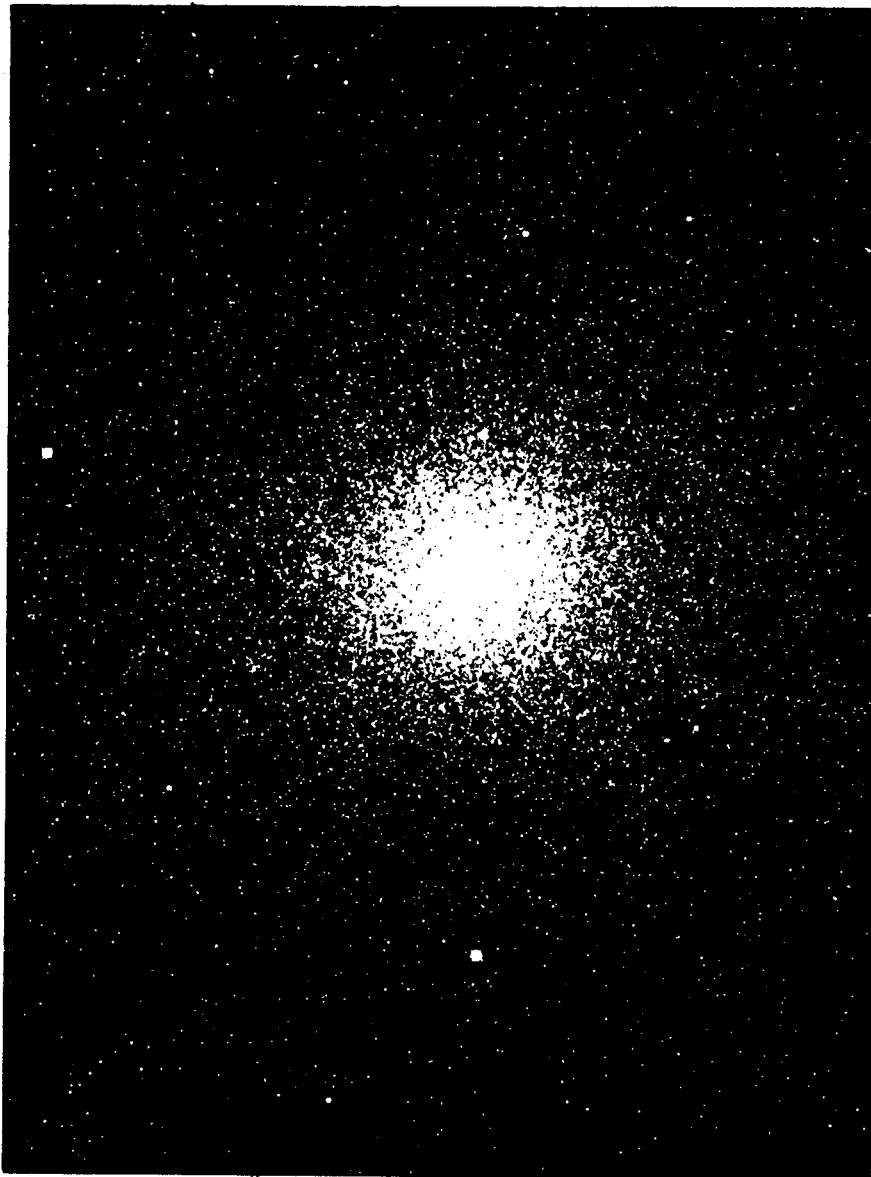


MARCH '88

SJAA

EPHEMERIS



CALENDAR

MAR 4 Board of Directors meeting, Gene Cisneros, host 8:00 PM
OPTRON

MAR 5 *Star-Party 3rd. qtr., Henry Coe State Park
lock combo 4565

MAR 11 1st night of the Messier Marathon, Loma Prieta
MAR 12 2nd night of the Messier Marathon, Loma Prieta
Mar 12 Chews Ridge Star-party PAS

MAR 14 New moon

MAR 18 3rd night of the Messier Marathon

MAR 19 General Meeting , BILL UNRUH - LICK HISTORIAN
UNIVERSITY OF SANTA CLARA, 8:00 PM

Mar 19 4th night of the Messier Marathon (after the meeting)

MAR 26 Indoor Star-party, Los Gatos Red Cross 7:30 PM

APR 2 Indoor Star-party, Los Gatos Red Cross 7:30 PM

APR 8 Board of directors meeting, Frank Dibbell, host 8:00 PM

APR 9 3'rd quarter star-party, Fremont Peak State Park

APR 16 Star-party, Henry Coe Park

APR 23 Astronomy Day

APR 30 AUCTION, reg. 1:30 PM on, Start 7:00 PM

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All contributions are welcome and must be received by the 15th of the preceding month. Please type to a width of 6.5", if this is not possible, handwritten contributions are welcome,

EPHEMERIS also welcomes your black and white photos of astronomical interest. 8x10 prints > 5x7 print min

All submissions may be sent to SJAA EPHEMERIS editor c/o Jack Zeiders 2961 Magliocco Dr #3, San Jose, Ca. 95128 (408) 246-6189

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COVER PHOTO; supplied by Craig Wollan
February COVER PHOTO; courtesy John Gleason

1983 MESSIER MARATHON

BY DON MACHHOLZ

The 1983 Messier Marathon will be held the weekends of March 11-13 and 18-20, the first being the better due to the moon, and on Sat. March 20 the Marathon will be after the general meeting.

