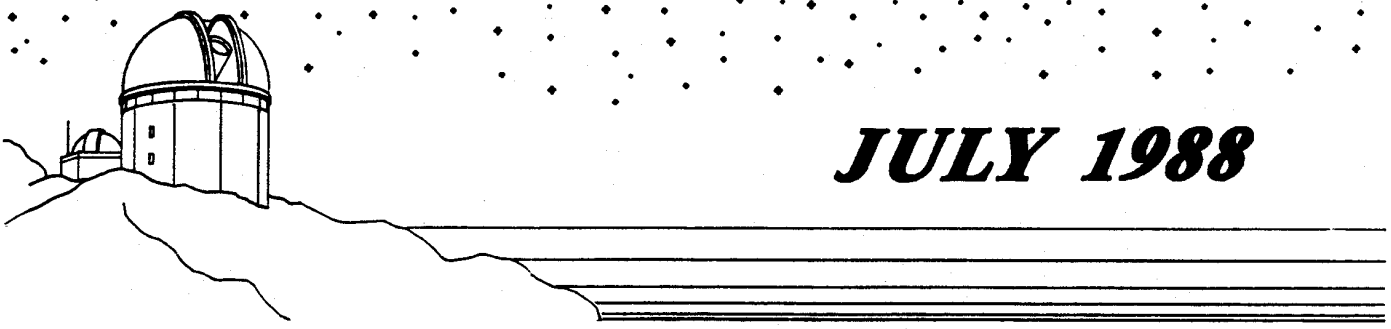
EPHEMERIS

OF THE SAN JOSE ASTRONOMICAL ASSOCIATION.



JULY 1988

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* JULY 2ND *
* SJAA ANNUAL PICNIC *
* GRANT RANCH COUNTY PARK ROSE GARDEN *
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JULY 2 SJAA ANNUAL PICNIC AND INSTALLATION OF OFFICERS. GRANT RANCH COUNTY PARK, IN THE ROSE GARDEN NEAR THE OFFICE BUILDINGS.

JULY 9 STAR PARTY AT GRANT RANCH. THIS IS TO PROVIDE SUPPORT TO THE CUPERTINO PARKS & RECREATION DEPARTMENT WHO IS PUBLICIZING IT AS A PUBLIC OBSERVING SESSION. CHECK WITH PAUL MANCUSO FOR ADDITIONAL DETAILS. SUNSET 8:25 PM, 12% MOON RISES AT 2:42 AM.

JULY 16 FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION TO HENRY COE STATE PARK. SUNSET, 8:22 PM, 10% MOON SETS AT 10:21 PM.

JULY 23 BOARD MEETING AT 6:30 PM, INTRODUCTORY ASTRONOMY CLASS AT 8:00 PM. THE RED CROSS BUILDING.

JULY 30 INDOOR STAR PARTY AT THE RED CROSS BUILDING. 8 PM.

AUGUST 6 GENERAL MEETING 8 PM. DR. CHRIS McKAY PRESENTS: HOW & WHERE TO EXPLORE FOR LIFE ON MARS.

AUGUST 12 NEW MOON AND PERSID METEOR SHOWER!!!

AUGUST 13 FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION TO FREMONT PEAK STATE PARK. DUSK TILL DAWN.

AUGUST 19-20 ANNUAL SJAA STAR PARTY AT YOSEMITE NATIONAL PARK.

FIELD OF VIEW
BY: JOHN GLEASON

ANNUAL SJAA PICNIC

This years picnic will again be held at Grant Ranch County Park. The picnic is an excellent opportunity for old and new members to meet informally. The SJAA officers will host a Pluto Dog and Space Burger Bar-B-Q. Instillation of new officers will follow the Bar-B-Q. Hot dogs, burgers, buns, and condiments will be provided by the SJAA. Contributions of soft drinks and other food dishes would be most welcome. It always nice to have a few telescopes around, but there will be a 17-day old moon to brighten our evening sky. Old Sol is becoming more active. Perhaps if there is a member or two with a solar filter equipped telescope they would like to bring. The picnic will be held in the Rose Garden, located next to the administrative buildings of the park.

Located on the Mt. Hamilton Road, take Hwy 101 (either direction) to Alum Rock Ave. Go east on Alum Rock and turn right onto Mt. Hamilton Rd. and follow it. Grant Ranch County Park is just past the Quimby Rd. intersection in Hall's Valley.

YOSEMITE STAR PARTY

Jim Van Nuland informs me that we are fully booked into the group campsite for the Yosemite star party weekend.

If you are interested in going you can still call Jim and get on the waiting list. There are usually a few people that cancel at the last minute. Or, you can make your own camping reservations.

If you are signed-up and find that you are unable to attend, please contact Jim as soon as possible.

