

# the san jose astronomical association

## SJAA

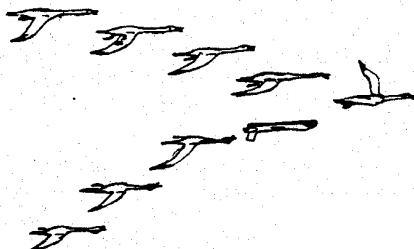
march 1982

- March 6 General Meeting: "THE UNIVERSITY OF CALIFORNIA 10-METER TELESCOPE". Terry Mast of Lawrence Berkeley Lab will describe recent developments in the design and construction of this exciting new-generation 'scope. Room S-34 at De Anza College (near the Planetarium); 8 pm.
- March 12 Board Meeting. Open to all SJAA members (and Bulletin subscribers). Chris & Shea Pratt's, 474 Safari Drive, San Jose (near IBM). 8 pm. Directions: (408) 629-2994.
- March 13 Indoor Star Party. Don Machholz will talk about the Messier Marathon observing sessions (scheduled for the following two weekends); Gerry Rattley will give a short talk on "How to Find Your Way Around the Coma-Virgo Galaxy Cluster". (Bring valid intergalactic passports.) (And cookies.) Los Gatos Red Cross, Highway 9 towards Saratoga. ISP starts at 7:30 pm; talks begin at 9.
- March 20 Week 1 of the Messier Marathon, at our Loma Prieta observing site. Directions: south on Highway 17 to Summit Road; east 5.2 miles to the stop sign, then take the left fork. After 3.2 miles, the pavement ends; go another 1.2 miles to the site. (If the Marathon is rained out, there will be an ISP at the Red Cross.)
- March 27 Week 2 of the Messier Marathon. See previous listing for details.
- April 2 Board Meeting. Final planning for the Auction, etc. Bob Fingerhut's, 340 Rio Verde Place, #4, Milpitas. (408) 263-4455.
- April 3 Indoor Star Party. On-going telescope making, as usual, and registration of items for the Astronomical Auction. (Bring lists of your items for sale, not the items themselves!) Los Gatos Red Cross. 7:30 pm.
- April 10 Star Party; location to be determined. NOTE: the Auction has been moved to April 17th.
- April 17 Second Annual Astronomical Auction. Last-minute item registrations accepted beginning at 6:30; auction starts at 7:30. Bring your wallets! There will be lots of fascinating and useful astronomical equipment, books, souvenirs, etc.
- April 24 Star Party at Fremont Peak. Directions: Highway 101 south to San Juan Bautista. Take Highway 156 east for 3 miles; turn right at the flashing yellow light; this will be Road G-1. About a quarter mile after you turn onto G-1, you'll be confronted with a three-part fork in the road; take the middle fork (it's actually a jog left and then straight). The SJAA sets up at Coulter Group Camp.
- Also, Gerry Rattley will be leading a caravan to his new dark-sky observing site at New Idria. Contact him at (408) 732-0202 for details.
- May 1 National Astronomy Day. The SJAA traditionally sets up about three public observing sites; star guides and telescopes always welcome. More info next month.

BIRDS TAUGHT US HOW TO FLY;  
NOW WE'RE TEACHING THEM:

(Thank you, Mary Henderson Ambrose, for the geese.)

TRAVELS WITH FARLEY/Phil Frank



The SJAA Bulletin is published monthly by the SAN JOSE ASTRONOMICAL ASSOCIATION, 3509 Calico Avenue, San Jose, CA 95124. Editors: Steve Greenberg and Patty Winter, P.O. Box 262, Menlo Park, CA 94025; (415) 326-8614.

SJAA President: Denni Frerichs, 15022 Broadway Terrace, Oakland, CA 94611; (415) 654-6796.

Membership rates: Adults \$18/yr.; Junior (under 12) \$12/yr.; both pro-rated from June. Includes subscriptions to the SJAA Bulletin and Sky & Telescope. Bulletin subscriptions available separately to non-members for \$7/yr.

## OBSERVATIONS

by Steve Greenberg and Patti Winter

A Search for Ideas. Get Away Special launches are rapidly approaching, as the space shuttle Columbia approaches operational status. These small equipment packages offer a unique opportunity for individuals to investigate new (or old) ideas, methods, or techniques in a brand-new environment.

While a Getaway Special could cost as much as \$10,000, a number of corporations and educational institutions are willing to donate their already paid-for spaces to students, or others.

Some months ago, S.G. asked club members to get in touch with him, if they had any ideas for experiments or observations (astronomical or other) that could be done with a small package of equipment in a vacuum, or under zero-G conditions.

In Japan, the newspaper Asahi Shimbun recently sponsored a contest, in which high school students were asked to submit Getaway Special projects. The grand prize: the experiment will go into orbit onboard a space shuttle. The winner was chosen from over 17,000 entrants, and his idea is to observe the formation of artificial snowflakes in a zero-G environment.

