

SJAA ephemeris

July '80

- July 12 SJAA star party at Dick Glasspool's site in the Santa Cruz Mts. More information and a map are included inside in Observations.
- July 12 New Moon
- July 18 Board meeting at Bob Fingerhut's, 340 Rio Verde Place, #4, Milpitas. 8:00 pm. 263-4455. Please note change from Debbie Moore's.
- July 19 SJAA annual picnic and officer installation to be held at Portal Park in Cupertino, noon to dusk. More information inside.
- July 20 Space Day: the 11th anniversary of Man's landing on the Moon.
- July 26 Indoor star party at the Los Gatos Red Cross building, 18015 Los Gatos-Saratoga Rd., Los Gatos. 7:30 pm. Everyone welcome!
- July 27 Full Moon
- Aug 2 Indoor star party at the Los Gatos Red Cross building. 7:30 pm.
- Aug 9 SJAA star party at Henry Coe State Park.
- Aug 10 New Moon and annular solar eclipse. (Peru)
- Aug 16 Indoor star party at the Los Gatos Red Cross building. 7:30 pm.
- Aug 23 General meeting at the Rosicrucian Planetarium, Park & Naglee, San Jose. 7:30 pm. Speaker to be announced.
- Aug 25 Penumbral eclipse of the full Moon starting at 5:42 pm with duration 3hrs 38min. Visible in parts of U.S.
- Aug 29 Board meeting at Norm Neinchel's, 190 Rose Ct., Campbell. 8:00 pm. 378-4488.
- Aug 30 Indoor star party at the Los Gatos Red Cross. 7:30 pm.

At the June board meeting board members voted for the recipient of the first annual Dr. A.B. Gregory Award honoring service to the SJAA and amateur astronomy. The nominees were Gerry Rattley, Jim van Nuland, Kevin Medlock, Norm Wild, and Denni Medlock. After two ballots and close voting Kevin was decided on by one vote over Gerry. Congratulations! He will be awarded this plaque at the SJAA July 19th picnic.

Gerry Rattley, pres. 732-0202

Denni Medlock, editor 278-8475

Observations

The June 7th Sanborn Canyon star party presented the SJAA with a pleasant evening of about 7 seeing and about 4 transparency over San Jose, approaching 6 over the southern horizon.

The turnout was quite respectable, although I don't know everyone who was there but I shall mention those I do.

The early part of the evening we argued about Mercury being Venus, but Mike Welch ended it with his 8" Meade. Chris Pratt brought his 12" Newtonian and we were checking the rings of Saturn at fairly high power as well as several galaxies. Norm Wild was busting through several globulars with his 10" f 5.6 while Gary and Jackie Rice were using a 14" Cass. The magnification with that cass is incredible! The ring, M 57, fills $\frac{1}{4}$ of the field with my Meade 28mm! Wolf Hanisch and Robert Scott arrived with their 3.5 Questar and C-8 in tow. Bob Fingerhut and Gerry Rattley arrived from an L5 Society 3D film during the evening.

In all, the evening was quite enjoyable and I didn't have to drive 60 miles each way.

Jack Zeiders

"Hey, are those two stars Castor and Dumbo?"
Phil Hermsmeyer

The June 14th star party at Fremont Peak was well attended, with some thirty or forty telescopes and perhaps a hundred people present. That's not so crowded as it might sound, for the selection of telescopes was not so aperture-heavy as is usual—no C-14's and only a few big Dobson-mounted Newtonians—so there was plenty of room. Not all of the attendees were SJAA members, but most of the usual crew from our club did show up.

It was a good night. Early June is a particularly fine time to observe deep-sky objects: The happy hunting ground of galaxies, along the Virgo-Coma border, is still well-placed at the end of twilight; and as it sets the summer Milky Way rises, bringing an abundance of galactic objects into position for viewing. On this particular night not only deep-sky objects were available, for all the planets except Venus were at hand. In particular, Mercury was at greatest eastern elongation, and was an easy naked-eye object in the western sky shortly after sunset, not far from the crescent Moon.