On July 18, Jim will begin reconfirming reservations so as to form the final list, which must be mailed to the Park by August 1. You may call on the 18th to reconfirm and/or find out if you have been advanced to the final list. Changes after the list is made will be slightly difficult, so please plan carefully. Jim Van Nuland - 408-371-1307.

MEMBERSHIP RENEWALS

If you have not yet renewed your SJAA membership, please do so soon. Your Sky & Telescope subscription will be running out, and you will no longer get another exciting issue of the Ephemeris! Please use the handy form on the back page of the Ephemeris, and mail it directly to the address shown. Make all checks payable to: San Jose Astronomical Association (SJAA). Everyone will have stamped on the outside of the Ephemeris this month: "Last Chance to Renew". Please disregard this message if you have already paid-up your membership. Jack Peterson has been doing an exceptional job keeping the membership data base up to date and correct. If you have any problems with your membership renewal or Sky & Telescope subscription, contact Jack Peterson personally.

MARS WATCH - '88

You'll find a bulletin in this month's Ephemeris describing the SJAA Martian observing festivities. Plan on joining us for several Mars Watch public programs. We cannot have too many telescopes! Get those 5-inch Fluorite telescopes out of the basement!

SJAA MEMBER RECEIVES ACHIEVEMENT AWARD

Each year at the Riverside Telescope Makers Conference, an individual is an honored recipient of the Clifford Holmes Award. Awarded for outstanding achievement in the field of amateur astronomy, our own SJAA member Kevin Medlock received this years award recognition.

Kevin has been actively involved in amateur astronomy since his early teens. He has helped countless amateur astronomers with telescope construction projects at the Chabot Telescope Makers Work Shop and has built a number of extraordinary astronomical telescopes himself. His most recent being the 30-inch reflector at Fremont Peak. Kevin has been a real mover and shaker to get the telescope and observatory into the state park. It was the first time a project of this type and magnitude has been approved by the State Park system. It remains today a model of volunteer effort and State Park cooperation, with public programs running twice a month. His personal accomplishments aside, I do not believe that you will find a more generous individual when it comes to sharing astronomical expertise. Many times I have seen Kevin adjusting telescopes at Fremont Peak, or simply answering the many questions that arise from old and new amateur astronomers and telescope makers.

Kevin is currently pursuing his own business venture, by constructing a wonderful new German equatorial mount, the Parsec-12 for the amateur astronomer.

Kevin, from all of us here at the SJAA, CONGRATULATIONS!

AUGUST SPEAKER

Dr. Chris McKay of NASA will be our featured speaker in August. With the grand opposition of Mars upon us, I am certain that Dr. McKay's talk will be of prime interest to the membership. The life on Mars question still remains a source of prime interest among the planetary science community. Come and join us as we learn about the process steps necessary to further the search for life on the "Angry Red Planet".

REPORTERS AT LARGE

Responding to my call for a "Reporter at Large" in the May Ephemeris, two SJAA members, Don Grabski and Brian Zehring have volunteered to be our roving reporters at SJAA events. This is certainly going to help with the coverage on monthly activities. In addition, I would like to thank the membership for their continued support. Recently I have been receiving many new articles for publication in the Ephemeris. These have all been excellent, and I encourage

everyone to continue. A word of caution. Writing for the Ephemeris can be addictive. Don Machholz has been contributing to "Comet Comments" for more than 10 years! Please remember that I would like to receive article submissions around the 15th of the month. I cannot guarantee publication in the next issue if received too late in the month.

REPORTERS AT LARGE
BY: DON GRABSKI AND BRIAN ZEHRING

REPORTER AT LARGE - Don Grabski

I think the first thing I ought to do for those of you who don't know me is to introduce myself; My name is Don Grabski, I live in San Jose and have been a member of the SJAA since July of 1987. My interest in Astronomy goes back to my childhood where I was the first kid in the class who could name all nine planets, in order from the Sun, and how far each was from the Sun and how many moons each one had, etc. (the number of moons was much smaller at that point in history.)

While the interest was there it was almost dormant for many years with nothing more than an occasional glance at the stars through binoculars or a glance at a book or magazine. It took the opening of a Telescope store in Cupertino to rekindle my interest to an active one. I was invited to a star party at Grant Ranch by someone I'm sorry to say, I don't remember. Well that's all it took. I looked through a few telescopes that night and bringing you up to present, I now am the proud owner of an 8-inch Catadioptric, still learning how to use it.

A few weeks ago I happened to mention to a friend of mine who's initials are TA, that I write the district monthly technical newsletter for the company I work for. I was then "volunteered", "shanghaied", "coerced", etc. into the title of "REPORTER AT LARGE". I should mention that I was also given an assistant. He is one of our junior members who will introduce himself, and for the most part will write his own articles, although we may do an occasional article together. (I think one of the female members ought to speak to TA about a female counterpart for what we are doing. I'm sure there are some who would like to here the female point of view.) (Keep going and we'll soon have a whole staff of reporters!), That's enough about yours truly. Now on with the SHOW!!!!!!.....