The annual Messier Marathon is a particular star party set aside to observe the Messier Objects, 109 or the 110 being visible from dusk to dawn. Observing need not be confined to these objects, planetary and general observing, along with photography is also carried out during the Marathon. And many observers go home before midnight. More than 70 Messier objects could be observed before then.

I'll have AANC Messier Club forms and search sequences for the different star atlases; in addition, I have developed a search sequence for both the Messier and the Herschel objects (Described in the "Observe" series book published by the Astronomical League). These are available from me, I'll have them at the Feb. 26 indoor star party meeting.

We'll be observing from Loma Prieta Mtn. in the Santa Cruz Mtns. Take Hwy 17 south to Summit Rd, go east. After 5.3 miles you reach a stop sign and a fork in the road. Go to the left, up Mt Bache Rd. After 3.3 more miles the paved road turns to dirt, (recently graded). We set up 1.23 miles past this point, off on the side of the road. We can begin observing at roughly 7:15 PM. We are not limited to observing in the weekends, I may also be marathoning during the weeknights.

Dress warm, pray for clear weather and we'll have a good time of it. I'll see you there.

ANNOUNCEMENT

BY D. MEDLOCK

Our March 19th general meeting should be one of great interest to the amateur astronomical community of the South Bay. William Unruh, historian at Lick Observatory, will present a graphic slide narrative about our famous astronomical neighbor. With Lick Obs. so close we perhaps tend to forget how important a facility it is in the astronomical research world. William Unruh will share its colorful history with us, so bring your family & friends to an enjoyable evening. 8:00 PM Alumnae Science Hall University of Santa Clara, room 102

GREAT RED SPOT RECOVERED

BY JIM VAN NULAND

Feb 3, 1983 saw recovery of Jupiter's Great Red Spot by Jim Van Nuland, 205 days after the last timing prior to conjunction.

Though suspected by Gerry Rattley on Jan. 27, he was not able to obtain a timing.

The Spot shows little contrast and no color, just a darker grey than its surroundings. There is some hope, though, inasmuch as it is larger than it has been for several years. Perhaps things will improve.

The spot is set partly into the south equatorial belt, and in addition, there is a vague grey "cloud" extending far south of the Spot. There may also be a belt segment extending eastward

from the southern edge of the Spot.

To see the Spot, high power and very good seeing are required. Begin about half an hour prior to the predicted time. Use an apodizing screen if you have one.

Focus carefully, then look eastward along the southern edge of the south equatorial belt for a distinct narrowing of the belt, to about half its western width. The dent contains the Spot, which in turn is nearly 1/2 of a Jovian radius long. Now watch continuously for those moments when the air is especially stable, and the Spot will pop out at you!

Great Red Spot
on Meridian PST
da mo d h m

| | | | | | Th | 3 24 | 1 57 | am | |
|----|---|----|---|----|----|------|------|------|-------|
| W | 3 | 2 | 3 | 45 | am | Sa | 3 26 | 3 33 | am |
| F | 3 | 4 | 5 | 19 | am | M | 3 28 | 5 | 3 am |
| M | 3 | 7 | 2 | 52 | am | Tu | 3 29 | 1 | 2 am |
| W | 3 | 9 | 4 | 26 | am | Th | 3 31 | 2 | 34 am |
| M | 3 | 14 | 3 | 33 | am | Sa | 4 2 | 4 | 20 am |
| W | 3 | 16 | 5 | 15 | am | Tu | 4 5 | 1 | 46 am |
| Sa | 3 | 19 | 2 | 46 | am | Th | 4 7 | 3 | 23 am |
| M | 3 | 21 | 4 | 25 | am | Su | 4 10 | 0 | 56 am |

OMEGA CENTAURI STAR-PARTY

BY CRAIG WOLLAN

Mark your calendar -Saturday March 12 Peninsula Astronomical Society members would like to invite members of the San Jose Astronomical Association, the San Francisco Amateur Astronomers, San Mateo Astronomical Society, and the Central Coast Astronomical Society to join our caravan for an overnight trip to Chews Ridge. Chews Ridge is 5000ft. high and is located about 30 miles due southeast of Monterey. It promises to be one great starparty.

Placed for perfect viewing on this date is Omega Centauri - the largest, brightest (about magnitude 3.5) of all the globular clusters in the sky (nearly the size of the full moon - or more than three times bigger than M13 in Hercules!). But, because of its southerly placement, you need a very dark sky and an unobstructed view of the southern horizon as, even from Chews Ridge, Omega Centauri is only about 7° above the horizon at its highest point. This globular cluster is so large and bright from the Hawaiian Islands, where it appears an additional 15° higher in the sky than from Chews Ridge, that I was able to partially resolve the cluster using only 11x80 binoculars! About 5° higher than Omega Centauri is another spectacular object, the 7.2 mag. radio galaxy known as Centaurus A (NGC 5128). This peculiar galaxy has a huge dust lane across its middle and visually presents a very interesting view, much like its photos.

The last time we went to Chews Ridge everyone saw some fantastic deep-sky sights like some of the super luminous stars and a globular cluster WITHIN the Andromeda Galaxy and filaments in the Crab Nebula, plus many many more objects. Difficult objects like these can only be seen from a really dark sky site such as this.

