

★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

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San Francisco
Amateur Astronomers



Sharing the Wonders
of the Universe



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Web Page
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A Letter from the President **Al Stern**

On December 14th, Halton Arp will give a presentation, *Redshifts as the Key to a New Cosmology*, as part of the Dean Lecture Series. We, the SFAA, are honored to have him as our guest speaker on our regular meeting night, December 15, where he will give a much more informal talk about his early years in astronomy.

The election for club officers and board members will be held at the December 15th General Meeting. All those interested in running for office, please contact a current SFAA officer or board member, listed on page two. Nominations will be closed at the end of the Board Meeting on December 8th.

Be prepared at the December 15th meeting to present your best photographs for voting for the annual photographic awards.

The SFAA Annual Awards and Installation of Officers Dinner will be held, again, at Strawberry Joe's in the Strawberry Shopping Center, near the Tiburon exit of Highway 101 on Saturday, January 22, 2000. Those who attend always seem to have a good time and a good meal.

Our new bulletin editor, who has been right on queue, is suggesting a box item in the bulletin to highlight good websites for members to browse. Submitters are requested to email Lorrie at lboen@aao.org. Please provide a brief description and the URL of each website.

Due to scheduling problems, Don Machholz' column is absent this issue.

Don't forget to observe the transit of Mercury on November 15th and the Leonid Meteor Shower on November 17-18 (the nights before and after?). I assure you that Jane and I will

have interesting reports about our separate trips, one in the air and one at

sea, in the Mediterranean.

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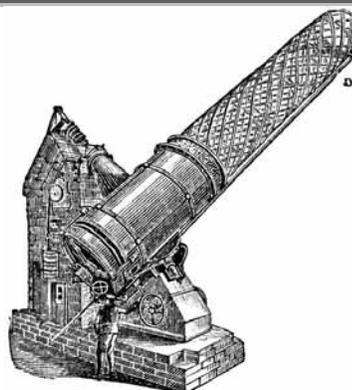
Lorrie Boen (415) 921-1432

Telescope Loans

Ray Cash (415) 665-8666

Above the Fog is the official bulletin of the SFAA. It is our forum in which club members may share their experiences, ideas, and observations. We encourage you to participate, to submit your letters, drawings, announcements, articles and photos. We would also like to hear from our new members, about what you have done in the past, what other clubs you may have been with and, while you are at it, tell us about yourself. The deadline for the next issue is the last day of the prior month. Send your articles to Lorrie Boen to 765 Geary Street #302, San Francisco, CA 94109 or at lboen@aao.org.

Club Telescopes



Long time member Ray Cash-LePennec has 3 loaner telescopes for club member use and is in charge of loaning them out. If you are interested in borrowing a club telescope, give Ray a call. There are many new members in the SFAA and they ask what kind of telescope to buy or use and this is a good way to get to know the Dobsonian type of scope and learn the sky as well.

SFAA Website Update

For those of you with online access, don't forget to visit the club's website. The bulletin board area especially is a great place to post info and ask questions. Go to <http://www.zennla.com/sfaa>.

CLUB DATES

Board Meeting

December 8 – 7:00 p.m. Western Addition Library – corner of Scott & Geary Sts. SF

SFAA Club Meeting

November 17 & December 15 at 7:30 p.m. Morrison Planetarium, Golden Gate Park

City Star Party

February 12 at 5:30 p.m. – first of the year

Stacy's Stargazing Getaways
(Or How to Plan the Perfect Summer Stargazing
Weekend during the Rainy Season.)

By Stacy Jo McDermott

For most of us living in Northern California, November marks the appearance of the winter constellations with spectacular eye candy. November also (usually) marks the beginning of battle-ship gray skies, copious amounts of rain and a longing for one or two clear nights.

When weather conditions are getting you down, don't fret. It's the perfect opportunity to start planning and (my personal favorite) shopping for those items you will need for that killer, perfect long weekend where it's you, your telescope and a congenial friend. I mean, there's only so much television you can watch and the devising of strategic attacks on the hordes of ants that invade your house that you can do. (On the ant front, just sprinkle cayenne pepper around their access holes and let the spiders catch the rest.) To those of you who would rather do something fun and get away from the relatives who have permanently attached themselves in front of your new wide-screen TV during the holidays, lend an ear, er, eye, to this month's stargazing getaway.

To begin with, dig out that old scout compass, familiarize yourself with the art of reading a topographical map and fire up that computer! So what is this preamble all leading to? A superb stargazing area. In fact, I'll wager that with some quality planning time, you'll be amazed at what you come up with. And, you'll have to do the planning because I am relying on my memory, notes from my journal – sporadic at best and maps (some of which I can't remember where I filed them – see first point). I'll give you the basics to this month's site but the planning is up to you on this one. What can be more fun than creating your own adventure? (OK, yes, I agree that watching the 49'ers stomp their opponents can be more fun but when's that going to happen??)