EIGHTH ANNUAL SJAA AUCTION - Don Grabski

We arrived between the raindrops, (left our headlights on), about 12:30 amidst all sorts of items being carried in and Jim Van Nuland feverishly pounding the keys of his computer. He had a long day and night ahead of him and already the beads of perspiration were forming on his brow. We got in line behind about 4 people to register a couple of small items. Jim, with his usual efficiency, moved the line very quickly and before you can say Andromeda we were through the line and on our way looking around the swap meet. All sorts of items were set out on tables of various sizes. We saw computer programs, disk drives, light globes, old Sky & Telescope magazines, compact discs, (we bought one for a "Buck"!), Sci-Fi novels, Photos, and just plain JUNK! Denni Medlock and Bruce DeGraff were there selling the "EARTHWATCH" Tee-shirts, did you buy yours?...(We've got ours!). We were also led to believe that the only two United States Government Registered, Martians were present!!! (The only two known to be on the planet Earth.) It was rumored that they were "Homesick" for Mars! Jack Peterson was there selling CANDY, (probably for his kid)! I would have to say the SWAP MEET portion of the day was a big success and saved a lot of time at the Auction itself.

We took a break for a couple of hours and wandered around in downtown Los Gatos, had dinner and arrived back at the Auction about 5:30. Chairs had already been set up and were starting to fill up. By the time the Auction got started I would estimate about 100 people were in attendance.

The Auction started promptly at 6:00 P.M. with Kevin Medlock Presiding, as the Auctioneer. (I think he missed his calling!) Everything from glass blanks and tubes for constructing your own telescope to a complete Fluorite Refractor setup was up for bid. There was even an antique computer auctioned off. A few of what I would call very esoteric items like an octagonal multicoated mirror flat, (I wonder what that would be used for???), a Simon slide viewer, and last but not least, a Music Stand!! (That last item was thrown out by the Auctioneer as not being Astronomy related.) It would be an impossible list as far as this column is concerned, to itemize everything that was put up for auction but it was quite a large variety of items. I would have to say the Eyepieces and Finder Scopes were a large part of the inventory.

It was unfortunate that Kevin's voice gave out about half way through but Jay Freeman came to the rescue and did a really fine job as a Auctioneer.

Earl Watts of course was present, outbidding many people. He knew what he wanted and got it, probably walking away with the largest quantity of items.

Overheard during the break: "A real spending crowd here, Up-bidding by $1.00!"

All other comments overheard were very favorable. The bidding was very lively, a lot of laughs and everyone had a good time including yours truly who left a few dollars poorer.

All in all, if you were alert and bid carefully there were some great bargains to be had! I might add, some very good "Buys", were passed up!

We would like to give a special Thanks to all who prepared the special Goodies that were spread out on the back table. I'm sorry that I missed out on the German Chocolate Cake. I heard it was SUPER!

We hope this first effort was informative for those of you who could not attend the Auction and/or at least entertaining for all.

Plans for future articles will include: interviews, items of interest of happenings at Star Parties, reports about monthly meetings, reports about the Astronomy classes, and occasional "Cutesy" overheard items. If anyone has any ideas for this column please let me know. I am here to serve and report!

This month's quiz question: Name the central landmark featured in "CLOSE ENCOUNTERS OF THE THIRD KIND" (NO PRIZES FOR THE CORRECT ANSWER! Earliest postmark wins honorable mention.)

CUB REPORTER AT LARGE - Brian Zehring

Hello fellow Astronomers! My name is Brian Zehring, (AKA....Jimmy Olson). I'm 15 years old and I've been a member of the SJAA since December, 1985. I have a 12.5" Dobsonian Reflector (f/4.5), which I built myself except for the mirror which was made by Earl Watts. I am currently working on a 17.5" Surrier Truss design telescope.

I am also a newly elected Board Member. You've probably seen me at star parties or meetings. I'm the kid with the Green, Yellow, and White "A's" baseball cap.

Please, if you have any questions or comments of any kind, feel free to approach me or Don, introduce yourself, then ask/comment away!!!

AN OVERVIEW OF OBSERVING SITES
BY: DON MACHHOLZ AND RICH PAGE

Coyote Lake County Park, located in the southeast corner of Santa Clara County, offers fine views of the sky from your own campsite. This month we take a look at it.