If you would like to join our caravan or need a map and directions, please call Craig Wollan at (408)246-4851. We should have a good turnout of very large apature...hopefully, a couple of 17.5 inchers and two or three C-14's and maybe a 16" or two. But small, medium, or large, I guarantee you'll see things so well from Chews Ridge with your scope that it's bound to amaze you. By the way, if you don't have a telescope of your own, don't let that keep you from missing out on the fun, as members of all the clubs are always enthusiastic about sharing both their scopes and their hobby with others.

SPACE PROGRAM UPDATE

BY BOB FINGERHUT

COSMOS 1402 REENTERS SAFELY - Both pieces of the nuclear powered Russian satellite, Cosmos 1402, have now reentered the atmosphere and burned up harmlessly.

SIXTH SHUTTLE FLIGHT - The hydrogen leak which has delayed the launch of the sixth shuttle flight has been found. It was found during an inspection which followed a second, on pad, 20 second firing of the shuttle's engines. The leak was due to a crack three-quarters of an inch long, in the combustion manifold of the no. one engine. The engine was removed and is being replaced with the spare engine no. 2016 which recently completed acceptance testing. The launch date is now being planned for about March 15.

SAN JOSE CITY PLANNING COMMISSION AIDS LICK OBSERVATORY - The planning commission has ordered private developer Kimball Small to use only low-pressure sodium lights in the parking lot of a project they are developing. The planning commission also ordered a written policy submitted to the city council that would make low-pressure sodium lights mandatory in all new developments.

The low-pressure sodium lights are easy for astronomers to filter out. Sandra Faber, an astronomy professor at U.C. Santa Cruz said, "It's really a great thing, it will have an unbelievable impact on our facility, (Lick Observatory) I am on cloud 9".

INFARED ASTRONOMICAL SATELLITE LAUNCHED - The IRAS satellite was launched Jan 25 from Vandenberg on a Delta rocket. The telescope is operating following removal of its cover and checkout of major systems is being conducted.

STS-7 LANDING SET FOR KENNEDY SPACE CENTER - The second flight of the orbiter Challenger is scheduled to make the first landing at the Kennedy Space Center. If strong crosswinds are present at Kennedy the landing would be moved to Edwards AFB.

JAPANESE ASTRONAUTS TO BE SELECTED - Three or four candidates will be selected by the end of 1983 to start a four-year training cycle leading to launch of one as a space shuttle payload specialist about 1987.

COMET COMMENTS

BY DON MACHHOLZ

One comet has been recovered and another "comet", which turned out to be an error, was labeled as a comet. Meanwhile, Comet Churyumov-Gerasimenko has faded from our skies. In our "Past Discoveries" department, we will again study two more comets discovered by William Bradfield of Australia.

Comet 1983a: The "comet with no name" is actually not even a comet! On Jan. 5, 7, and 9 photos were taken by J. Johnston and M.P. Candy during a search for Periodic Comet Metcalf (1906VI). They showed a 15th magnitude diffuse object on each photographic plate. But the object could not be observed visually; additionally, the three positions could not be made to fit any reasonable orbit. Further photos failed to find it, so it is now assumed that Comet 1983a does not exist.

Periodic Comet Pons-Winnecke (1983b): This comet was recovered on Jan. 12 by E. Everhart of Denver Colorado. The 19th magnitude comet was found in the constellation Serpens Caput, moving at a rate of about one degree daily. This comet was first discovered by Jean-Louis Pons in 1819, then lost until re-discovered by Winnecke in 1858. It came rather close to the earth in 1927, its orbit has now changed and it does not get nearly as close now. It is not expected to get much brighter. While Everhart has confirmed discoveries and recoveries in the past, this is the first time this innovating "amateur" has been first to recover a comet. (In the 1960's he visually discovered two comets) His comet position engine is featured in the Sept. 1982 issue of S&T.

PAST DISCOVERIES

Comet Bradfield (1975d) Discovered on Wed. evening, Mar. 12, 1975 by William Bradfield of Australia, this was his third comet discovery, 145 search hours since his previous one some 13 months before. The comet was found at R.A. 01hr, 05m, and Dec: -22° at mag. 9.0. It was 30 degrees from the sun, in his WSW evening sky. It was on the day of the new moon.

Up to five weeks before discovery the comet could have been discovered by observers at our latitude; it would have been low in the SW sky after sunset, brightening to mag. 10.3 on Jan. 28, when it would have been three degrees off the horizon at evening twilight. During Feb. it was invisible to us at mid-northern latitudes, but discoverable to S. Hemisphere observers. When it was finally picked up on Mar. 12, it had been low in their W. sky, with no moon interference, for roughly ten days. Had it escaped detection until after March 18, the brightening moon would have hidden it for an additional week or so. Assuming this comet obeyed natural comet-brightness laws, it was visible in the S. Hemisphere and brighter than mag. 10 for roughly five full weeks before it was finally discovered.

Comet Bradfield (1976d): Discovered on Thursday morning, March 4, 1976, this comet was Bradfield's sixth, found 9 search hours and two weeks after he found Comet 1976a. It was found in the morning sky, R.A.: 21hr, 17m, and Dec: -46°, this was some 44 degrees from the sun, at mag. 9. The discovery day was three days after new moon, the moon had not been hampering observations for nearly a week.