Now, take a moment to ask yourself this question: "If I were that boy, what would I be feeling?" ... If the answer excites you at all, continue reading. If not, skip to the next observation. (But, if that item proves something to you about "little" clubs with big ideas, come on back, and finish reading this one.)

My more modest request netted three interesting ideas from club members. The SJAA is located in the middle of one of the world's great concentrations of scientific and technical talent. Because of this, our membership consists of a fascinating and unique pool of talented and experienced people. Your ideas about what can be done on a shoestring in a shuttle are of great interest to me, and of great potential interest to many others. These ideas needn't be earth shaking; maybe just fun for others to try, if you don't want to do them yourself. Please continue to share them with me.

Why? Because, perhaps in five years or so, we may be able to look at a rapidly moving pinpoint of light in the sky with a great deal of personal pride. If everything comes together, we can be out there, also.

Meanwhile, Back on the Ground. A few months ago, in the Amateur Briefs section of Sky & Telescope, Pete Manly wrote about a club project that he shepherded through to completion while an SJAA member. The report that follows was given to P.W. at the last general meeting, and discusses new developments related to our club's image intensifier and display device.

"Those who followed the SJAA's efforts at implementing a charge injection device (CID) camera may remember that the device had the following characteristics:

- o 128 by 128 resolution. (This is about the same resolution available in home video games.)
- o Sufficient sensitivity for use with a 20-cm telescope (e.g. a Celestron C-8). Some of this sensitivity was achieved by "scanning" the image at a much slower rate than that used for home TVs.
- o A cost of over \$2000. (The sensor head cost over \$1000, and the other electronics effectively doubled that amount.)

Texas Instruments Corporation of Dallas, Texas has constructed a "virtual phase" charge coupled device (CCD) sensor, which may be the forerunner of devices that will dramatically lower the cost of cameras such as ours. The difference between the new virtual phase CCD and those previously available, is that fewer electrodes need to be manufactured in the sensor chip. This reduces the complexity of both the manufacturing process and the supporting electronics, thus lowering the cost.

The simpler structure has other benefits. The new CCD sensor is significantly more efficient than previous ones, especially in blue light. Its electrode placement is such that much more area of the sensor "senses". The increased sensitivity, and the improved sensing surface, means that the virtual phase CCD could become a lower cost alternative to the CID (as used in the SJAA camera).

Think good thoughts, and maybe after a few years you will find that image sensors for uses similar to ours will be available for merely high (instead of astronomical) prices."

Tirion 2000.0 Sky Atlas desk and field editions are now available at a discount through the Club. Contact Shea Pratt for details.

SJAA Auction. Our second annual Astronomical Auction is scheduled for Saturday evening, April 17th. (This is a change!! It was originally scheduled for April 10th.) Start gathering your salable items NOW. And please consider volunteering to help with the auction, or pre-auction paperwork; call Denni Frerichs (415) 654-6796, or Shea Pratt (408) 629-2994.

Membership renewals. All SJAA memberships expire at the end of June--as do your subscriptions to Sky & Telescope. Renewing soon is in everyone's best interest; make out checks to "SJAA", and send them with your S&T renewal cards to Shea Pratt, 474 Safari Drive, San Jose, CA 95123. (Membership and Bulletin subscription fees are listed on page 1 of the Bulletin.)

Club nameplates with your name and the SJAA logo are now available from Jack Zeiders. They are a very attractive gold-and-black design, approximately 1"x3". To order one, sign up at any ISP or General Meeting, or send \$3.00 to Jack at 2961 Magliocco Drive, #3, San Jose, CA 95128.

Riverside! The 14th Annual Riverside Telescope Makers' Conference will be held on May 28, 29, 30, and 31 (Friday evening through Monday morning). As usual, it will take place at Camp Oakes, five miles east of Big Bear City, fifty miles northeast of Riverside. Elevation is 7300 feet--clear skies, but cool weather!

Four meal plans are available, beginning with either the Friday evening meal or the Saturday noon meal, and ending Sunday evening or Monday morning. Costs range from \$32-39/person. Meal plans include free dormitory lodging or camping. If you choose to provide your own meals, camping costs \$9/person for one night, \$11 for two nights, or \$13 for all three nights. Day use fee, for those not camping or buying meals at the Conference, is \$5/person/day. All of the above-mentioned payments include the Conference registration fee.

A map and registration form for the RTMC are included in this issue of the Bulletin. Riverside is always an exciting, enjoyable event (even when it snows!). The SJAA is always well-represented, and we try to convoy down together. Join us!