From the intersection of Camden Ave. and Blossom Hill Rd. it is 55 minutes and 38 miles away. Take Hwy 101 south past Morgan Hill to the Hwy 152W/Leavesley Rd. exit. Take Leavesley Rd. eastward for 1.7 miles, go left at New Rd. Then 0.7 miles later go right onto Roop Rd. In 3.4 miles you'll get to the turnoff to the park, one mile down that road is the pay station. The campsite ("Lakeview Campground") is slightly past this.

Of the 74 campsites, the best for astronomy seem to be numbers 9-17, 58, 59 and 73. Others might be useful but the horizons suffer some. Each campsite has a picnic table, fire pit and a long paved area for your vehicle. Two vehicles are allowed at each site. Restrooms are neat and clean and within a short walking distance. The park fee is $6.00/night and it is first come, first served. When there is water in the reservoir you should be here by Friday evenings for a good site. During dry-lake times and winter you might have the place to yourself.

From the center of this camping area the lowest horizons are to the north and south (4 degrees high) the highest being east and west (15 degrees). The elevation is 750'. Local light pollution depends in part upon your fellow campers. As for sky brightness levels, we find the Milky Way easily visible, with some glow near the NW and SW horizons.

There are two other areas that are more secluded at night and may offer possibilities for astronomers. For each you should call the County Parks Dept.

(408) 358-3751 for a special permit to use these areas after dark. One is the picnic area that you'll pass just before getting to the campsites. The other is the Coyote lake Fishing Access. This lot is 1.2 miles past the campsite and measures about 200' x 100' and is paved. There is a restroom nearby and this is an ideal place from which to observe the sky.

Daytime activities include boating, swimming, fishing and hiking. Poison oak is here, rattlesnakes are rare. This could be a good location for a group star party-if you get the above-mentioned campsites or one of the day-use areas. You'll have a common center in which to set up many telescopes. The park, which is presently closed Monday through Thursday, can be reached at (408) 842-7800.

JULY STARRY NIGHTS
BY: RICHARD STANTON

METEORS - This year July brings two meteor showers to maximum, one major and one minor. July 28th will bring the maximum of the S. delta Aquarids, the major shower for the month. The radiant for this event is 22:36 -17 and has achieved hourly count rates for 20 per observer. The shower actually covers a seven day period. As usual anymore, the shower occurs with a 14 day old moon shining at 98% illumination, a full moon for all practical purposes. The other shower for this month, a minor one, is the Alpha Capricornids. This shower obtains maximum on July 30th. Meteors from this shower will be running from July 15th through August 10th. This time the moon is 16 days old and showing 99% illumination. Here's a project for one of our members with a little time on their hands. Work out the mathematics of the orbital/gravitational characteristics between meteor streams and the moon to see if there is a relationship between shower maximums and the full moon. Don't forget to write up your results and send it to the Editor for publication.

GRAZES, OCCULTATIONS & APPULSES - This month we have two occultations events between the moon and bright stars that should be visible from our neck of the woods. The first one finds the three day old moon at 9% illumination occulting the 1.3 magnitude star ZC 1487, Alpha Leonis (Regulus). At 02:16.7 hours U.T. the star will disappear on the lunar dark limb at position angle 187 degrees on July 17th. At 02:49. hours U. T. on the same date will reappear on the lunar bright limb at position angle 243 degrees. (To convert U.T. hours to local daylight time simply deduct 7 hours.) The second event occurs on July 30th with a near full moon. The 3.0 magnitude star ZC 3190, Delta Capricorn, will disappear on the lunar bright limb at position angle 19 degrees and will reappear on the dark limb at 288 degrees. This one occurs at 06:01.4 hours U.T. and 06:50.9 hours U.T. Both of these occultations should be good events. Since I'm not a meteorologist it should be safe to say that it won't be raining on either of these days. Doubt if it will snow either.

MINOR PLANETS - Before we get into what's up there this month, I want to take a moment to offer all of our congratulations to Steve Edberg at JPL. In recognition of his long years of cultivating the liaison between professional and amateur astronomers, his devoted energy to obtaining time on the Hubble Space Telescope for amateur astronomers, and particularly for his management of the International Halley Watch, Mr. Edberg has had the asteroid 1985 QQ named after him. From now on it will be in the books as asteroid (3672) Edberg. A long overdue and assuredly deserved honor.

For July we have the two largest asteroids to keep you busy at your telescope, Pallas and Ceres. Pallas, the smaller of the two achieves opposition on the 25th.

(1) CERES, diam. 1003 km, mag. 8.3, dist.2.4
JUL 07...00:22:11.4-10:51:36
17...00:26:24.9-11:12:06
27...00:28:40.1-11:44:14

(2) PALLAS, diam. 608 km, mag. 9.7, dist.2.5
JUL 07...20:35:31.0+18:18:22
17...20:28:18.4+17:52:23
27...20:20:27.5+17:00:49

"As to the satellites of Mars, and the swarm of asteroids, they seem to be too small to retain an atmosphere sufficient for the support of beings like ourselves. If they had a course to run, it has probably been concluded long ago." ... a quotation from George Searle, 1890. Merely a few years before the discovery of the Hechee Artifacts. Good observing until next time.