The prediscovery positions show that this comet was not visible to us in this Hemisphere. Two months before discovery it

was 12 degrees due north of the sun, it moved rapidly southward and west of the sun, increasing its distance from the sun (as seen from earth) until finally discovered on March 4. If it had not been discovered then, it would have had been a difficult object, growing rapidly fainter as it moved northward. Additionally, most of the astronomers' attention was directed toward another comet during those weeks: the great Comet West, then appearing in the morning sky.

SJAA PROFILES

BY FRANK DIBBELL

Due to popular demand, I have resurrected my old "club member on the street" interviews. If you wish to be interviewed, don't be bashful; give me a call (my work phone is buried somewhere in this bulletin), or corner me at a club function. One thing I have found out from doing these interviews: each of our members is unique and has something special to contribute, so don't be shy!

This month's interviewee is Tom Ahl. Tom has been a club member since late 1981, when he first heard about the SJAA from fellow member Glen Taylor, who gave him a copy of his Bulletin. Tom tells me his astronomical interest had its roots in the days before Sputnik, when he used to be a SF buff (still is, I hear). He grew up on Tom Corbett, Space Cadet, and space travel books by Willey Ley.

Of course, an interest in the sky could not be complete without a telescope. Thanks to an ad for Edmund Optics in a 1959 issue of Superman Comics, Tom will never again attempt to build a telescope. The story goes that he answered this ad, and purchased the parts to build a 3" refractor. In Tom's own words, "It was a mess!"

While in high school in New York, he took an Astronomy course. This marked the peak of his astronomical interest, which then slid into a state of hibernation and didn't awaken until 1972 while serving in the U.S. Navy. Laying on the ship's deck at night watching the stars seems to have done it. This experience convinced him that obtaining a good telescope was top on his list of priorities.

As always, priorities change, and Tom was destined not to be an exception. In March 1979 he got married. At long last his goal was realized (late 1981), with the purchase of a 13.1" Odyssey from Coulter. He brought it to a star party at Mt. Umunhum, REALLY got hooked, and joined the club.

Tom's experience with a Dobsonian for a first scope was one of initial discouragement: he was not that familiar with the sky, and the Odyssey had no finder. Time and experience is taking care of the first problem, while "wheeling and dealing" took care of the latter. He now really enjoys his scope, and comments that "A scope you really have to work with" aids in learning the night sky.

In the future, Tom wants to do astrophotography, particularly after he settles into a permanent home in Spokane, in about five years (talk about long-term planning!). More immediately, he enjoys being a member of the SJAA, and wants to be involved more in club activities. Specifically, he wants to see the club expand its involvement with the public.

Well, Tom, the SJAA Board needs a few good men . . . !

BEGINNERS' CORNER

BY BRUCE DE GRAAF

I have been bellyaching for many months that the SJAA bulletin needs a column for beginners: on the level of "In which end do I look?" may be answered. Jack Zeiders finally suggested I put my word processor where my mouth is and write one. Here it is. I hope you enjoy it and learn along with me.

I am not sure what to call this column (I do not like beginners corner). I toyed with "The Celestial Tenderfoot" but rejected that in consideration fo Jay Freeman's "Celestial Tourist". I would appeciate any ideas.

My goal is to acquire sufficient knowledge to set up, without assistance, an astronomical telescope and to enjoy the sky on any clear night at any location. I assume that you have access to such a telescope and can follow my adventures. Here is my hope that we all can grow.

This edition, the first, of the column deals with aligning an astronomical telescope so that its motor driven mount will follow the apparent motion of the stars as the Earth turns. While not absolutely necessary for visual astronomy, this capability is enormously convenient and has always been a source of frustration to me. The following technique was shown to me by Bob Finnerhut, who created it from some charts given to him by the late Dr. A.B. Gregory, one of the guiding members of the SJAA. It is unique and not in any set of instructions I have ever seen.

Polar alignment results in the Right Ascension axis of your telescope being parallel with the Earth's axis of rotation, if you are already lost, re-read your instruction manual and come to one of the equipment night meetings, generally at the Los Gatos Red Cross building. Once this alignment is complete, turning the telescope in the opposite sense to that of the planet will cause the device to more or less track the stars.

There I sat, waiting for Polaris to rise...

Pete Manly

That is not a direct quoteation but it does convey some of the frustration of onovice astronomy. Polaris neither rises nor sets; it appears almost stationary because it is very near close to the Earth's polar axis. If you aim your telescope's R.A. axis at that star, you will achieve marginally acceptable alignment.

Great! Where's Polaris? At the beginning of your observing session (during winter, make sure you have good shoes and clothes, especially something to cover your head), look toward the northern sky. Where's north? That is not as stupid as one might think. Obviously, a compass will tell you. If you do not have one, before you rush to the store and lose some hard earned money, try for a street map. From it you can determine "north" with sufficient accuracy.

There are all sorts of techniques for locating Polaris. The following is the simpelest and seems never to be presented. Look at the northern sky and notice that there is a large roughly circular area with very few bright stars in it. Near this area's center is one somewhat lonesome but moderately bright star. That is Polaris.

Okay, you align your telescope on it and find that at high powers the image still slides out of view. The reason (assuming working equipment and no changes in continental drift) is that Polaris is not exactly coincident with the north pole. There is no visible object there. On what do you align? This is where the Fingerhut technique helps.