The sky was quite dark, apparently because the air was exceptionally clear, for there was no fog over the coastal plain. I had been at Fremont Peak the week before, with the same equipment that I had on the 14th, and the difference in conditions was quite pronounced.

Frank Dibbell had his new Meade four-inch Schmidt-Cassegrain set up—it worked well and seemed like a nice little telescope. Jack Zeider's ten-inch gave a fine view of one of the most prominent dark nebulæ—B86, which adjoins the galactic cluster NGC 6520 in Sagittarius, and which is about the same angular size as the cluster. It looks like a spot of ink dripped onto the glow of the Milky Way. Many of the common atlases and catalogs do not list dark nebulæ, even though there are many which are quite easy to see. Burnham's books describe some.

Jack Petersen was carefully examining the out-of-focus images of a bright star in an effort to assess the quality of the optics of his Celestron 8. This is easy to do but hard to describe, and is a very handy technique. (Jack's optics looked well-corrected, but were a hair out of collimation.)

Mary Engle, who belongs to one of the San Francisco clubs but is known to many SJAA members from the Chabot workshop, had her eight-inch Newtonian set up on a Dobson mount. I had a nice view of NGC 6822 with this instrument, at 67 diameters magnification. This galaxy is a member of the local group, but not well-known because of its very low surface brightness making it quite elusive. It is in eastern Sagittarius. We also looked at NGC 6207, the 12th magnitude galaxy that is half a degree or so northeast of M 13.

I wish all our star parties were as successful as this one was.

- Jay Freeman

"I'm ill. I think I have aperture fever."

- Charles Turner

SJAA PICNIC & HAMBURGER FEST

will be July 19th at Portal Park in Cupertino. The club will provide the charcoal, condiments, and cook (Wolfgang, of course) and will have hot dogs and hamburgers available at a reasonable on-the-spot fee as you eat them. Members are asked to bring a potluck dish that can be passed around for sampling by the gastronomical experts of this group (everybody), and don't forget to bring your frisbees, kites, and baseball equipment since we have the field. Besides eating other items on the agenda include officer installation, the presentation of the Gregory Award, and the SJAA logo contest. Remember, submit your club design(s) on a 8½"x11" sheet of paper with your name separately attached and maybe you'll win a year's free membership. To avoid risk of a bad drawing of an area I've never been to I've decided to give verbal instructions in this bulletin instead of a map that will get everyone lost. So—from San Jose take Highway 280 north and get off at the Cupertino-Saratoga-Sunnyvale Rd. exit. Turn left onto Stevens Creek Blvd and continue on down it until you reach Portal Ave. If you reach Wolf you're too far. Anyhow, turn left onto Portal and continue into the park. We've got the big open area near the entrance reserved. Bring your family and hope for good skies!

June is election month for the SJAA and the June meeting saw four board members elected for two year terms. They are: Gerry Rattley, Phil Hermsmeyer, Shea Pratt, and Frank Dibbell. The July 18th board meeting at Bob Fingerhut's will see the board members electing the officers for the next two years. The names and addresses of all seven of the board and all the officers will be published in the August bulletin along with the club's mailing list.

Which brings to mind, if you haven't renewed as of yet, please do so. Dues is \$18 a year, \$12 for those under 12 years of age, with both types including a subscription to Sky and Telescope. SJAA Treasurer is Phil Hermsmeyer, 20900 Alves Dr. Cupertino, 95014. If you have a renewal card from Sky & Tel send it along with the dues.

Members News:

If you were at any of the SJAA events lately you've probably seen the beautifully done club display board which shows astrophotos and club activity pictures with the public in mind. This was all made possible through the efforts of the club's public relations 'officer', Patty Winter, and the board wishes to give her a round of "well done's" in appreciation of this and the work she did in getting the club's participation in Astronomy Day broadcast through the Bay Area. Once again, Patty—many thanks!

Congratulations to Bruce & Maria DeGraff on the birth of their first child, Corina, (7lbs, 5oz) on June 11. Another stargazer for the future!