COMET COMMENTS
BY: DON MACHHOLZ

Comet Liller (brighter than predicted) and Periodic Comet Temple 2 (fainter than predicted) are both visible these summer nights. Meanwhile, an unusual new comet has been discovered.

Comet Shoemaker-Holt (1988g): Carolyn and Eugene Shoemaker and Henry Holt discovered this comet on plates taken May 13. They were using the 18" Schmidt at Palomar. This the Shoemaker's thirteenth comet in the five years that they have been conducting their photographic asteroid and comet search. At discovery it was near the globular cluster M 15 in the morning sky and magnitude 12, but is now getting fainter as it leaves the solar system.

Shortly after the orbit was calculated it was realized that it is very similar to that of Comet Levy, found two months earlier. The only difference between the two orbits is that Comet Levy preceded Comet Shoemaker-Holt by 76 days. It is now believed that both came from the same parent comet, The split-up occurring perhaps many years ago. Levy's comet is two magnitudes brighter (if at the same standard distance from both the earth and sun) than Comet 1988g, so it may be the larger portion. It is not known if any other parts of the parent comet exist.

EPHEMERIDES

DATE	R.A. (1950)	DEC	ELONG	MAG	NOTES
		Comet Liller (1988a)			
06-23	11h 38.0m	+36°22'	71°	9.3	This comet surprised
06-28	11h 46.9m	+32°24'	70°	9.6	everyone by display
07-03	11h 54.9m	+28°48'	68°	9.9	-ing a tail and re-
07-08	12h 02.2m	+25°32'	67°	10.2	maining bright thru
07-13	12h 09.0m	+22°34'	64°	10.4	May. During July it
07-18	12h 15.4m	+19°51'	62°	10.7	travels southward in
07-23	12h 21.5m	+17°22'	60°	10.9	our evening sky, past
07-28	12h 27.4m	+15°05'	57°	11.2	fields of galaxies.
08-02	12h 33.1m	+12°58'	54°	11.4	By month's end it
08-07	12h 38.6m	+11°01'	52°	11.6	sets near midnight.
		Periodic Comet Tempel 2 (1987g)			
06-23	15h 26.7m	+01°14'	134°	10.2	This comet goes south
06-28	15h 24.6m	+00°07'	130°	10.0	of the equator in our
07-03	15h 23.6m	-01°09'	126°	9.9	evening sky this month,
07-08	15h 23.7m	-02°34'	122°	9.8	it will remain in this
07-13	15h 24.9m	-04°06'	119°	9.7	quadrant until it dims
07-18	15h 27.4m	-05°44'	115°	9.5	to mag. 12 early next
07-23	15h 31.1m	-07°27'	112°	9.4	year. It is now ac-
07-28	15h 36.0m	-09°14'	109°	9.4	tive but fainter
08-02	15h 42.0m	-11°04'	106°	9.3	than expected. It's
08-07	15h 49.3m	-12°56'	104°	9.2	up nearly all night.

SEEKING COMETS

Have comets been discovered at a constant rate in history? This month we look at these numbers and follow up with discussion.

Using sources such as Michael Rudenko's "Catalogue of Cometary Discovery Positions", Dr. Brian Marsden's "Catalogue of Cometary Orbits", and the IAU Circulars, here are the number of new comets found for each decade, along with average number per year.

YEARS	# COMETS	COMETS/YR.	DISCUSSION
1760-79	15	0.75	Discoveries by Messier, Mechain,
1780-99	27	1.35	and Herschel. Many were missed.
1800-19	25	1.25	Pons found most of these.
1820-39	24	1.20	The 1830's saw only 7 new comets.
1840-59	62	3.10	Many hunters found a few comets each.
1860-79	54	2.70	Tuttle, Temple and Borrelly active.
1880-99	82	4.10	Barnard, Brooks and Swift.
1900-19	63	3.15	Here's a lull in visual finds, but
1920-39	60	3.00	an increase in photographic finds.
1940-59	92	4.60	Photographic finds take over here.
1960-79	116	5.80	Many faint periodic comets found.
1980-88g	86	10.24	A high level of comet activity.

Why is it that some time periods contain many new comets while few comets are found at other times? This is similar to one of the most-asked questions that comet hunters ask themselves: "Is such-and-such effect caused by the behavior of comets, or by the behavior of comet hunters?" The above table probably better reflects the behavior of comet hunters. I say this with some reservation however, since the habits of comet hunters may mask subtle long term changes in the supply of new comets.