1. Align your telescope and mount marginally as described.
2. Set your mounting such that changes in the declination cause the telescope to change its aiming point in a vertical manner. Then set the dec. to 90 degrees.
3. Grasp the front of the optical tube (keep your greasy fingers off any optical surfaces) and pull up till the declination reading is 89.1 degrees- or as close as you can estimate.
4. Adjust the right ascension circle so that zero hours is uppermost.
5. Look at the table, below, and find the date. Note the time next to the date. If you must interpolate, subtract four minutes for each day beyond the referenced date. This is the Pacific Standard Time (PST) that Polaris will be directly east of the actual north pole (add one hour if this is done during the summer and Pacific Daylight Time) and is called the time of eastern elongation (EE) for Polaris.
6. Consulting a timepiece, determine how many hours and minutes until (or since) Polaris will be at EE. Add or subtract this value to the value computed from the table.
7. Adjust your telescope in right ascension until it matches the specified value. DO NOT ALTER THE DECLINATION OR THE ALIGNMENT WHILE DOING THIS.
8. Now and finally alter the alignment (NOT THE DECLINATION OR RIGHT ASCENSION) until Polaris is centered in the field of view with an eyepiece in place to produce about one hundred power magnification.

| | | |
|---------|--------------|---------------------------|
| Jan. 5: | 1pm (13:00) | Jan 20: Midday (12:00) |
| Feb. 4: | 11am (11:00) | Feb. 19: 10am (10:00) |
| Mar. 6: | 9am (09:00) | Mar. 21: 8am (08:00) |
| Apr. 7: | 7am (07:00) | Apr. 22: 6am (06:00) |
| May 7: | 5am (05:00) | May 22: 4am (04:00) |
| Jun. 8: | 3am (03:00) | Jun. 23: 2am (02:00) |
| Jul. 9: | 1am (01:00) | Jul. 23: Midnight (00:00) |
| Aug. 7: | 11pm (23:00) | Aug. 23: 10pm (22:00) |
| Sep. 7: | 9pm (21:00) | Sep. 22: 8pm (20:00) |
| Oct. 7: | 7pm (19:00) | Oct. 22: 6pm (18:00) |
| Nov. 6: | 5pm (17:00) | Nov. 21: 4pm (16:00) |
| Dec. 6: | 3pm (15:00) | Dec. 22: 2pm (14:00) |

Now, the task is to set the right ascension circle so that the most objects may simply be "sailed up". I will treat that in the next article. If you are still confused (likely), please attend an equipment night meeting of the SJAA and ask for help.

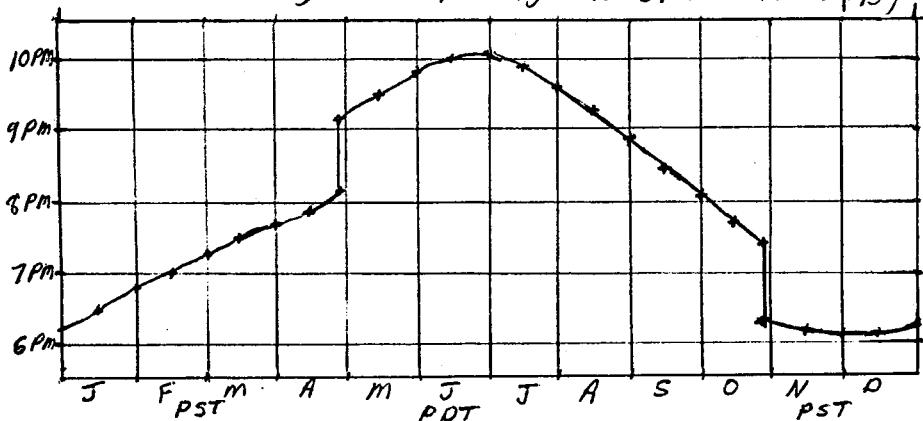
TIMES OF TWILIGHT THROUGHT THE YEAR

BY DON MACHHOLZ

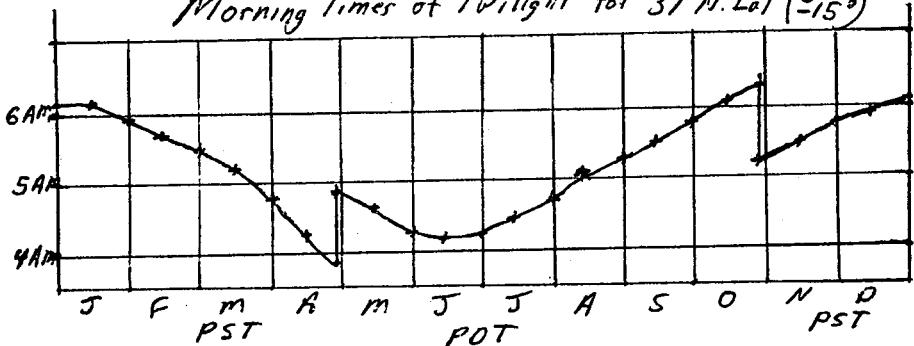
At what time does it get dark enough for the Sept. starparty you've planned? Until how late in the morning can you observe the Persaids? When does it get dark on Astronomy Day, this year in late April? Below I have graphed the times of twilight for 37 degrees Latitude North. The curve represents the time when the sun is 15 degrees below the horizon, this is midway between Nautical and Astronomical Twilights and is dark enough for most observational purposes.

