14 from Fremont Peak. At 71X and 122X, I saw a very faint blur some four or five arc-minutes in diameter. The object was difficult to see even with averted vision, and notwithstanding several hours of dark adaption. I felt confident enough of my observation to log Leo II as "seen", but I would like to go back over the field again on a darker night, perhaps when the fog is in over Salinas and Santa Cruz.

In my notes last month, a proofreading error led to the omission of the NGC number of one of the group of four open clusters in Puppis. The numbers of all four are NGC 2567, 2571, 2580, and 2587.

Let's hope for clear skies in early April.

--Jay Freeman

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"From now on he's Jay Starstomper." Denni Medlock

"That's Dr. Starstomper to you!" Jay Freeman

SAN JOSE ASTRONOMICAL ASSOCIATION- March, 1981

ANTON, RAINER	1335 MONTECITO AVE. #28	MOUNTAIN VIEW	94043	966-1801
AMBROSE, DAVE & MARY	816 EVERETT	EL CERRITO	94530(415)	524-0869
AREBELO, PETER & AMY	129 HAYES AVE.	SAN JOSE	95123	
BADSTUBNER, BOB	1901 HALFORD AVE. #27	SANTA CLARA	95051	
BARRETT, RICHARD	1520 SANTA MARIA	SAN JOSE	95125	264-4320
BARTON, PAUL	14666 BERRY WAY	SAN JOSE	95124	377-0148
BELL, TRUDY E.	SUITE 14MW, 11 RIVERSIDE DR.	NEW YORK, NEW YORK	10023	
BELLEVILLE, LOGAN	13201 NE SALMON CREEK AVE.	VANCOUVER, WA.	98665	
BENASSAI, BRUNO	475 CUMULUS #35	SUNNYVALE	94087	733-9154
BENNETT, MATTHEW	410 CONCORD DR.	MENLO PARK	94025	323-4294
BENSON, ROBERT	3424 NOTRE DAME DR.	SANTA CLARA	95051	247-9260
BLASINSKI, DANIEL	7665 SHADOW HILL LN.	CUPERTINO	95014	
BLOECHL, WAYNE	1476 ALPINE ST.	SANTA CLARA	95051	241-5532
BOWER, VON D.	P.O. BOX 1209	MOUNTAIN VIEW	94042	
BRANIFF, FRED	814 S. SARATOGA AVE.	SAN JOSE	95129	249-4019
BRIDGE, RALPH	10395 JUDY AVE.	CUPERTINO	95014	252-7030
BUENO, TONY	691 CROCKETT	CAMPBELL	95008	
BUETTNER, DOUGLAS	6659 MT. PAKRON DR.	SAN JOSE	95120	997-1783
CALDWELL, ROBERT B.	1590 PEACOCK AVE.	SUNNYVALE	94087	245-3762
CARLSON, BRAD	6874 TRINIDAD DR.	SAN JOSE	95120	268-1580
CERVO, GARY	1250 FREMONT AVE.	LOS ALTOS	94022	769-6320
CHEW, CHARLES	393 S. 3RD. ST.	SAN JOSE	95112	295-4542
CINCOTTA, JOHN	756 RESEDA #3	SUNNYVALE	94087	
CIRONE, TONY	1481 DE ROSE WAY #130	SAN JOSE	95126	286-4155
CISNEROS, EUGENE L.	15840 E. ALTA VISTA WAY	SAN JOSE	95127	923-6800
COLVIN, CHRIS	264 BLOSSOM HILL RD.	SAN JOSE	95123	
COOK, GEORGE	P.O. BOX 234	MOFFETT FIELD	94035	
COOKE, WILLIAM	765 LIMERICK CT.	SUNNYVALE	94087	739-6319
CUNHA, RON	15995 WARDS FERRY RD.	SONORA	95370	928-3203
DAY, BRIAN	1475 KOCK LN.	SAN JOSE	95125	266-8690
DEGRAFF, BRUCE & MARIA	7130 POINT DUNES CT.	SAN JOSE	95139	224-0972