Three main factors are involved with the variance in the above comet discoveries. They are: 1) The number and experience of the comet hunters. Sometimes many people were seeking comets, sometimes only a few were. We know this from observing the names on the comets, and by studying the number of multiple discoveries. 2) The instruments used. As time progressed comet hunters picked up fainter and fainter comets. 3) Number of comet hunters in the Southern Hemisphere. A strong minority of the comets are discoverable from one Hemisphere but not from the other.

These three reasons parallel the three factors I've often felt that the comet hunter needs to sharpen in order to be a better seeker of comets. They are: 1) Timing= cover the sky often, 2) depth= seeing as faint as possible, and 3) Breadth= covering as much sky as possible. We'll look at these in detail much later. Next month we'll see that some years indeed provide more comets than others.

ASTRO ADS

CELESTRON COMPUSTAR -- Celestron-11 Schmidt Cassegrain telescope (orange tube) w/tripod & wedge. 2-inch star diagonal, 1.25" visual adapter, 8 X 50mm finderscope, 20mm Meade Research Grade Erfle eyepiece, 5-inch off-axis solar filter. Comes complete with fully operational Celestron Compustar computer control. Built-in RA & DEC high speed stepper motors, L.E.D. read-out console with leather carrying case. RS-232 cable, DC power supply, instruction manual. Absolutely Fantastic! Optics are exceptional! Super Sharp, High Contrast Lunar and Planetary views. Incredible Deep Sky images! Built-in catalogue of 8000 deep sky objects! Enter the object of your desire, press the slew button, and your ready to Rock and Roll!!! $5000 takes all! John Gleason (415) 792-8248. 7/88

ENDANGERED SPECIES -- Celestron 5.5-inch Schmidt camera with 3 film holders.(1 filter and 2 regular). Plus: #92 filter, tube rings for attachment to any equatorial mounting and mounting brackets for your C8/C11/C14. An exceptional astrograph! Great for comets, wide-field (6 X 9 degrees) Milky Way photography. Lightweight and portable, it's fantastic with hypered TP 2415 and #92 deep red filter. $1700 complete. John Gleason (415) 792-8248 7/88

WANTED -- Celestron C14 tripod. (Not over $100.) 3-inch Cassegrain telephoto/spotter w/tripod, $100. Contact: Nick Doukas 408-462-0209 7/88

C-90 SPOTTING SCOPE with multi-coated corrector - 1 month old. All standard accessories plus dew cap, large accessory ring, and 1.25" star diagonal. Perfect optical and mechanical condition. Velbon camera tripod with spring loaded pan head, like new. All for $430. Eyepieces! 28mm Erfle $30, 40mm Kelner $15, 9mm Ortho $25, 7mm Ortho $22, 40mm Meade Super Plossl $60. All eyepieces in perfect condition. Contact: Jim Molinari, 255-7030 or 727-2438

CELESTRON 8 with tripod and wedge. Accutrack 3119 Drive Control, dec motor, 8 X 40 finderscope, piggy back mount, dew cap, weights, star diagonal, 9mm,18mm, 20mm eyepieces, fine tune latitude adjuster, star bright coating. $1250 or best offer. Contact: Robert Scott (408) 265-6101. 6/88

10-INCH COULTER F/4.5 Newtonion reflector. With Novak spider and secondary,

massive German equatorial mounting (portable), very solid with setting circles, felt lined, spring loaded saddle rings, 40lb hardened steel counter weight, modified DS-16 RA drive. Dec motor on modified tangent assembly. Complete with Telrad finder, Celestron 8 x 50 right angle illuminated polar finderscope, 32 mm Televue Plossl, 18mm Kelner eyepieces, telextender for projection photography, 12.5 mm cordless illuminated eyepiece, low profile Lumicon easy guider, light pollution filter, Lumicon dual-star dual-axis drive corrector. A outstanding, very stable telescope for astrophotography. All components break down into easily transportable pieces. $2000 Contact: Dan Beck, Day: 408-438-2900 M - Th, Home after 7 pm: 408-338-3001. 5/88

7 IS STILL A LUCKY NUMBER
BY: DENISE HUTSON

Tired of the results you get from your local fast-photo outlet? Do your color astrophotos brown-out rather than show that dark sky you knew was there when the picture was taken? As I have finally just found, the secret of success seems to lie in just how you ask for what you really want.

Writing "astrophotos - print black skies" on the processing envelope never seems to do the trick. And coming right out and telling the clerk to print the sky like it was really dark, not just heavily polluted, doesn't seem to work either. Then the one lab that can do it is a 30 mile drive, and they're not about to offer any clues because they want your business! Unless you are fortunate enough to have your own processing equipment in your bathroom, you are at the mercy of the part-time summer employee who was hired to push the button on the automated photo processor.