On Friday, June 20, the Chabot Telescope Makers Workshop set a new record of having mirrors finished in one night. If many of you remember at the indoor star parties over the last year and a half two of us, Bobby Fingerhut and myself, standing side by side grinding away, trying to make the glass do something it didn't want to, the both of us reaching each successive grit at just about the same time. Finally we graduated into polishing and had to work at the Chabot workshop because of the locality of Paul Zurakowski's tester and eagle (and trusted) eye. So there we were, side by side since last Fall, slowly polishing away, growling at sleeks, and zones, and nights there was no tester, or no Paul, to show us any progress we'd made over the last hour. (By that time it was polish an hour, test, polish fifteen minutes, test, wait till next week....) Somewhere along the line Bob picked up a hole in the middle while I couldn't get rid of a turned-up edge. For MONTHS! we were unable to show much improvement, but we knew we were getting close. (Close, in amateur telescope making can be anywhere from 1 minute to 6 months. In our case it was 6 months.) Laps were cut up, strokes made radically different, all hope put into someone else's advice and Paul's final "Well...." when the mirrors were up on the test stand. Bob with his eight inch, me with my fourteen, and during the final month Dennis LeClerc, president of the Stockton club, wrestling with his six inch. All close but not there.

June 20th was like a production line of mirrors all waiting to have Everett scale measurements taken. The moment of truth. First my fourteen went through it and while Kevin reduced the data down to understandable levels Bobby had his read. Then Dennis'. Anticipation, hope, and then the word came out. Eighth-wave! Finished! DONE! Celebration by all. It was a record night for the workshop but Bobby, Dennis, and I really didn't see it that way, nor that we all had different size mirrors and different problems with each. We had shared that special feeling of accomplishment only finishing a telescope mirror can bring. I don't think any of us will ever forget it. I know I won't.

I want to thank everyone who contributed to this month's bulletin and responded so well to my call for technical articles. There's a lot of good information in here this month—enjoy using it and hope to see you at the next star party!

Denni

August bulletin deadline is July 20th.

The Glasspool Observing Site
by Wolf Hamisch

Sometime ago Dick Glasspool invited the SJAA to use his twenty acre mountain site in the Santa Cruz Mountains for our star parties.

On June 11 Gerry Rattley and I went to visit him and check out the site. After driving about 25 minutes from Los Gatos we arrived at his mountain home. The site is located at 2100 feet and has excellent southern exposure. A 30° high ridge blocks the lights of San Jose in the north and Polaris just peeks over the ridge. We have one -10 magnitude house light in the distance which we'll try to get turned off for star parties. There is ample room for telescopes and parking with possible other sites along the dirt road. The site looks very promising and we are holding the July star party there. Let's remember that we are guests there and follow some common sense guide lines and rules.

For your own convenience bring insect repellent and watch out for possible snakes.

Fire is an ever present danger in these mountains—therefore NO open fires and smoking only in your vehicle.

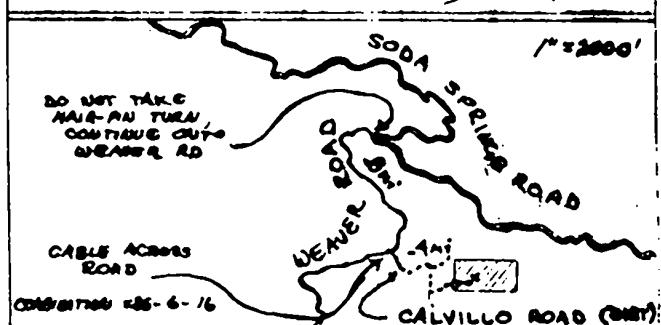
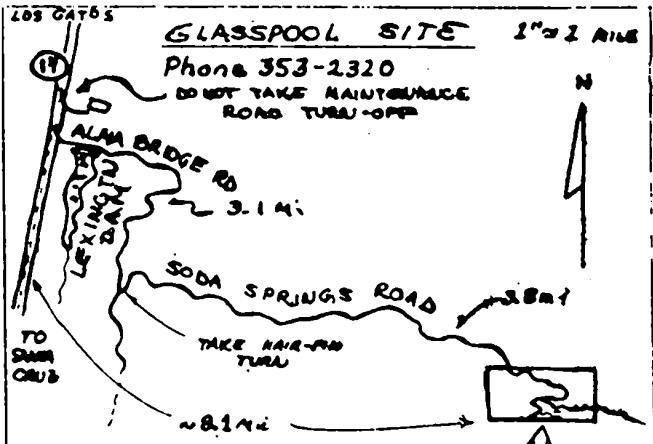
110V linepower is available for driving scopes only (No T.V., refrigerators, robots, heaters, electric chairs, etc.). Use the phone only for emergencies.