DELANEY, JOHN	2410 WOODLAND AVE.	SAN JOSE	95128	296-8559
DELLINGES, WILLIAM	5271 DUPONT AVE.	NEWARK	94560	792-9206
DELONG, LES	2951 POSTWOOD DR.	SAN JOSE	95132	263-4612
DIBBELL, FRANK	710 GEORGIA AVE.	SUNNYVALE	94086	733-7208
DICKINSON, DANIEL B.	1128 ALLSTON CT.	SAN JOSE	95120	268-5793
EATOCH, FRED L.	885 LONNA LN.	CUPERTINO	95014	
EDWARDS, TOM	1182 CRANDANO CT.	SUNNYVALE	94087	736-8550
ERICKSON, R. E.	2878 RICHGROVE CT.	SAN JOSE	95148	274-5324
EVANS, STEVE	8029 WENTWORTH PL.	NEWARK	94560	
FAUST, JOE	11891 BROOKRIDGE DR.	SARATOGA	95070	252-5310
PINGERHUT, ROBERT	340 RIO VERDE PL. #4	MILPITAS	95035	263-4455
POTOPOULOS, SAM	6045 CHESBRO AVE.	SAN JOSE	95123	
GIMPLE, H. WILLIAM	1486 MEDALLION DR.	SAN JOSE	95120	268-7967
GLASSPOOL, RICHARD	4320 STEVENS CREEK BLVD. SUITE 229	SAN JOSE	95129	244-1304, 5
GLEASON, JOHN	2655 KEYSTONE AVE.. #2Q	SANTA CLARA	95051	241-1058
GOODWIN, DAVID	2113 BOHANNON DR.	SANTA CLARA	95050	248-1854
GREENBERG, STEVE	P.O. BOX 262	MENLO PARK	94025	
GREGORY, MRS. A.B.	5480 FAIRWAY DR.	SAN JOSE	95127	258-6095
GRILLO, TONY	496 SO. 9TH. ST.	SAN JOSE	95112	295-6868
HANISCH, WOLFGANG & MARTHA	1815 CLEVELAND AVE.	SAN JOSE	95126	998-0861
HANSEN, RONALD L.	10941 MIGUELITA RD.	SAN JOSE	95127	258-0449
HATCHER, ROBERT	1449 BEN ROE AVE.	LOS ALTOS	94022	961-9383
HAWS, AARON	2067 COLUSA WAY	SAN JOSE	95130	378-0550
HELLER, ANDREW	205 LANTZ DR.	MORGAN HILL	95037	
HERMSMEYER, PHIL	20900 ALVES DR.	CUPERTINO	95014	252-5529
HERSCHKORN, JOHN	1255 ECHO VALLEY DR.	SAN JOSE	95120	997-0434
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HOLLAND, FREDERIC G.	17345 GROSVENOR CT.	MONTE SERENO	95030	
HORN, ORLAND L.	2170 STEBBINS AVE.	SANTA CLARA	95051	244-9599
HORNE, JEFF	505 CYPRESS PT. #235	MOUNTAIN VIEW	94043	961-5521
HOWELL, JERRY	1489 SAN MARCOS DR.	SAN JOSE	95132	258-3312
JONES, CLIFFORD D.	1507 LYLE DR.	SAN JOSE	95129	743-2398
JONES, GERALD L.	1014 KATRINE CT.	SUNNYVALE	94087	732-3397
KINNEY, EDWARD	22408 BALUSTROL CT.	CUPERTINO	95014	
KLAUSNER, DAVID	1671 MCBAIN AVE.	SAN JOSE	95125	
LARSON, RICHARD & SUSAN	546 SHADOW GLEN	SAN JOSE	95129	
LASSABATERE, LOUIS C.	18316 LAUREL DR.	LOS GATOS	95030	354-2990
LINK, VERA & JAMES	1075 HEWLETT DR.	SAN CARLOS	94070	595-2914
LO, JEFFERY	4090 CRANFORD CIRCLE	SAN JOSE	95124	377-3139
LOHNMANN, JAMES L.	708 COFFEEWOOD CT.	SAN JOSE	95120	977-2653
LOOS, JIM	13680 ROSSMERE CT.	SARATOGA	95070	867-1264
LOWD, RALPH & SUZANNE	3387 KENNETH DR.	PALO ALTO	94303	494-6034
MACHHOLZ, DON & LAURA	5234 CAMDEN AVE.	SAN JOSE	95124	448-7077
MALECKI, J. GERALD	14505 STETSON AVE.	LOS GATOS	95030	
MALM, ROBERT S.	299 LANGTON AVE.	LOS ALTOS	94022	941-1343
MAPLES, DONALD O.	3109 KERMATH DR.	SAN JOSE	95132	262-1736

