

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 12th 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.

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 consession 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 priveledge 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 hypoglyc demonstrations, a "Moon Bubble", a solar telescope, and Truax'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 Dillinges' "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.

Note: All adds 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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Club Officers:

President	Kevin Medlock	654-6796
Vice-Pres.	Frank Dibbell	733-7208
Secretary	Jim van Nuland	371-1307
Treasurer	Shea Pratt	629-2994

Membership (including Sky & Telescope) \$18 yr.
Junior membership (under 12 yrs. old) \$12 yr.
Bulletin subscription for non-members \$7 yr.

COMET COMMENTS

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.	Moving through Perseus and Auriga in
3-27	03:34.4	+27°42'	10	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 Boötes, this comet remains
4-16	14:51.1	21 38	10.5	diffuse and bright. It is about 200
4-26	14:;0.8	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 Mächholz
(408) 448-7077

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.

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 kibbitzed. 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 35¹ 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 65¹, 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^h21.9^m, 51^s8'29", 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 12.6, 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

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

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

SAN JOSE ASTRONOMICAL ASSOCIATION- March, 1981

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BELLEVILLE, LOGAN	13201 NE SALMON CREEK AVE.	VANCOUVER, WA.	98665	
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CINCOTTA, JOHN	756 RESEDA #3	SUNNYVALE	94087	
CIRONE, TONY	1481 DE ROSE WAY #130	SAN JOSE	95126	286-4155
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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
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EDWARDS, TOM	1182 CRANDANO CT.	SUNNYVALE	94087	736-8550
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FAUST, JOE	11891 BROOKRIDGE DR.	SARATOGA	95070	252-5310
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GOODWIN, DAVID	2113 BOHANNON DR.	SANTA CLARA	95050	248-1854
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HANSEN, RONALD L.	10941 MIGUELITA RD.	SAN JOSE	95127	258-0449
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LO, JEFFERY	4090 CRANFORD CIRCLE	SAN JOSE	95124	377-3139
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LOOS, JIM	13680 ROSSMERE CT.	SARATOGA	95070	867-1264
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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

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 WILD, NORMAN D.
 WINTER, PATTY
 YABLONSKI, EVA
 ZEIDERS, JACK M.

13268 VIA RANCHERO CT.
 3363 METHILHAVEN LN.
 1310 PERALTA CT.
 3095 GREER RD.
 2201 MONROE ST. #904
 15022 BROADWAY TERRACE
 248-1 AMES RESEARCH CENTER
 7764 HAZELNUT PL.
 622 IROQUOIS CT.
 65 SO. 9TH. ST. #3
 1060 TERRA NOBLE WAY
 190 ROSE CT.
 4970 RIO VERDE DR.
 767 SWEETHAY DR.
 14896 STANDISH DR.
 7248 SAFFRON
 425 LILY ANN WAY
 400 INDUSTRIAL ST
 1356 LONGFELLOW WAY
 16385 PEACOCK LANE
 564 IRRING AVE.
 474 SAFARI DR.
 3059 ALVIENA DR.
 166 MONROE #16
 185 HOMESTEAD RD. #2
 18312 NE 25TH ST.
 1833 REDWOOD AVE.
 112 STACIA AVE.
 1328 OLD PARK PLACE
 6663 MT. FOREST DR.
 1248 FARRINGDON DR.
 5964 GARCES AVE.
 151 WARREN DR. #1
 P.O. BOX 1345
 1390 MARKET ST. #2019
 502 PAIUTE LN.
 STAR RT. 2, P.O. BOX 408
 5450 MONTEREY RD. # 47
 750 STIERLIN RD. #67
 570 IMPALA CT.
 675 VINEMAPLE AVE.
 2145 MEDALLION DR. # 2
 1293 FLAX MOSS CT.
 829 MILES CT.
 2941 PLEASURE POINT DR.
 1619 QUAIL DR.
 3509 CALICO AVE.
 168 WAVERLY #7
 342 LOS PADRES BLVD.
 14982 SOBY RD.
 5291 ELROSE AVE.
 394 BOYNTON AVE #B12
 7557 ORANGE BLOSSOM DR.
 P.O. BOX 537
 132 TAIT AVE.
 2961 MAGLIOCO DR. #3

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 367 21ST. AVE.
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 38340 LOGAN DR.
 230 EDDY ST. #1018
 258 THOMPSON AVE.
 P.O. BOX 3008
 13, GAINFORD GARDENS, MOSTEN, MANCHESTER, ENGLAND M1096M
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 1665 ARIZONA AVE.
 981 LAGUNA ST.
 1840 YOSEMITE DR.
 16105 VIA PARO
 16 RESERVOIR RD.
 24405 LOMA PRIETA AVE.
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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!

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'!

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