Don't run over the volleyball net—lift out the pole and set it against the hillside.

The entrance to the site is protected by a cable—just remove it from the left side by lifting it off the pole or use the combination lock (36-6-16) if you are too dumb to figure out how to lift it off. Last person to leave the site should always replace the cable.

Don't forget to look at and save the attached map..

Many thanks again to Dick Glasspool from the SJAA for his generous offer.



OCCULTING ZONE

Occultations of planets

The two July occultations of planets by the moon are also described in Sky and Telescope. The following numbers are for the San Jose area.

Venus		Jupiter
Wed. July 9	Times, PDT	Tue. July 15
11:21:12 am	1st contact	8:31:13 pm
11:23:28 am	2nd contact	8:32:34 pm
12:34:13 pm	3rd contact	9:31:23 pm
12:36:25 pm	4th contact	9:32:37 pm
32 deg.	Elongation	45 deg.
62; 73	Sun, elev @ D; R	-1; -12
70; 61	Moon elev @ D; R	26; 14
50; 291	P.A. at D; R	89; 317
-63N; +56N	C.A. at D; R	+68N; -64N
8%, decreasing	Moon illumination	15%, increasing

Venus, 2h14m west and 4 deg. 22' south of the sun, will be visible with binoculars, but clamp them so you can't accidentally wobble onto the Sun. Remember, too, that the Sun is moving toward your field of view. Times are for the full disk, but since Venus is only a 16% crescent, apparent 1st and 3rd contacts will be later than given, by perhaps a minute. Watch for the horns to go first. The moon should be visible if the sky is clear.

Jupiter is better situated, the sun having just set, but the Galilean satellites will not be seen at immersion. Reappearing will be Callisto, Ganymede, Io, Jupiter, then Europa. Callisto will precede Jupiter by maybe 15-20 minutes. Satellites will take about 2 sec. to reappear. The Red Spot will be 45 min. past at immersion, lost in the bright sky.

COMET COMMETS

At this time there are no new comets discoveries or recoveries. Moreover, there are no known comets bright enough for the amateur to observe. We can be fairly certain, however, that this Autumn will bring two and possibly three returning periodic comets within the small telescope's range. Additionally, at any time a new discovery may come along that could be visible to us, too. We'll see.

Comets in Their Eyes:

William F. Denning (1848-1931) England. Between 1881-1894 this amateur discovered five comets. Using a 10" reflector at 40X, a 1.0° field, it took 119 hours of searching for each comet. William was different than most comet hunters in at least three ways: first, he used a reflector rather than a refractor. Secondly, he counted and published the number of hours it took for each discovery. Third: he is probably better known for his meteor counts (both visual and telescopic) than for his comets.

One of Denning's comets, discovered by him in 1881, was recovered quite accidentally in Oct. 1978 by Fujikawa of Japan. It was later determined that this comet made 11 revolutions (un-noticed) during these years.

Rolf Meier (1954-) Canada. This amateur has discovered two comets. The first was in late April, 1978 at 10.7 mag. in the evening sky. This was the first comet ever discovered by someone in Canada. Also, it was quite far from both the sun and earth (3 A.U.) at discovery. It took some 50 hours of sweeping in three years. The second find was in September 1979—at mag. 11.5 in the evening sky again. This one took an additional 20 hours of sweeping. Rolf used a 16" f/5 reflector, 56X, 1 1/4° field telescope (owned by the Royal Astronomical Society of Canada) for both finds. Sweeping from Ottawa, Rolf seems to confine his searching to the polar regions. His profession, incidentally, is electronics.