MARLOWE, MARSHALL B.	13268 VIA RANCHERO CT.	SARATOGA	95070	867-1569
MARROTE, GARY N.	3363 METHILHAVEN LN.	SAN JOSE	95125	
MARTIN, RONNIE	1310 PERALTA CT.	SAN JOSE	95120	268-0544
MATHIS, DAVID	3095 GREER RD.	PALO ALTO	94303	
MCKELVEY, KIM	2201 MONROE ST. #904	SANTA CLARA	95050	247-2742
MEDLOCK, KEVIN & DENNI	15022 BROADWAY TERRACE	OAKLAND	94611(415) 654-6796	
MEYER, ALLAN	248-1 AMES RESEARCH CENTER	MOFFETT FIELD	94035	
MIRAM, RITA	7764 HAZELNUT PL.	NEWARK	94560	797-9916
MOSHIER, RICHARD G.	622 IROQUOIS CT.	SAN JOSE	95123	
MURPHY, J. EMMETT	65 SO. 9TH. ST. #3	SAN JOSE	95112	287-6378
NAPARRATE, ANTONIO	1060 TERRA NOBLE WAY	SAN JOSE	95123	251-6816
NEINCHEL, NORMAN	190 ROSE CT.	CAMPBELL	95008	378-4488
OLLIMS, RICHARD	4970 RIO VERDE DR.	SAN JOSE	95118	259-0270
ORTIZ, RICHARD	767 SWEETBAY DR.	SUNNYVALE	94086	735-7297
PAGE, RICHARD	14896 STANDISH DR.	SAN JOSE	95124	
PALMER, TOM A.	7248 SAFFRON	CITRUS HEIGHTS	95610	
PARKER, JACK & PATRICIA	425 LILY ANN WAY	SAN JOSE	95123	
PERRY, CARLTON J.	400 INDUSTRIAL ST	CAMPBELL	95008 95112 866-254-4482	578-8031
PIINI, ERNEST W.	1356 LONGFELLOW WAY	SAN JOSE	95129 5744	252-3609
PINSCHMIDT, PENNY	16385 PEACOCK LANE	LOS GATOS	95030	356-4330
PIPKIN, DANIEL	564 IRRING AVE.	SAN JOSE	95128	294-8329
PRATT, CHRIS & SHEA	474 SAFARI DR.	SAN JOSE	95123	629-2994
PRATT, DAVID K. II	3059 ALVINA DR.	SAN JOSE	95133	258-5831
RAMSTAD, BILL	166 MONROE #16	SANTA CLARA	95050	
RATTLEY, GERALD W.	185 HOMESTEAD RD. #2	SUNNYVALE	94087	732-0202
RHODES, JOHN D.	18312 NE 25TH ST.	VANCOUVER, WA.	98664	
RICE, GARY & JACKIE	1833 REDWOOD AVE.	REDWOOD CITY	94061	366-6705
RIDGELEY, JOHN R.	112 STACIA AVE.	LOS GATOS	95030	354-2354