PRESIDENT'S CORNER  
by Denni Frerichs

I find it very hard to believe that I, after being Bulletin editor for two years and seven months (but who's counting?), am having trouble getting enough words out of my typewriter to do a monthly president's column! I fear it will begin to take on the appearance of Observations if I get loose, and we already have one of those. A very well done one, at that. I was very relieved that the Bulletin transition went so smoothly, and that the new effort is so excellent. It has been the history of the SJAA Bulletin that successive editors have improved upon the preceding model, while infusing a little of their own personalities into the new one. I see this being done successfully (with all the usual pitfalls).

As already mentioned, we're just starting to use a postal permit, which is causing delivery delays and forcing articles to be in earlier than before. Bear with it, because it saves the SJAA an astronomical amount in postage, allowing us to mail more pages per month, and to mail special event flyers when we need to. The only other item I can think of concerning the Bulletin is: watch out for S.G.'s editorial knife! (Denni: It's not my fault; the computer makes me do it! S.G.) I never edited, which is why the Bulletin probably did not look organized. I think we've made some progress with the change. By the way, we've also lost the name Ephemeris. Perhaps we need a Bulletin naming contest in the near future?

Steve Greenberg, Gerry Rattley, and myself attended the Western Amateur Astronomers Mid-Winter Board Meeting at Fresno on January 30th. Not a lot was settled at the meeting, as usual, but some interesting results occurred in general. Doug Berger won the G. Bruce Blair Gold Medal, as expected; but the SJAA nomination of Hans Vehrenburg caused a few murmurs in the crowd, and at least one southern California club switched its vote over to him. Now that Doug Berger is out of the way, perhaps Hans Vehrenburg will have a stronger showing next year.

Another item discussed at the meeting, but not decided on, was whether or not the WAA should bounce its annual summer conference back and forth each year between Riverside and AANC's. The formation of an Astronomical Association of Southern California was slightly discussed, but the SoCal clubs were being secretive and did not want to say much.

The best and most interesting topic discussed occurred after the meeting and unofficially. It seems that after Steve, Gerry, and I left for San Jose, everyone else went off for a drink and to do the behind-the-scenes politicking that's so much talked about and put down. What's so surprising is that the major subject of conversation was the San Jose Astronomical Association, and "why we're going renegade" the major question. Supposedly, there were a number of reasons for the question: 1) Why had we refused to join the AANC, after years of supporting it? (The AANC can do no wrong, supposedly); 2) Why haven't we supported Doug Berger in the last two Blair Medal votes? (Doug Berger can do no wrong); and 3) Why had fifty of our members not renewed?

When I heard the last question, it was hard to keep from laughing. Somehow, a SoCal person had gotten hold of the Bulletin in which I had listed the fifty

people who still hadn't renewed, and asked why were they the most active people. The SJAA always has about fifty stragglers in the membership renewal, and they are almost always active people. I can see anyone not familiar with the workings of the club would think we are in trouble. (We are NOT, thank you!!!)

Personally, my feelings were echoed by Bob Fingerhut at the Chabot Workshop the other night. "SJAA Renegades? I like that! I think I'll have a T-shirt printed like that for Riverside!"

'Nuf said.

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FOR SALE: 12.5", f/6 reflector. Cave optics. Star liner mount, with 2" shaft and setting circles; clock drive; rotating tube; rotating focuser (helical and rack & pinion). Takes 1-1/4" and 2" eyepieces. \$1400. Also, 6" f/4 reflector on Edmund equatorial mount; clock drive and setting circles. \$275. Tony Bueno, (408) 378-4716.

FOR SALE: Grits, blanks, tubes, pitch, and all sorts of astro-goodies. Earl Watts Optics, 26638 Jamaica Lane, Hayward, CA 94545. (415) 786-2967.

FOR SALE: 1-1/4" eyepiece, in focusing holder, 8.4 to 21 mm; \$18. 2" eyepiece, in focusing holder, with adaptor for 1-1/4" holder; \$22. Minitrak II telescope drive; \$55. Foucault mirror-test rig, precision drive; \$9. Mrs. Fred McGrady, (415) 343-1200.

FOR SALE: Celestron C-8. Special coating, wedge, tripod, two eyepieces. Absolutely like-new condition. Hardly used. \$850. Paul Cornett, (415) 797-1403.

STOLEN: 13.1" Odyssey I telescope; large homemade finder and small Celestron finder; brass window sash on tail gate. Also miscellaneous eyepieces. Stolen from an SJAA member's van in early February. If seen, please notify one of the SJAA board members and/or your local police.

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The Club Telescopes. Jay Freeman, (415) 592-9776, now has the Club's 12-1/2" f/6.3 Dobson. He got it from Wolfgang Hanisch on February 19th, so his two months' "tenure" will be up on April 19th. Next?

George Deiwert, (408) 257-6658, still has the 6". When these telescopes are transferred to your possession, please call the Bulletin editors at (415) 326-8614.