Don Machholz
448-7077

ASTROPHOTOGRAPHY

Have you ever wanted to take pictures like the ones taken with the Palomar 200 inch? That type of astrophotography is done "prime focus" and will be the subject of this month's article.

I will not delude you into thinking that you can match the 200 inch's pictures but you can take some beautiful astrophotos with an amateur telescope. Just check the club display board or the captions under many of the pictures in Astronomy and Sky and Telescope.

I started out doing prime focus photography with an old Nikon F camera body on a Celestron telescope. Though many fine photos have been taken by people using f/5 Newtonians and ordinary film it did not work with an f/10 telescope. The reason was that at f/10 the light intensity was not great enough to reach the threshold needed to begin to record most nebulae and galaxies. Also, reciprocity failure in the film, that is, a decreasing ASA, was causing the exposure to be just too long (1.5 to 2 hours). The solution to these problems are to either go to a faster f/ telescope or sensitize the film, or both.

If you choose to use a fast telescope such as an f/5, a camera such as my Nikon F will work well. The features which it has that are desirable are that you can put some very helpful accessories on it. I purchased a clear focusing screen (type M). This is needed because a ground glass focusing screen makes finding and viewing an object and focusing very difficult. With a clear focusing screen you get a bright ariel image. The other useful accessory is a 6X magnification, full aperture, waist level finder with a diopter. The diopter lets me correct for my myoptic vision. The 6X magnification over the full aperture lets me view the entire field with astounding clarity. Norm Neinchel once looked at the Whirlpool Galaxy in my camera on a 5 inch Celestron and said, "My God, it looks like it's on TV!" The waist level feature is handy for looking into the camera when it's mounted on a fork mounted cassegrain. My fat head won't fit between the camera and the forks. It also has a minimum of light absorbing surfaces.

Untreated film that will work with an f/5 telescope are few. Black and white films such as spectroscopic 103a films are good but grainy. I have been hearing some good things about S0115 but I have not tried it yet. The Ektachrome 200 and 400 films should work for those who like color. Exposures would be about one hour.

The requirements on the telescope for prime focus photography are many. You must have a good polar alignment. A right ascension drive and corrector are necessary and at least a manual declination adjustment is needed. A guide scope is needed which gives at least 10 times the magnification that the camera sees. It can be an external telescope rigidly mounted to the main scope or an off-axis guider. (An off-axis guider intercepts the cone of light going to the film and diverts a small percentage of it with a flat mirror to an eyepiece. The guiding eyepiece should have an illuminated reticle on which to position the guide star while the object is being recorded by the film).

The most important accessory you will need though is your own patience. Fine prime focus photos are made by people who have learned and practiced the techniques and are willing to work hard and be patient.

Next month I will get into some of the techniques for sensitizing film for people with slow telescopes. (Celestron owners please be patient,) and will also discuss some of the techniques used to get a good polar alignment and a good focus.

Bobby Fingerhut

"Why does it always have to be my board meeting?"
Gerry Rattley

Using Filters in Amateur Astronomy by Wayne Bloeschl

Filters are not always necessary, but when you do use them you should know the abilities of different filters.

One thing to remember is that filters should not be used on faint objects, for they tend to blot out the object itself.

When using filters for astrophotography you should place the filter as close to the film as possible, but not behind the lens (most cameras have threads into which the filters screw on, in front of the lens.) The filter or filters should be parallel to the film plane. This allows maximum transmission of the desired colors. Another rule for astrophotography concerns refractors only. When using panchromatic or orthochromatic films, a yellow filter should be used, in most cases. By experimentation you will learn when the filter should be used, but remember that dim objects may become even dimmer by the introduction of a filter. The yellow filter absorbs blue light, which comes to a different focus. Since photographic film is very sensitive to blue light, it must be filtered or, or the star images become larger. Reflectors need not use the yellow filter because all colors come to the same focus.