RIVERA, THOMAS JR.	1328 OLD PARK PLACE	SAN JOSE	95132	251-4524
ROACH, CARL O.	6663 MT. FOREST DR.	SAN JOSE	95120	
ROSENTHAL, STEPHEN	1248 FARRINGTON DR.	SAN JOSE	95127	923-6562
ROTH, JAMES P.	5964 GARCES AVE.	SAN JOSE	95123	
SABIN, EDWIN	151 WARREN DR. #1	SANTA CLARA	95050	
SCHELL, ED	P.O. BOX 1345	LOS GATOS	95030	356-7498
SCHOENDORF, WALT J.	1390 MARKET ST. #2019	SAN FRANCISCO	94109	552-0257
SCOTT, ROBERT	502 PAIUTE LN.	SAN JOSE	95123	
SEEFRED, RONALD	STAR RT. 2, P.O. BOX 408	LA HONDA	94020(415) 851-3493	
SEGEL, RICHARD H.	5450 MONTEREY RD. #47	SAN JOSE	95111	578-8825
STARK, VIRGINIA	750 STIERLIN RD. #67	MOUNTAIN VIEW	94043	968-6695
STILES, WIN	570 IMPALA CT.	MORGAN HILL	95037	779-1650
STROHM, ROLF & MARK	675 VINEMAPLE AVE.	SUNNYVALE	94086	984-6624
SWAYZE, BRUCE W.	2145 MEDALLION DR. #2	UNION CITY	94587	489-5761
TAYLOR, GEORGE W.	1293 FLAX MOSS CT.	SAN JOSE	95120	269-2593
TAYLOR, GLENN	829 MILES CT.	SANTA CLARA	95051	
ATHERKELSEN, ROBERT	2941 PLEASURE POINT DR.	SANTA CRUZ	95062	475-3673
VANDERBILT, PAUL	1619 QUAIL DR.	MILPITAS	95035	263-4581
VAN NULAND, JAMES	3509 CALICO AVE.	SAN JOSE	95124	371-1307
VANZANDT, DONALD E.	168 WAVERLY #7	PALO ALTO	94301	
VOSS, EDWARD	342 LOS PADRES BLVD.	SANTA CLARA	95050	248-5554
VOSS, LORRIANE & VIRGIL	14982 SOBY RD.	SARATOGA	95070	354-9904
WEBSTER, LARRY	5291 ELROSE AVE.	SAN JOSE	95124	267-4133
WELCH, MIKE	394 BOYNTON AVE #B12	SAN JOSE	95128	
WILD, NORMAN D.	7557 ORANGE BLOSSOM DR.	CUPERTINO	95014	252-8966
WINTER, PATTY	P.O. BOX 537	MENLO PARK	94025	326-8614
YABLONSKI, EVA	132 TAIT AVE.	LOS GATOS	95030	354-8064
ZEIDERS, JACK W.	2961 MAGLIOLCCO DR. #3	SAN JOSE	95128	246-6189