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SJAA Board Members

|                            |              |
|----------------------------|--------------|
| Frank Dibbell              | (Unlisted)   |
| Denni Frerichs (President) | 415-654-6796 |
| Steve Greenberg            | 415-326-8614 |
| Chris Pratt (V. Pres.)     | 408-629-2994 |
| Shea Pratt (Treasurer)     | 408-629-2994 |
| Gerry Rattley              | 408-732-0202 |
| Rolf Strohm                | 408-984-6624 |
| Jim Van Nuland (Secretary) | 408-371-1307 |
| Jack Zeiders               | 408-246-6189 |

COMET COMMENTS  
by Don Machholz

The year 1981 saw 12 comets entered into the record books. Seven were "recoveries" - with professional astronomers picking up known comets, as they once again neared the sun. The other five were discoveries - all by professional astronomers, most of whom had photographed part of the sky for some other purpose;...then, upon examining the photos, they found the comets. The amateur comet hunters were searching, but found no comets in 1981.

The year 1982 has jumped off to a good start: one comet recovered, and two discovered - all by professional astronomers. Meanwhile, comet Bowell (1980b) nears the sun in March, and is visible (at magnitude 11) in the morning sky.

| Comet Bowell (1980b) |          |          |           |
|----------------------|----------|----------|-----------|
| Date UT              | R. A.    | Dec.     | Est. Mag. |
| 02-20                | 17h 18.3 | -21° 54' | 11.5      |
| 03-02                | 17h 31.0 | -22° 05' |           |
| 03-12                | 17h 42.6 | -22° 11' | 11.4      |
| 03-22                | 17h 53.0 | -22° 14' |           |
| 04-01                | 18h 01.8 | -22° 15' | 11.2      |
| 04-11                | 18h 09.1 | -22° 14' |           |
| 04-21                | 18h 14.5 | -22° 13' | 11.0      |

Traveling through the southern Milky Way, Comet Bowell passes four degrees south of M 9 (on 2-19), right through OC 6469 (on 3-18), one degree north of M 20 (on 3-28), and one-half degree north of M 21 (on 4-3). It also appears to pass a few arc minutes south of Neptune (on 3-15).

Periodic Comet Grigg-Skjellerup (1982a): recovered on January 15th (at magnitude 19) by J. Gibson, with the Schmidt telescope at Palomar; it is now in Canis Major. With an orbital period of 5.1 years, this comet was discovered by Grigg in 1902 - then lost until 1922, when Skjellerup "rediscovered" it. Later this year, it may get as bright as magnitude 10.

Comet Hartley (1982b): this magnitude 14 object was discovered by Marc Hartley on a photographic plate, which he took at the Siding Spring Observatory in Australia. It was found in the constellation Virgo on February 5th, and is moving southeastward at about 0.7° per day. At this time, little else is known about it.

Comet Hartley (1982c): this is one of the very few times when two comets have been discovered on the same photo, by the same person. This Comet Hartley is magnitude 17, and is moving in exactly the same direction as Comet Hartley (1982b). It has been suggested that they may be related (besides having the same last name)! We'll know if this is true when the orbits are computed - probably in another week or two.

For those who want detailed observations of past and current comets, plus first-class articles on comets, "The International Comet Quarterly" (ICQ) is a publication that is sent out four times a year. The subscription rate is \$6.00 per year. Make checks payable to "The International Comet Quarterly," and send them to: Mr. Daniel Green  
Smithsonian Astrophysical Observatory  
60 Garden Street  
Cambridge, MA 92138

Great Comets: Southern Comet (1947 XIII). This might seem an unusual name for a comet; it was actually discovered by several people in the southern hemisphere, on December 7, 1947. A naked-eye object with an orange color, this comet neared the sun (within Mercury's orbit) on December 2nd, then raced back into deep space, being visible for a total of only six weeks.

BOOK REVIEW:

"A New List of 450 Deep-Sky Objects for Amateur Telescopes," by Fred W. Klein.

There is more to this booklet than the title would indicate. The author compiles, from other published sources, several lists of 450 astronomical (and mostly telescopic) objects, down to -62° declination. For each object, he lists the constellation, type of object, right ascension and declination (for both 1950 and 2000), the magnitude and size, the maps on which it is located (using the Tirion and "Atlas of the Heavens" series), his impression of the object (in a one-letter code), leaves space for you to write your impression, and includes something known as the object's "visibility". This last item is most interesting. For each object, he has graphed the magnitude vs. size, and then determined the surface brightness. The higher the surface brightness, the easier the object is to see, and this is indicated in the "visibility" rating. For the listed double and multiple stars, he graphs the magnitude difference vs. the angular separation to determine the "visibility". This rating should be most helpful to the amateur astronomer. (He used an eight inch f/10 telescope.)