So, what is the answer? The simple phrase,"Use the +7 density channel please." will yield photos you never thought possible from a quick print service.

The density of standard processing in done in the range of -2, -1, 0, +1, +2 with a low of -10 and a high of +10. Although an astrophoto could withstand a +10 setting, yielding the darkest possible sky, I find that any nebulosity surround your subject is heavily subdued. At the other end, +6 seems about as light a setting as should be used. In direct sunlight, a print done at +6 begins to show signs that brown is about to dominate, but at the same time, yields as much detail as can be gained from the negative. At +7 the balance between darkest possible sky and highest degree of detail seem to unite for the best result.

Any quick print service will understand what you mean by "+7 density" and if you can somehow avoid the lost film, scratched negatives and wrong change aspects of the transaction, you're one step ahead in getting better astrophotos!

A CALCULATOR PROGRAM FOR MARS
BY: DON WATSON

In anticipation of the time that we will all be madly rushing off to get that "close" view of Mars, I am submitting the following program to be used in conjunction with a map of Mars so you will have a fighting chance of identifying what you think you are seeing.

This program will calculate the Longitude of the central meridian of Mars for a given date and time (PDT). (Another time zone can be accommodated by changing the constant, 7, in the last formula.)

The results compare quite well with the table given in the May issue of S & T on page 519. There is less than 3 degrees difference in almost all cases.

One need only enter the date (ex: 8.07 for August 7) and time (ex: 20:32 for 8:32 PM PDT) and the longitude of the central meridian will be displayed.

This program was written for a CASIO fx-7000G. It should be relatively easy to translate it to many of the other programmable hand calculators.

Fix 0	Display no decimal places.
331→H	This is A[7].
394→I	This is A[8].
468→J:562→K:644→L:363→M	
"MM.DD"?→X	Read in Month and day. ex. July 3 is 7.03
"HH.MM"?→T	Read in Hour (PDT) and minutes. ex. 20.40
Int T + Frac T÷.6 →T	Change time to decimal.
Int X→Z	Get month.
$(3Z^2 - 57Z + 494) \div 25 \rightarrow Y$	
Frac ((A[Z]−Y×(100×Frac X−1) + 14.6×(T + 7))÷360)×360	

VARIABLE STAR OBSERVING
BY: ARNO F. GRANADOS

Contrary to anything you might have heard otherwise, variable star observing is not a reference to observing stars on the odd weekend when you have nothing else to do. Variable star observing is actually an often overlooked aspect of amateur astronomy which is not only very rewarding to the observer, but is also a valid contribution to "Professional" astronomy. (I've put professional in quotation marks because the current level of amateur astronomy is in many respects, professional. Amateurs have at their disposal computers-- which can be used for everything from writing newsletter articles or reducing data, to controlling telescopes--larger aperture telescopes, CCD photometers, and a whole host of other high-tech instruments which have only become readily accessible to professional astronomers in the last twenty years. In short, amateurs have all the means at their disposal to make many valid contributions to the science of astronomy.)

Fortunately, variable star observing does not require the kind of cash outlay that a CCD Photometer requires. For the true beginner, there are some variables which can be observed with the naked eye, and dozens more that can be followed with a pair of binoculars. However, a telescope is essential for observing most variables. The telescope doesn't have to be equatorially mounted, or anything fancy, all that really matters is that you are familiar with using it.

OK, so what exactly does an astronomer do when he/she observes variable stars? Well, you usually spend hours hunting for some obscure thirteenth magnitude star which is either thirty degrees from the nearest "bright" star (bright being something Tirions's would list), or in the middle of the Milky-Way. Once you think you've found it you double check your finder chart--more on finder charts later-- which is reversed north-south (or east-west depending on your perspective) if you happen to be using one of the ever popular Schmidt-Cassegrains. When you're sure you've found the variable, you estimate its brightness to the nearest tenth of a magnitude by comparing it to nearby stars of constant brightness whose magnitudes have been determined and are labeled on your finder chart.

About finder charts. The national clearing-house for variable star observation, the American Association of Variable Star Observers--AAVSO for short--has compiled charts which show the location of the variable, as well as the magnitudes of the main stars in the same field as the variable. Charts are available for a small fee (25 cents each) from the AAVSO. Write them for a list, and membership information; their address is 25 Birch St., Cambridge, MA. 02138

While the AAVSO will appreciate any observations you make (members send their observations to the AAVSO Headquarters on a monthly basis), the most effective and enjoyable work is accomplished through an organized observing program. An observing program can contain anywhere from a few stars to a few hundred stars which you observe on a regular basis. The time commitment varies depending on the number of stars in your program, and on the type of star you're observing. If you're observing long period variables, the most common type, you should check on your stars about once every two weeks. Leaving a goodly amount of time for your other astronomical interests, planets, deep sky, or what have you. If you get hooked like me, you may actually find yourself giving up some of your valuable galaxy hunting time in order to add a few more variables to your program.