#### BULLETIN SUBSCRIBERS

BALLY, JOHN	102 MEDFORD BLVD.	FREEHOLD, N.J.	07728	
BEAL, CYNTHIA ANNE	142 SO. ESPLANADE #207	ORANGE	92669	
BLACK, ROBERT H.	585 DARTMOUTH AVE.	SAN CARLOS	94070	592-2166
CHERRINGTON, WILLIAM	367 21ST. AVE.	SAN FRANCISCO	94121	752-9420
CICHOSKI, SANDRA	P.O.BOX 1108	CAMBRIA	93428	
CLEMENT, JOHN	1230 PACK TRAIL RD.	SONORA	95320	854-3538
CORNETT, PAUL	38340 LOGAN DR.	FREMONT	94536	797-1403
FAST, HERMAN	230 EDDY ST. #1018	SAN FRANCISCO	94102	
FOJO, MANUEL	258 THOMPSON AVE.	MOUNTAIN VIEW	94040	967-0228
FREEMAN, JAY	P.O. BOX 3008	SANTA CRUZ	95063	423-2046
JONES, DENNIS	13, GAINFORD GARDENS, MOSTEN, MANCHESTER, ENGLAND M1096M			
LEITNER, HARRY O.	425 HAZELWOOD DR.	SO. SAN FRANCISCO	94080	
MANLY, PETER	1533 W. 7TH ST.	TEMPE, ARIZONA	85285	
MANCUSO, PAUL	1665 ARIZONA AVE.	MILPITAS	95035	946-0738
MARLING, JACK	981 LAGUNA ST.	LIVERMORE	94550	
PETERSEN, JACK	1840 YOSEMITE DR.	MILPITAS	95036	262-1457
SCHALCK, ROBERT E.	16105 VIA PARO	SAN LORENZO	94580	276-1894
SCOTTEN, GEORGE	16 RESERVOIR RD.	SPRINGFIELD, VT.	05156	
STEYDING, WILLIAM	24405 LOMA PRIETA AVE.	LOS GATOS	95030	
TURNER, CHARLES W.	1255 POST ST. # 609	SAN FRANCISCO	94109	282-3318

## SHUTTLE COUNTDOWN

by Bob Fingerhut

The following is an update on the preparations for the April launch of the Space Shuttle Orbiter Columbia.

- |                                     |   |             |
|-------------------------------------|---|-------------|
| <input type="checkbox"/>            | Repair external tank insulation                   | Late March  |
| <input checked="" type="checkbox"/> | Post-flight readiness firing maintenance and test | Early March |
| <input type="checkbox"/>            | Additional external tank hydrogen loading test    | Late March  |
| <input checked="" type="checkbox"/> | Final shuttle systems test                        | Late March  |
| <input checked="" type="checkbox"/> | Final launch readiness verification test          | Late March  |
| <input type="checkbox"/>            | Mission 1 countdown                               | April 7-12  |

The Columbia is almost ready for launch. Hopefully this will be the last installment of this series. Good luck to Young and Crippen.

Note: A number of SJAA members have received carload passes to the shuttle landing at Edwards Air Force Base in southern California. If you are interested in going with, please contact Kevin Medlock at 654-6796 (eves) and perhaps riders and drivers can be matched. Because of the uncertainty of the launch date those planning on going must be able to leave rather abruptly!

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## An All Star Story

by Eyesick Azimuth

Once upon a time, there were two scientists, Dr. Renta Hertz and Dr. Bye Cycle, who both specialized in oscillating phenomena. Each strongly believed that his particular theory of electromagnetic waves was the correct one and each vied to have the unit of wave measurement named after himself. This often led to heated arguments. Frequently, Dr. Cycle would storm out of a scientific meeting mumbling, "One of these days I'm going to 'kil-o-Hertz'!" But, Dr. Hertz was even more vindictive. He searched and searched for a poison so deadly that only a gram would instantly kill Dr. Cycle. Finally, he found a man, a Mr. Russell, who had developed just such a poison. Mr. Russell named his new poison DIE-A-GRAM due to its deadly strength. But while on his way to deliver the poison to Dr. Hertz, Mr. Russell was arrested for drunk driving and thrown into jail. Russell called Dr. Hertz to explain his predicament. Dr. Hertz rushed down to the jail. He was told that it would cost \$100 bail to spring Russell. But Dr. Hertz only had \$50 with him so he inquired further to see if he could bail out just the poison for \$50. The police agreed. So,.....

HERTZ SRUNG RUSSELL'S 'DIE-A-GRAM'!

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Here are the answers to last month's star riddles by Dave and Mary Ambrose:  
1) Thuban      3) Vega      5) Polaris  
2) Regulus      4) Aldeberan

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