The shifts between Standard Time and Daylight Savings Time is shown, this increases the spread to four hours for evening twilight (roughly 6PM to 10PM) while it decreases the morning twilight times to a narrow range of two hours (roughly 4AM to 6AM).

Evening Times of Twilight for 37°N. Lat. tide ($5^{\text{un}}_{-15}^{\text{s}}$)



Morning Times of Twilight for 37°N. Lat ($5^{\text{un}}_{-15}^{\text{s}}$)



WEBSTER'S WORKSHOP

BY LARRY WEBSTER

For those who do not know me, and that's most of you, my name is Larry Webster. My purpose in offering this article is to provide the SJAA with a central focal point through which questions and information may flow through the club concerning the trials and tribulations (T&T) of "amateur" telescopic makers and users. That should be just about all of us. Anyone needing assistance in solving a particular problem is encouraged to present their problem here. The experience and knowledge available throughout the club represents a resource which can and should be called upon. Likewise, those of you who have discovered an interesting method for accomplishing some task are welcome to pass the information on here.

Now, you might ask to see my credentials, and that's a fair request. I've been interested in astronomy since I was 10. That's 20 odd years ago. I was introduced to the science by my grandfather who was an astronomer at the Naval Observatory. Starting

with a 3", I designed and built a 6" and 12" including the armings of the primary mirrors. Since then I've gone through a string of 12" instruments. I currently have a pair of Newtonians, a 16" F6.6 with an 8" guider scope mounted on a German equatorial. This is installed in a backyard observatory - a 10' high, 12' square building slit at 4'. The top 6' is rotatable through 360 degrees. I also am reasonably knowledgeable in the field of electronics and its application to the telescope. If it can be done wrong, I've probably done or seen it. I've also seen how things can be done exactly right. I doubt that my collection of T&T is unique in the SJAA. Everyone has his own set, good and bad, and that's exactly what makes each of us of value to the rest. Enough!

Now for an example. Have you ever set your telescope up and taken an hour to align it to the pole? You set your circles to the coordinates of a bright star and your now confident that you can find anything on the celestial sphere. After twenty five minutes, you've gotten five hours and forty degrees away from your point of calibration, and the object you were looking for was two low-power fields away from where it was supposed to be. Most observers would tend to blame the clock drive, atmospheric refraction or poor initial set-up. There is another reason this can happen. Once tested and corrected, if required, it can be eliminated as a cause at subsequent observing sessions.

The axis of rotation of the declination (DEC) shaft is required to be perpendicular to the axis of rotation of the right ascension (RA) shaft. If they are not, movement of the DEC shaft with the RA shaft locked translates into movement in both axes when traced on the celestial sphere. One degree of error in the alignment of the two axes can translate into a degree of pointing error. The actual amount of pointing error is a function of the distance of the search point to the calibration point on the celestial sphere. There is a very simple but very sensitive test to check the relationship of the two axes. I'll describe how the method is applied to a German equatorial. However, the technique is applicable to any mount using logical modifications, including alta/azimuth mounts.

It's easier to first remove the telescope and counter weights. The method locates the center of rotation (CR) of both ends of the DEC shaft (Point A and Point B). It then traces the locus of points traced by Points A and B as they are turned through 24 hours of RA. If the relationship of the two shafts is exactly 90 degrees, Points A and B will trace out overlapping circles. If not, the two shafts are not perpendicular. If Points A and B are located 18° from the center of rotation of the RA axis, an alignment error of 1 degree will cause the circles generated by Points A and B to spread by 0.63°. Errors as small as 1 or 2 minutes of arc are resolvable by the method. Increasing the distance of the two points from the RA CR increases the resolution linearly.

Step 1. Find Point A and Point B. Determine the sensitivity for the test; i.e. select the distance from the RA CR to Point A. The distance to Point B will be the same. Get a 1/4" dowel and some modeling clay. Cut a section of the dowel such that when the dowel is mounted on the saddle in line with the DEC axis its point will be about 1/2" short of Point A. File the end to a sharp point (use a pencil sharpener?). Mold a mound of clay over the point on the saddle where the CR of the DEC axis exits and insert the sharpened dowel. The exact placement is not relevant. Now, spin the DEC axis. Notice that the point traces out a circle. Manipulate the dowel until the tip does not move. This takes patience but is not hard. You have now located Point A. Follow the same procedure to locate Point B at the other end of the DEC shaft. Obviously, the sensitivity you've selected has to let both Points A and B reside outside the DEC shaft and saddle.

Step 2. Set up a lined piece of paper on a convenient stand next to the telescope. The lines are useful when making a reading. It's easiest to place the paper at the point where its center will just miss being hit by Points A and B as the RA shaft is rotated and at a height equal to the height of the end of the RA shaft. Adjust the dowels in the modeling clay (repeating Step 1 each adjustment) and the position of the paper until both Point A and Point B just miss hitting the paper as the RA shaft is rotated through 360 degrees.

Step 3. Note the position of Point A as it passes the paper when the RA shaft is rotated. Do the same for Point B. The distance between these positions (D) represents of the error in alignment between the two axels.

$$E = \arctan (D/2S)$$

where: E = alignment error in degrees

D = measured position between points

S = distance from the center of the RA shaft to Point A

My current telescope allows me to shim the DEC shaft position relative to the RA shaft and I have driven the error to less than 2 minutes of arc. Once you are familiar with the method, and have the dowels made, it takes less than an hour to run the test.