Exactly what classes of objects are represented? His 450 objects consist of:

|                                 |                         |                |
|---------------------------------|-------------------------|----------------|
| 67 open clusters                | 37 globular clusters    | 119 galaxies   |
| 30 gaseous nebulae              | 47 planetary nebulae    | 6 dark nebulae |
| 43 equal magnitude double stars | 48 double stars         |                |
| 22 multiple stars               | 24 colored double stars |                |
| 7 red stars.                    |                         |                |

As you can see, there seems to be something for everyone. This 8-1/2" by 11" 32-page booklet is available for \$6.00, plus \$.75 postage, from the author:

Fred W. Klein  
Hawaii Volcano Observatory  
Hawaii Volcanoes National Park, HI 96718.

The computer-printout lists of the objects follow eight pages of introduction and explanations (with graphs and formulas). The first list is of all 450 objects in order of right ascension. Next, the objects are repeated, but grouped according to class. Finally, the author lists 187 objects under the heading "List of the Best Objects".

All in all, this seems to be a handy book. The beginner can use it to discover which types of objects are the most appealing to him or her. The advanced amateur can use it as a checklist of observable objects. The armchair astronomer can use it as a comparison reference in conjunction with the other "lists" that have surfaced in recent years. This list is one of the best.

Don Machholz

SPACE PROGRAM UPDATE  
by Bob Fingerhut

Early Launch for Next Shuttle? Preparations for the space shuttle Columbia's third flight are well ahead of schedule. Since Columbia went to the pad about one week early, the possibility of advancing the tentatively scheduled March 22 launch date has been raised. (And rejected by high officials, as of 25 Feb. S.G.)

Once again, Columbia is scheduled to land on Runway 23 at Edwards Air Force Base. If there are crosswinds, the landing could be switched to Runway 17.

SATCOM IV Launched on January 15th. Using a Delta 3910/PAM-D vehicle, NASA successfully launched RCA's American Communications Satellite IV into a 19,408 by 108 mile orbit. On January 19th, the satellite's apogee kick motor circularized the orbit to 22,300 miles at 103° east longitude. By late February, it will have been moved to 83° west longitude, and will then become operational for use as a cable television relay.

More Satellites of Saturn Detected! Using imagery from the Voyager 2 Saturn encounter, a Jet Propulsion Laboratory researcher has found evidence for four (and possibly six) new Saturnian satellites. One of the satellites is at a point about 60° ahead of the satellite Dione (a Lagrangian libration point)! Another was observed about 217,000 miles from Saturn, between the orbits of Tethys and Dione. The new objects are from 6 to 12 miles in diameter.

Soviet Space Program. On February 11th, Anatolii Y. Skripko, a science and technology attache at the Soviet Embassy in Washington, D.C., discussed the Soviet space program at a luncheon meeting of the American Astronautical Society. He said that the Soviet Union is planning to orbit a telescope, similar to the American space telescope, within the next decade; and that the Soviets may begin development of a space-shuttle-type vehicle in about five years, as part of a system to support long-duration space-station operations.

He was not sure if the joint Soviet/French mission would visit the Salyut 6 Space Station, or the Salyut 7 (which will be launched soon). A decision is expected in three or four months. He noted that Salyut 6's observation windows have become covered with dust; that all attempts to remove it have failed; and that the station's electric supply units have degraded in performance.

NASA's Fiscal Year 1983 Budget. The Reagan administration's FY '83 budget proposal, as submitted to congress, allows NASA about \$6.6 billion. This includes money for developing a light-weight filament-wound solid-fuel rocket-motor case (which would increase the space shuttle's payload by 5500 to 6000 pounds), and money for repairing the Solar Maximum spacecraft (already in orbit) by late 1983 or '84.

NASA requests not considered worthy of funding are:

1. A fifth shuttle orbiter;
2. The Venus Orbiting Imaging Radar (VOIR);
3. The Centaur upper stage; and,
4. A flight demonstration of a 30/20 gigahertz communications satellite.

Hearings Scheduled on FY '83 NASA Budget. The House Science and Technology Subcommittee on Space Science and Applications will hold hearings on the proposed NASA budget, from February 9th to March 10th.

The Senate Commerce Subcommittee on Science, Technology, and Space will meet (to discuss the same subject) from February 23rd to April 1st.

If you want to influence congress, now is the time to write! I have dates, times, locations, and subjects for each meeting. If you are going to Washington, D.C., and would like to attend, please contact me.

Private Offer to Fund Fifth Orbiter. The private offer to fund the fifth space shuttle orbiter (see the February Bulletin) came from a group headed by long-time space program economist, Dr. Klaus Heiss. He is president of the Space Transportation Company, a subsidiary of the William Sword, Inc., investment banking company. Their orbiter would be operated as part of the space shuttle fleet, with the Space Transportation Company doing the marketing for commercial and foreign payloads. NASA, which has not yet officially discussed the offer with congress (since it isn't a formal proposal), says that legislation would be needed to allow such a private venture.

Ariane Upgrade. The European Space Agency has approved development of the Ariane 4 launcher, which will be able to place 9460-pound payloads into geosynchronous transfer orbits. A demonstration flight is scheduled for late 1985, and operational flights are expected by early 1986.