A bonus of using a camera with filters is that you can photograph dim objects like galaxies and planetary nebula in different colors. This works well because the film can record for a long period of time whereas your eye does not record the photons as they strike. Some interesting work has been done with mixing separate colors to produce a single color picture. In most aspects this method produces a better picture.

Now let's go on to the filters themselves. The light from the Moon is scattered by the atmosphere. This glare can be greatly reduced by using a yellow filter. Yellow filters also help on splitting close double stars especially where the primary is very much brighter than the companion star. Such as example is Iota Ursa Majoris; the primary is magnitude 3.1 and the companion is magnitude 10.8, at five arc seconds away.

Red filters are helpful for daytime observations of the planets and Moon. The filter stops the blue and allows the other colors to come through. Red filters also work well on red markings such as the Great Red Spot and Mars.

Blue filters bring out faint white or near white marking. On Mars the blue filter will help bring out the ice caps and the high

clouds. On Venus the blue filter should bring out different shades of white that look darker by contrast.

Green filters work well on the Moon to bring out relief in the glaring terminator. The crater rims and peaks are also enhanced.

Polarizing filters are good for daytime observations because they screen out the polarized light of the sun and allow unpolarized, reflected light to pass through.

You must remember that there are different shades of filters for every color. Try as many as possible; experimenting with the different variations and combinations may give you a glimpse of something you've never seen or never thought you would.

For most of the Moon you would want to use a green filter. On the bright peaks and craters near the terminator you may want to try a red. Red gives a good contrast but is not overly dark, like green can sometimes be.

When observing Mercury try a blue filter or a neutral density filter to bring out faint shades on the bright disc.

For Venus yellow works well to contrast the disc against the sky. Blue works well to show faint shades that are caused by Venus' bright clouds.

With Mars, orange and red "Mars filters" bring out detail the best. The obscuring effects of Mars' atmosphere is sometimes lessened by these filters. And remember to try blue on the polar caps and high clouds.

Jupiter, king of the planets, offers something for every color. In other words, try them all! With the variety of colors on the king, each filter should highlight or bring out something new. On the Great Red Spot try blue—it blocks the red, leaving a dark oval spot. Red also helps on the Spot but blue really works the best.

Saturn, the ringed planet number one. Since Saturn is less colorful than Jupiter and is further away most filters will tend to blot out the details. A light yellow or blue may prove effective. A neutral density filter works good too.

The rest of the planets are both too faint and too small to see any details, with or without filters.

Galaxies and nebulae are not very impressive through filters because they have such low surface brightness. However, as mentioned earlier, photographic work in this area has been highly productive. Nebular filters will enhance the deep sky objects, but I am not going to talk about them because they are an article themselves. Astronomy, March, 1979 had a good article on them.