Those of you who would like to contribute to subsequent installments of this article, may write to me at 5291 Elrose Ave. San Jose, Cal. 95124, or I may be reached before 8 PM weeknights by telephone at 408-267-4133.

REAL ASTRONOMERS DON'T EAT QUICHE

BY JEFF HORNE

Real Astronomers don't use setting circles.

Real Astronomers don't drive pink vans.

Real Astronomers don't own cheap refractors.

Real Astronomers don't own T Shirts with dumb sayings about their night life.

Real Astronomers don't mind other people touching their telescope.

Real Astronomers don't eat pretzels while examining your mirror.

Real Astronomers don't call mirrors, lenses.

Real Astronomers don't believe in UFOs.

Real Astronomers don't show bad home movies at Star Parties.

Real Astronomers don't own right angle finders.

Real Astronomers don't mind the cold, it chases away the riff-raff.

Real Astronomers don't put decals on their corrector plates.

Real Astronomers don't use floral contact paper on their Sonotubes.

Real Astronomers don't own Kellners.

Real Astronomers don't take flash pictures at Star Parties.

Real Astronomers don't argue about which is the best small telescope.

Real Astronomers don't bring sardines to Star Parties.

Real Astronomers don't put pen-pal ads in Astronomy magazine.

Real Astronomers don't use more than one red light at a time.

Real Astronomers don't believe in Carl Sagan.

Real Astronomers don't use planispheres.

Real Astronomers don't go to planetarium shows about "Animals in the Sky."

Real Astronomers don't eat fried chicken while changing eyepieces.

Real Astronomers don't wait until meteors burn out to tell you about them.

Real Astronomers don't walk their dogs at Star Parties.

Real Astronomers don't play the 1812 Overture at 3 AM at 120 dB.

Real Astronomers don't worry about whether they are Real Astronomers.

SKY AND TELESCOPE magazine has sent out the first renewal notice early in February. Note that the rate has changed, as the SJAA did not raise the dues for the last two such increases, the board of directors is forced to pass this increase along. The dues are now \$21.00 per year for full membership including Sky and Telescope magazine. A junior membership (for those under 18) is \$15.00 per year and includes S & T. For those too far away or who are members of other associations as well the Bulletin Subscriber rate is \$8.00 per year.

Send the form below with your check to: SJAA, Bob Fingerhut, SJAA Treasurer, at 340 Rio Verde PL, #4, Milpitas, Ca. 95035

SJAA MEMBERSHIP APPLICATION/RENEWAL

NAME _____

ADDRESS _____

CITY _____

PHONE _____

STATE _____

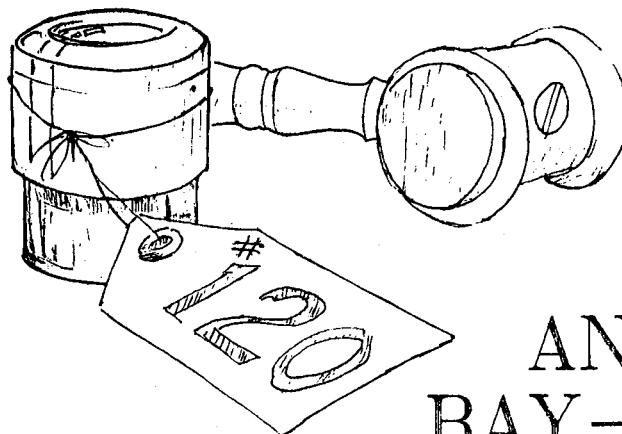
ZIP _____

AREA OF INTEREST _____

FULL MEMBERSHIP \$21.00

JUNIOR (UNDER 18) \$15.00

BULLETIN SUBSCRIBER \$8.00



3RD

ANNUAL BAY-AREA ASTRONOMICAL AUCTION

SATURDAY, APRIL 30TH 1983

LOS GATOS RED CROSS BUILDING - 18011 LOS GATOS-SARATOGA ROAD

1:30 PM ON FOR REGISTRATION 7:00 PM AUCTION BEGINS

THIS YEAR BIGGER AND BETTER THAN EVER!

BOOKS, MIRRORS, EYEPIECES, MOUNTINGS, CAMERA EQUIPMENT, COMPLETE TELESCOPES --- IF IT'S ASTRONOMICAL IT WILL BE THERE. MANY ITEMS ARE BRAND NEW - ALL ITEMS WILL BE AUCTIONED AWAY AT BARGAIN PRICES. SO CLEAN OUT YOUR GARAGE, CHECK YOUR "WANT LIST", AND JOIN US AT ONE OF THE MORE ENJOYABLE EVENTS OF THE YEAR.

PRESNTED BY;
THE SAN JOSE ASTRONOMICAL ASSOCIATION

ANY ONE MAY BID --- ANY ONE MAY SELL

Bidders - Register and get a bidder's number at the auction. The auctioneer will give bidding instructions at the beginning. All payments (check or cash) must be made at end of auction.