One nice thing about observing variables is that they do not require the same "pristine" sky conditions that deep sky does. While a dark sky is certainly appreciated, especially if your looking for R Cygnus at minimum magnitude (13.9) with a twenty centimeter telescope, it is not mandatory, remember that you're looking for point sources--stars-not extended objects like galaxies.

Variable stars have a certain magic about them. While NGC 6207 will look basically the same for the next few thousand years, barring the occurrence of a supernova or similar event, you can watch a long period variable like Mira change slowly over a few months, or an eclipsing variable like Algol change brightness over a period of a few hours. Each year more variables are discovered, and much more is learned about these stars. Your own observations may help add to this knowledge.

And when your observing session is over, and you sit back for that much needed cup of hot coffee, you will have more than a notebook with a few numbers scribbled in it, and a stiff neck. You will have a sense of belonging with the sky, and the knowledge that it has yielded a little bit more of itself to you, and through you, to us.

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RINGS OF SATURN

SJAA MEETING AND STAR PARTY LOCATIONS

GENERAL MEETINGS

Once a month the SJAA holds a General Meeting at the Red Cross building in Los Gatos California. Guest speakers are invited to give talks on a wide range of astronomical topics which have included equipment and slide presentations. This is also the location for the SJAA's "Indoor Star Parties", informal sessions where members gather to share their astronomical interests. Whatever your interest, astrophotography, deep sky observation, telescope making, or just arm chair observing, you'll find a friendly atmosphere at all of our meetings.

The Red Cross building is located at 18011 Los Gatos-Saratoga Rd. From Hwy 17 take the Hwy 9 (Saratoga) exit and continue west up the Los Gatos-Saratoga road for about 0.6 miles. Turn right at Rose Ave. Then turn right immediately into the parking lot of the Post Office and Red Cross building. Doors open at 7:45 PM, with General meetings beginning at 8 PM. General Meetings are currently held on the 1st Saturday of each month.

INDOOR STAR PARTIES

Occasionally there are a few Saturday evenings set aside for informal gatherings of amateur astronomers to share their common interest in astronomy, to "talk shop", or to simply enjoy the company of friends. Members are encouraged to bring in telescopes and accessories to share with the group. Typically there will be several telescopes operating in the parking lot or there will be a slide show of recent astrophotography and star party events in progress in the meeting hall. The SJAA also holds it board meetings during this time as well as an introductory astronomy workshop that is conducted once a month.

FIELD EXPEDITIONS

On the Saturdays closest to the New Moon, the SJAA will conduct a "Star Party" for astronomical observation at a designated location. Several times a year these star parties are held close to San Jose while others are held as far away as Yosemite national Park. Watch the EPHEMERIS for star party locations.

FREMONT PEAK STATE PARK

The most popular of locations for bay area amateur astronomers is Fremont Peak State Park. Located 70 miles south of San Jose near the town of San Juan Bautista, Fremont Peak rises nearly 3000 ft. above the valley floor. For two decades amateurs have gathered at the "Peak" during New Moon weekends for serious deep sky observing and astrophotography. To get to Fremont Peak for San Jose, take Hwy 101 south towards Salinas. Then take Hwy 156 east (San Juan Bautista exit) for 3 miles to a yellow flashing light. Turn right and go about 1/4 mile to where the road reaches a "Y". Veer left for about 25 yards and then go right. (Watch closely for the Fremont Peak sign) Follow the Canyon Road for about 11 miles up into the park. The SJAA sets up in Coulter Camp. It's visible on your right as you first drive onto the main area of the park. Expect to find a lot of astronomical activity here every clear New Moon weekend. Arrive early if you are setting up equipment. 50 to 100 telescopes are not uncommon at Fremont Peak during the summer months.

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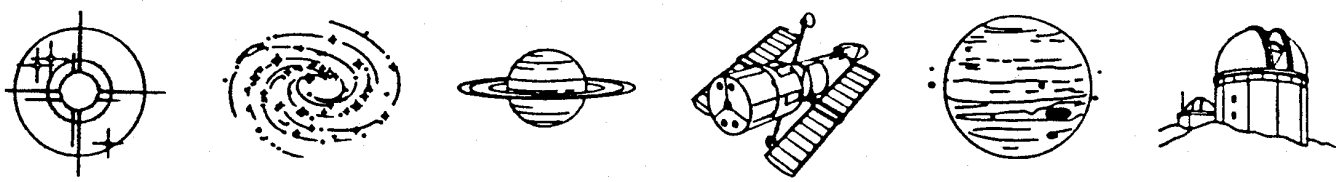

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1840 Yosemite Dr.
Milpitas, CA. 95035

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