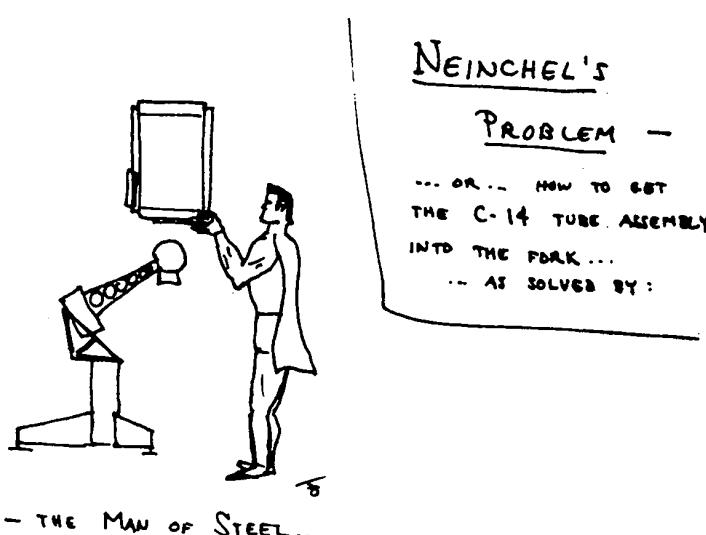
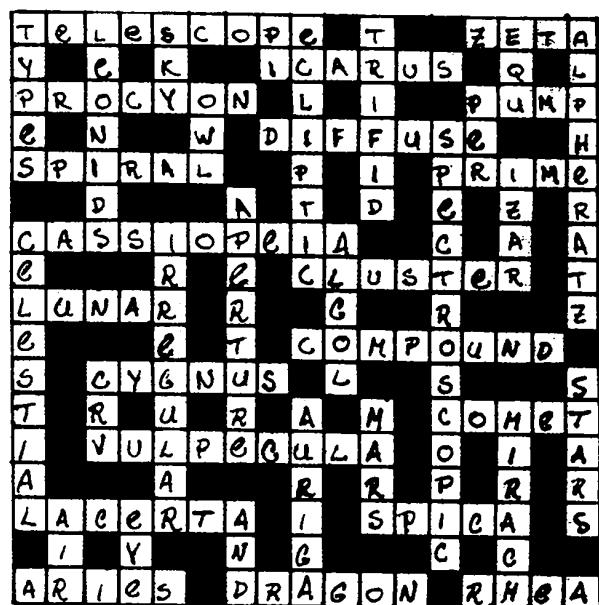
Filters may be purchased from Meade or Crossoptics, but let's patronize our local distributors. Below are some local distributor phone numbers. Also below there are two books listed which may help the person who wants to learn more.

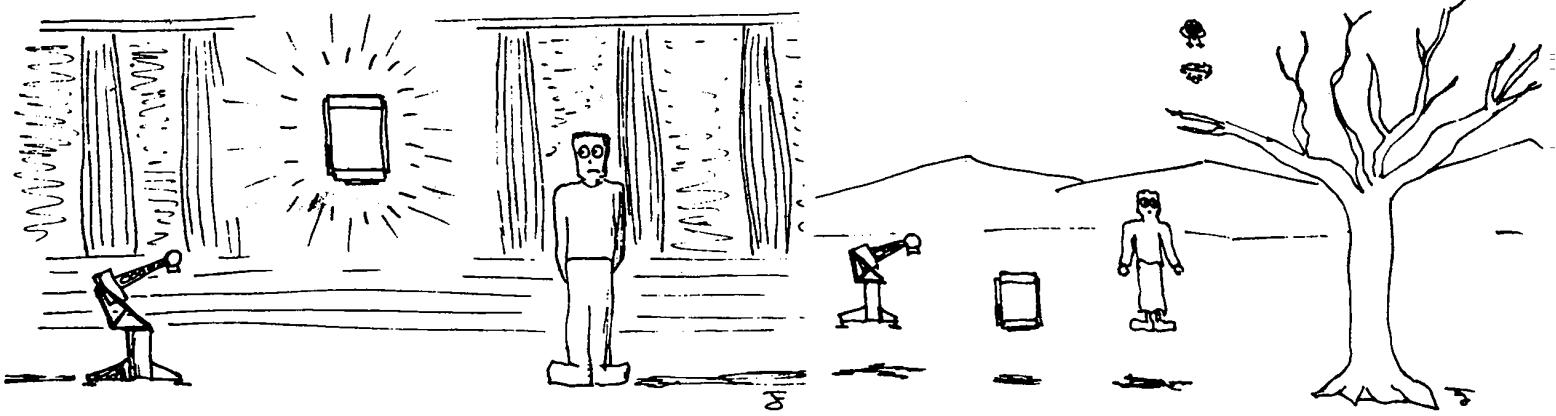
Orion Telescope Center 476-8715 Capitola
Optron Systems 263-4422 day, 923-6800 eve.
Peninsula Scientific 326-4136 Palo Alto
Optica b/c 530-1234 Oakland
Telescope World 538-0815 Hayward

The Amateur Astronomer and His Telescope
by Günter Roth
Astrofilters for Observation & Astro-
photography— from Optica b/c

What are you waiting for? - Start planning your next observing session. Why not tonight?