Sellers - Set your own minimum bid (what you would like to get out of the sell), and register your items either by mail or from 5:30 PM on the day of the auction. No item will be sold unless it is registered. If you preregister by mail as a seller by March 10th, your items will be included in a published list that will be distributed throughout the Bay Area astronomical societies. Preregistration is recommended for larger or more expensive items, such as complete telescopes. The SJAA fee is 10% of the selling price and is collectable at the end of the auction. All monies collected by the SJAA go to support amateur astronomical activities. Total donations are appreciated!

Directions: Go south on Hwy 17 towards Santa Cruz. Take the Hwy 9 exit (Saratoga) and continue onto Los Gatos - Saratoga Rd. Drive approximately 1-1/2 miles to Rose Ave. Turn right, and then immediately turn right again into the Red Cross' parking lot.



| | | | |
|---------|-------------------------|---------------------------|-------------|
| Name | item | ITEM PREREGISTRATION FORM | minimum bid |
| Address | <hr/> <hr/> <hr/> <hr/> | | |
| City | <hr/> <hr/> <hr/> <hr/> | | |

Send to: SJAA Auction, 15022 Broadway Terrace, Oakland, Ca. 94611, or call (415) 654-6796 (Oakland), or (408) 246-6189 (San Jose)

SJAA
3580 Calico Avenue
Stockton, CA 95214

ITEMS ALREADY PRE-REGISTERED

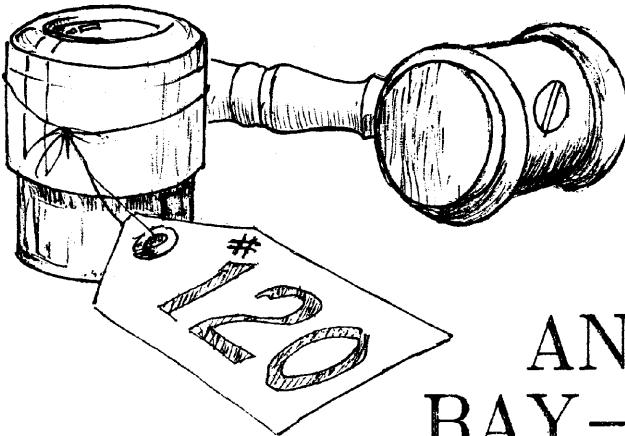
MIN BID

| | |
|---|-------------|
| 4-1/4" Optical Craftsman Telescope | \$75 |
| Permanent Pier for original C-8 | 25 |
| Sidereal Clock | 25 |
| 12-1/2" F/6 Newtonian, Cave, Starliner mount, rotating tube, rotating focuser for 1-1/4 & 2" eyepieces. 8X50mm finder, clock drive, circles. | 1000 |
| 6" F/4 Newtonian, Helical focuser for 1-1/4" eyepieces, drive, circles | 200 |
| 50mm F 1.8 Olympus Zuikolens | 50 |
| 80-205mm F4.5 Albinar Auto Zoom | 80 |
| 28mm F 2.8 Gemini wide angle lens | 45 |
| Meade off-axis guider for 2080 | 40 |
| Meade T-adapter for 2080 | 12 |
| Meade tele-extender for 2080 | 12 |
| Meade telecompressor and tube | 45 |
| Celestron-Williams Cold Camera | 150 |
| Coulter 12.5" F/15 Cassegrain optics set, Novak cell and spider | 650 |
| 12" F/5 Pyrex mirror, sphere, aluminized, chip on edge | 20 |
| 12" F/6.5 Dobson telescope | 300 |
| Books: Realm of the Nubulae by Hubble, new Observers Guide to Amateur Astronomy by Sidwyck, new Northern Star to Southern Cross, used Assorted Astrophysical Journals and astronomy magazines | 7 7 2 |
| 23-gram Odessa (coarse octahedrite type) iron meteorite. Retails around 13.00 | 3.25 |
| Set of 4 AstroMurals posters (collotype dot-less print process), 38-26". Solar eclipse, Dumbell Nebula (M-27), Triangulum Galaxy (M-33), and the Moon. Retails for 23.80 | 7 |
| Set of 4 AstroMurals posters. Whirlpool Galaxy (M-51), Orion Nebula (M-42), Venus in Ultraviolet light, and 3rd. Quarter Moon. Retails for 23.80 | 7 |
| Eyepiece carrying case with adjustable inserts (6X12X3-3/4"). Impact resistant plastic, carrying handle. | 4 |
| Complete 8" F/5 Newtonian, suitable to astrophotography, by Edmunds Scientific. Steady tension tripod, fork mount, clock drive, oversized diagonal, 2" focuser, complete off-axis guider, 9X30 finder. Lists for \$949. 1 year guarantee. | 795 |
| An old astronomy book a month for a year. Mailed at first quarter. 12 different old astronomy books, many classics, 2 date from before 1900. | 43 |
| The constellation Gemini, a drawing by the great H.A. Rey, author of "The Constellations: A New Way to See Them." Yellow on black poster board, 32X24". Autographed on back. From the estate of the late Hans A. Rey. | no min. bid |

REMEMBER-- THIS IS JUST A HANDFUL OF THE ITEMS THAT WILL BE AT THE AUCTION!
LAST YEAR OVER 250 ITEMS CHANGED HANDS!

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DIRECTIONS & A LIST OF PRE-REGISTERED ITEMS ON BACK

PRESSENTED BY:

THE SAN JOSE ASTRONOMICAL ASSOCIATION