Without any further ado, this month we turn north to Mendocino National Forest in Mendocino County. This site, MNF, will require planning

and maybe cashing in of a vacation or personal day. Well worth it!

MNF is about a 3-4 hour drive from San Francisco. I happened upon MNF when the 1998 SFAA Yosemite trip slated for the 4th of July weekend was cancelled due to a mire of mud that only a year previously was a lovely campground up by Glacier Point in Yosemite National Park. (I have since found out it is still a lovely campground.) Anyway, after lamenting the above to a friend, he suggested that we go camping. At first, I thought he was yanking my chain but being the sincere gentleman that he was (and still is), I found out that he was serious. And, being the gentleman he was (and still is), left the choice of destination up to me. I picked north after realizing swarms of nature-starved urban dwellers would probably head west clogging every freeway, state highway and county road leading up to the Sierras. I wanted to find a place that was secluded, not too far of a drive, presented varying terrain, non-existent light pollution and that had free campgrounds.

After deciding that MNF had all these requirements, (TIP: If you don't already own a copy, I would strongly suggest picking up California Camping by Tom Stienstra, published by FogHorn Press, ISBN 1-57354-005-6. This is the resource every camping astronomer should own. Actually, you should stop reading right now and go to your nearest bookseller and buy a copy. Really, I mean it...well, go on, this will be waiting for you when you return.) Um, where was I? Oh yes, after deciding that MNF had all the necessary requirements, my next step was to purchase a map of MNF from the US Forest Service located at 630 Samson Street, San Francisco, CA 94111, 415-705-2874. You should also get a topographical map from the USGS, 650-853-8300. These maps are inexpensive and quite handy in finding logging and fire roads. Now I must pause...my friend has taught me the value of searching for a logging and/or fire road which will usually lead to some great secluded viewing sites. You'll also want to gain some altitude for clearer seeing. If this idea appeals to you, don't even think of driving the family sedan or, gosh, the minivan. Borrow Cousin Bubba's truck! Basically all you'll need up here is front-wheel drive but a truck will give

you extra undercarriage clearance to help you avoid high-centering yourself. This creative off-road driving maneuver can put you in a pickle as cell phones do not work well up here should you get stuck and need to call for help. Safety, knowledge and common sense go a long way in a pleasurable outing. Also, do not even entertain the idea of trespassing a locked fence or gate that lead to your perfect viewing site. Not only is this illegal, but it's down right rude. Miss Manners would not approve.

Since my companion and I had planned on spending two nights in MNF, we had the luxury of checking out the southern end of this wonderful area. It would behoove you also to plan on spending at least two nights. One reason being the drive time to get here and other being due to once you're here, it's hard to leave, figuratively speaking. (Literally, if you get lost and don't have a map!)

It was our second night in MNF that we found the perfect spot. In fact, it was so perfect that we almost drove right by it! After deciding to trek up a barely visible dirt road, we were rewarded with a large field surrounded by stately pine trees with nice level spots to compliment the gentle slopping terrain. High on one of the many ridges in MNF, the expanse of sky was enormous.

I quickly pitched our tent in a protected area while my companion dug the fire pit and built a fire to grill our dinner. (You must know gentle reader, that my companion is the guru of campfires. The previous evening he had built one of the best campfires I had ever seen. Of course, he used every pinecone in a 100-foot radius of our campsite, but it was, as stated, the best. It was truly an honor watching a master practice his craft.) After dining on a scrumptious meal – camping cuisine tips at the end – I quickly set up my new Orion 80mm short tube refractor. I was not disappointed by the views. NO FOG, NO LIGHT POLLUTION, just blissful peace, good conversation and lovely nighttime sky sights. The moon was particularly stunning along with views of Cygnus, The Big Dipper and the Milky Way. My friend was pleasantly surprised at the view of the moon through his compact binoculars. He had never thought (up to that point) to check out Earth's satellite through his binos before. (He now owns a 10" Dobsonian and is very adept at

finding gems in the sky.) Stargazing in MNF was and is one of my fondest memories.

The nitty-gritty about MNF is that with all factors considered, it rates a 7.0. Since it is a wilderness area, the dark sky rating is the anchor. During the day you can explore vernal ponds by which to have lunch, trails for hiking, biking and motorcross and hidden streams in which to go skinny-dipping. For what it's worth, use a vacation/personal day or two to stretch out your time here. You will not be disappointed!