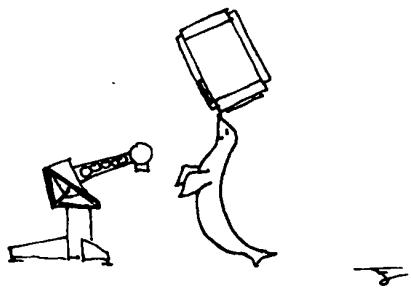
ANSWERS TO LAST MONTH'S SKYWORD PUZZLE #6
by Fred Braniff



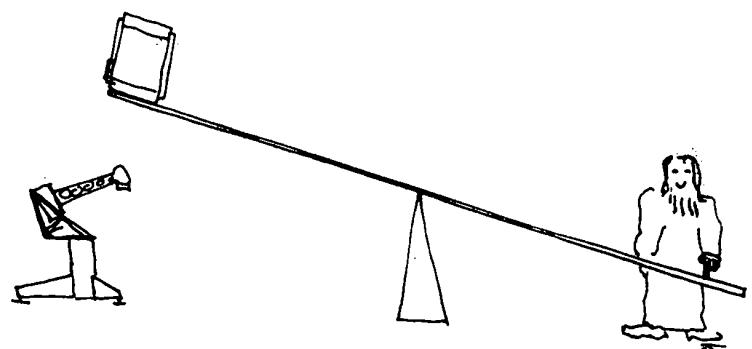


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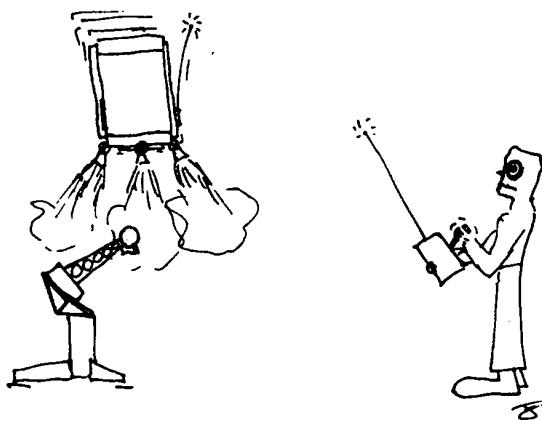
— THE SAN ANDREAS FAULT ...



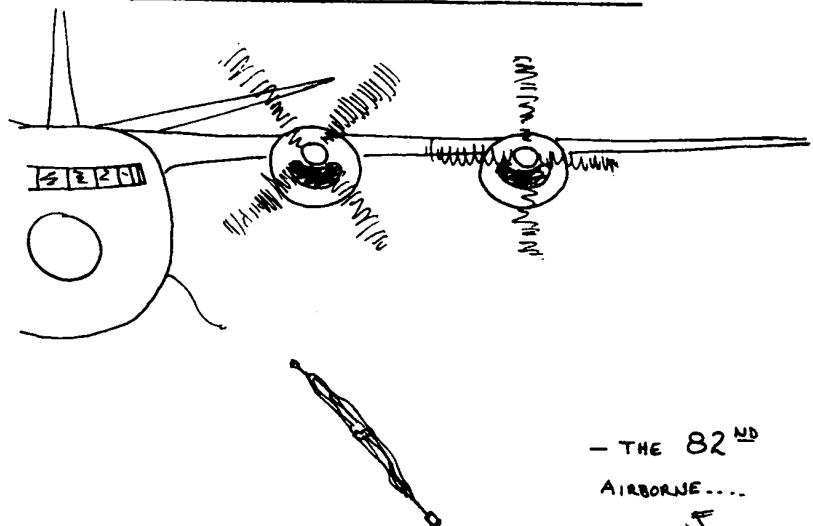
— THE TRAINED SEAL ...



— ARCHIMEDES ... (SO WHAT'S W?)



— THE AMATEUR ROCKETEER ...



— THE 82ND
AIRBORNE ...