RED SPOT EPHEMERIS  
by Jim van Nuland

Here is the ephemeris for Jupiter's Great Red Spot for March and part of April:

Lower limits: 8.9 5.7 UT  
Upper limits: 14.0 12.9 UT

Great Red Spot on Meridian PST

| da | mo | d  | h  | m     |
|----|----|----|----|-------|
| W  | 3  | 3  | 2  | 27 am |
| F  | 3  | 5  | 3  | 57 am |
| Su | 3  | 7  | 5  | 39 am |
| M  | 3  | 8  | 1  | 30 am |
| W  | 3  | 10 | 3  | 10 am |
| F  | 3  | 12 | 4  | 41 am |
| Sa | 3  | 13 | 0  | 37 am |
| M  | 3  | 15 | 2  | 17 am |
| W  | 3  | 17 | 3  | 57 am |
| W  | 3  | 17 | 11 | 40 pm |
| Sa | 3  | 20 | 1  | 27 am |
| M  | 3  | 22 | 3  | 00 am |
| W  | 3  | 24 | 4  | 40 am |
| Th | 3  | 25 | 0  | 32 am |
| Sa | 3  | 27 | 2  | 04 am |
| M  | 3  | 29 | 3  | 45 am |
| M  | 3  | 29 | 11 | 37 pm |
| Th | 4  | 1  | 1  | 10 am |
| Sa | 4  | 3  | 2  | 57 am |
| Sa | 4  | 3  | 10 | 42 pm |
| M  | 4  | 5  | 4  | 28 am |
| Tu | 4  | 6  | 0  | 19 am |
| Th | 4  | 8  | 2  | 04 am |
| Th | 4  | 8  | 9  | 56 pm |
| Sa | 4  | 10 | 3  | 36 am |
| Sa | 4  | 10 | 11 | 26 pm |

## THE CELESTIAL TOURIST SPEAKS

by Jay Freeman

It's almost galaxy time again. From now until early summer, the heart of the great Virgo cluster of galaxies will be well placed for evening observing. The central part of this cluster, the "Realm of the Galaxies," is poor in field stars, which makes for confusing observing. This month, I present a tourist's guide to that region, with accompanying map. The map is drawn unreversed, so that users of binoculars and Newtonians need only rotate it to match their field orientation. Users of Schmidt-Cassegrains and refractors will have to reverse the field—mentally or otherwise—or else forego their star diagonals to achieve an unreversed view.

I usually use the fifth-magnitude naked-eye double star, rho Virginis, as an entry point to this region. It is at the lower left corner of the map, and also at about 12h40m, n11°. Its two components lie almost in a north-south line, which may help you keep your directions straight.

About a degree and a half north of Rho lie 10th-magnitude M60 and M59. Four more Messier galaxies, all about equally bright, lie along an almost straight line, some four or five degrees long, that stretches about 20° north of west from M59. The first, M58, lies about one degree from M59 and has a 9th-magnitude star just west of it. M87 is another degree and a half along, with a 9th-magnitude star just north. A little more than a degree further are the bright pair M86 and M84. If you extend the line about another two degrees and then drop about half a degree south, you will find NGC 4216, which is about as bright as any galaxy I have yet mentioned, but which Messier missed.

Go back to M58. Half a degree south-southwest lies a little trio of fainter galaxies, and just west of that is a prominent asterism of five stars, which I have connected by lines. This group of stars is not quite a degree long, so will just about fill the low-power field that you should be using for scanning this area. It may be useful as a secondary starting point, or as a reference in case you get lost.

Four more Messier galaxies make a wide arc curving north, then west, from a point half-way between M58 and M87. These are M89, M90, M91, and M88. M88 and M90 are about 10th magnitude; the other two are about 11th. The ten Messier galaxies I have so far mentioned form a kind of coat-hanger pattern, which I have indicated by dotted lines.

Back to M86 and M84. From these two bright ellipticals, a curving chain of some nine more galaxies arcs east and north toward M88. My personal name for this chain is "The Avenue of the Galaxies." A six-inch telescope should easily show all the galaxies I have plotted in the chain (as well as elsewhere on the map), and maybe some more besides.

Three more naked-eye stars are useful in this region. These are 5th-magnitude 6, 11, and 24 Comae Berenices, connected by solid lines on the map. These are the brightest stars for several degrees in any direction, and the trio will just about fill many finder fields. Three 10th-magnitude Messier galaxies—M98, M99, and M100—lie within a degree or two of 6 Comae, and 10th-magnitude M85 lies just north of the line from 11 to 24 Comae.

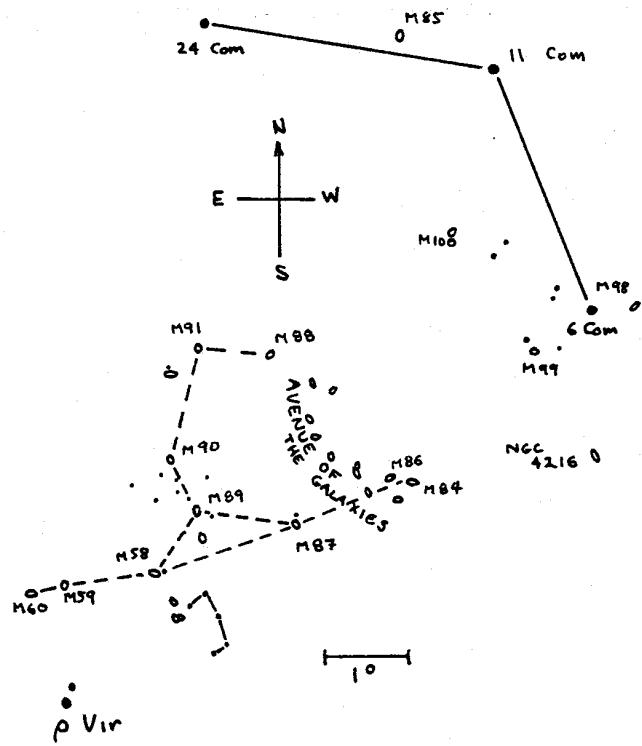
Any of the common charts (Skalnate, Tirion, AAVSO), will show many more galaxies in the region of the map than I have plotted.

March is Messier Marathon month, and since the SJAA has been conducting these marathons for several years now, it may be appropriate to suggest some alternative observing programs, for those who have already logged all the Messier objects.

Persons interested in general deep-sky observing might find two published lists interesting. One of these is "The Finest Deep-Sky Objects," by Mullaney and McCall, available from Sky Publishing. This list of 105 spectacular objects includes about 30 Messier objects, about fifty double stars, and the rest non-Messier non-double star. I have looked at all of them, and consider them all gorgeous. Another list is "The Finest N.G.C. Objects +20," in the 1982 Observer's Handbook, available from the Royal Astronomical Society of Canada. It contains 100 particularly prominent non-Messier objects from the NGC catalog, plus twenty "challenge objects" which are particularly difficult.

Lists of particular kinds of objects can be taken from the popular atlas catalogs, such as the Skalnate Pleso, or from the Observer's Handbook. Planetaries and globulars are particularly nice to observe, since by-and-large they are above the horizon in summer months, when it's warm and clear.

Or how about trying to find at least one deep-sky object in every constellation that is visible from this latitude? Or chasing down all the planets? (Isn't there a rule somewhere that you are not allowed to do deep-sky observing until you have touched all the bases in the solar system?)



"You show some respect for your president or you won't get back into this room."

--Denni Frerichs to Jack Zeiders at an ISP

The Medal of Gold at the W.A.A. End of the Rainbow.  
 As mentioned in the President's column, I was present at the W.A.A. winter board meeting. I was quite amazed at the complex tangle of poor relationships and misunderstandings that have developed between individuals and organizations of otherwise high intelligence, and good character; all of whom are ostensibly devoted to the goal of advancing amateur astronomy, rather than their own reputations or influence.

Instead of going into the gory (and boring) details of who did what to whom and when, I'd rather just say that mature people can act with more sensitivity than was shown in the events that led up to the heated discussions at the meeting. It is my hope that in the future this will be the case, and that all our wasted energy can be put to use to develop such worthy projects as Astronomy Day itself -- May 1st, this year.

(Good examples of bad attitudes between amateur and professional astronomers are discussed in this month's Astronomy magazine interview with Robert Burnham, Jr.)

Meanwhile, the main purpose of the W.A.A. was not completely overlooked. The 29th annual G. Bruce Blair gold medalist was chosen, and Doug Berger's contributions to amateur astronomy have been officially recognized. He has become part of a very distinguished group of individuals, and has my heartfelt congratulations.

In order to better understand the value of the award, which I personally feel is best determined by the quality of the recipients, I have attached a complete list of past winners. Some names are probably quite familiar, but if some are not, it might be an interesting and informative exercise to find out more about them and their contributions to amateur astronomy. Then, perhaps next year, more club members will be able to instruct their board as to whom they would prefer as the 30th annual winner.

- 1954 - Mr. Albert G. Ingalls
- 1955 - Prof. Walter H. Haas
- 1956 - Dr. Otto Struve
- 1957 - Dr. Margaret Mayall
- 1958 - Dr. Dinsmore Alter
- 1959 - Dr. Earle Lindsley
- 1960 - Mr. David P. Barcroft
- 1961 - Mr. Carl Wells
- 1962 - Arthur and Natalie Leonard
- 1963 - Mr. Thomas Cragg
- 1964 - Mr. Walter Scott Houston
- 1965 - Dr. Clyde Tombaugh
- 1966 - Dr. Clarence P. Custer
- 1967 - Dr. Leslie C. Peltier
- 1968 - Dr. David Dunham
- 1969 - Mr. Thomas R. Cave
- 1970 - Mr. Charles F. Capen
- 1971 - Mr. George A. Carroll
- 1972 - Mr. Clinton Ford
- 1973 - Mr. Raymond Coutchie
- 1974 - Mr. John Dobson
- 1975 - Mr. Clifford W. Holmes
- 1976 - Mr. Patrick Moore
- 1977 - Mr. Frank Miller
- 1978 - Mr. Jackson Carle
- 1979 - Prof. Kingsley Wightman
- 1980 - Mr. Paul Zurakowski
- 1981 - Prof. Ashley Thomas Mc Dermott
- 1982 - Mr. Douglas Berger

- Steve Greenberg

#### LETTER TO THE EDITORS

Dear Editors:

For many years I've followed the San Jose Astronomical Association members (and Bulletin subscribers, Jay) at their Fremont Peak star parties.

Along with Mr. R. A. Cune (ol' right ascension, as some of you call him) and his large family, I spend almost as much time in the area as Ranger Foley. While at Freaky Peak (as we denizens call it) I've done some thinking that I'd like to share with you.

I've come to like amateur astronomers very much. As a matter of fact, since (unfortunately) I can't read or write, I'm dictating this to an amazingly cooperative SJAAC member that I've just buttonholed in his van. Even though it's the middle of an observing session, he took time out to read me a Bulletin article by Don Machholz on "Dealing With Critters" (or some such), and one by your Celestial Tourist - Jay Freeman. (It's funny, he doesn't look like a tourist.) Very interesting!

I have a hard time seeing red light, and you amateurs are quiet a lot of the time, so I always seem to bump into you. I'm sort of a night person myself, you might say. And the ones who talk a lot are quite fascinating to listen to (from a distance). Your low key music is so cosmic, too.

Anyhow, I've decided that my favorite constellations are Ursa Major and Minor. (There really is a lot more to them than meets the naked eye!) Although most campers call them the Big and Little Dippers, you guys use their proper names, and I like people who can tell a real constellation from an ordinary asterism.

You're not too noisy, you don't throw loud parties, and you don't use incredibly bright lights, so I can get some sleep when you're around. I also feel akin to you, because you're active at the peak in the summer and pretty low key in the winter, which suits my schedule just fine.

Oh, back to the point of this note. I want you to come up here more often. As Jay pointed out, you're the only people who can get Ranger Foley to turn out that blasted new mercury vapor lamp that's always shining in my eyes.

Just one more thing. Jay and Don, I think it's terrible to be so hypocritical! You guys won't feed the animals, who've got to scrounge around for every bite they eat, but you want people to give cookies to Ranger Foley (who's paid by the government to eat). Besides, sweet stuff like that is bad for the rangers' teeth, and they also get real grumpy and irritable when they come down from a sugar high. (Remember, they can be dangerous; they've got guns!) And, after a while, I'll bet my sweet tooth that they'll even expect everyone to give them things to eat, and they'll probably bother all the campers if they don't get a daily cookie fix.

Well, that's about all I've got to say, except that this guy's wife has just put some honey, granola, and milk out for me, and I have to stop talking and start eating. Such nice folks. Be seeing you around.

Mr. B. Baer  
1 Bear-Cave Trail  
Fremont Peak, CA

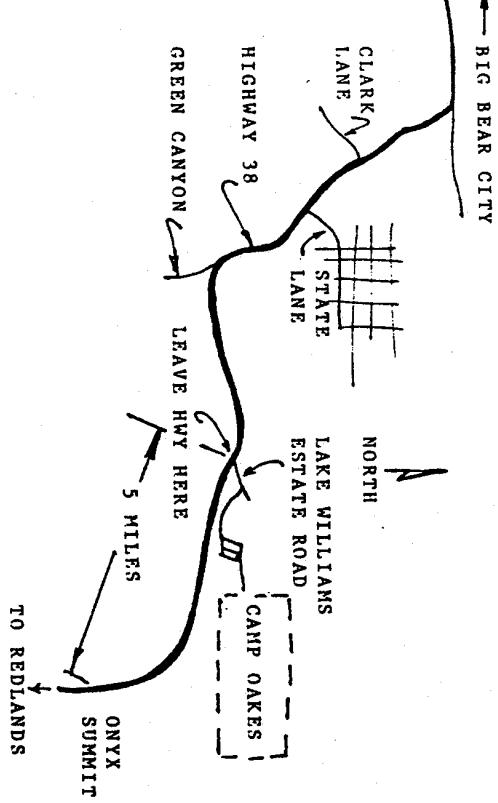
(Note to the reader: I hope I've gotten this down correctly. It looks like it was dashed off in quite a hurry. But, in case I didn't, please be careful who you read this to on those dark nights up on the peak. S.G.)

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