OVERALL RATING:



Based on:

Ease of travel	6
Dark sky overall	8
Solitude	9
Costs (some campgrounds require a fee)	5
Expanse of sky overall	7
Relaxation factor	8

Basic Directions: Take I-80 north to I-505 north to I-5 north to Maxwell, CA (a small town) exit. Head west through Maxwell (see tips at end), through Sites to Lodoga. Take a right in Lodoga at Lodoga-Stonyford Road and loop around East Park Reservoir to reach Stonyford. From Stonyford, turn west on Fouts Springs Road (Forest Service Road M10) and drive about 8 miles. Turn right (north) on Forest Service Road 18N03. This will lead you to some of the lower elevation campgrounds. To get higher, consult your forest service and USGS maps. It's wide open for you from there.

TIPS

Plan on stopping in Maxwell, CA before heading into MNF. Top off your gas tank at the gas station, pick up extra ice, water and perishables at the grocery store and make a potty stop. Check your gear to make sure everything is secure, especially your telescope gear, as the roads can be a little rough. And, check your maps!

Leave early enough to give you time to explore what MNF has to offer and to get your bearings. Some areas of MNF are open all year. Check your [California Camping](#) book to see where these areas are located.

Camping Cuisine Ideas

Here are two sample dinner menus that are delicious, nutritious and easy to prepare. Like anything else, it's all in the preparation before you head up.

1st Night

Precooked frozen shrimp with shrimp sauce
Tossed green salad in a bag. Dump dressing in bag, shake and serve.
Sweet French bread with an olive oil/white pepper mix drizzled over it.
Peeled carrots (in a bag)
Brownies
A nice zinfandel wine

2nd Night

Grilled marinated salmon steaks
Baked potatoes with herbs de Provence or crushed garlic (butter/sour cream/non-fat plain yogurt optional)
Grilled asparagus spears lightly covered in olive oil
Cubed melons and berries
A nice Chardonnay

So you see, you don't have to exist on baked beans and Spam. (Though I would keep those handy in case anything drastic happens!)

Other Tips

I put most of my camping/cooking gear together from garage sales, thrift stores and checking out the Internet. The one area I won't skimp on is protection for my telescope gear. Neither should you! Because the whole idea of this is to have fun, enjoy the sky and relax.

Opinions expressed by the author are solely her own and do not reflect those of her companion mentioned herein, the SFAA, it's board or other members. The author takes no responsibility regarding the conditions, rules set forth by the US Forest Service, or any adverse situation arising from visiting MNF. Comments, questions, suggestions or feedback may be directed to Stacy Jo McDermott at smcdermo@cmp.com or jostaznik@yahoo.com. All rights reserved, © 1999.

SFMOMA FULL MOON

Apollo Mission Photographs of the Lunar Landscape

In celebration of the 30th anniversary of the first moon landing, SFMOMA (San Francisco Museum of Modern Art) presents spectacular, rarely seen images originally shot by Apollo astronauts. These large-scale prints of unparalleled clarity capture the immensity of the lunar landscapes.

The exhibit is on display from August 20, 1999 to January 11, 2000.
SFMOMA is located at 151 Third St., SF (415) 357-4000.

Call for hours and days that the museum is open.

ASTRONOMY in MARIN

Winter Events Calendar

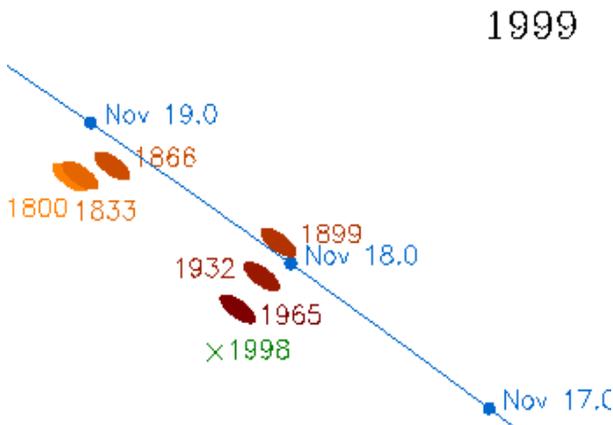
DECEMBER

Saturday, December 4th Star Party in Lagunitas
Friday, December 10th Moon/planet viewing in Fairfax
Sunday, December 12th Moon/planet viewing at Book Passage

Sidewalk Starstuff

JANE HOUSTON, SIDEWALK ASTRONOMERS, A NON-PROFIT ORGANIZATION DEDICATED TO PUBLIC SERVICE IN ASTRONOMY

THE LEONIDS ARE COMING, THE LEONIDS ARE COMING (NOVEMBER 17-19)



The Historical Significance

A series of Leonid meteor storms in the nineteenth century opened the world's eyes to the link between comets and meteor showers. In spite of this understanding, the elusive nature of meteor storms has hampered scientific observations of the phenomenon. Even in the space age, the societal and physical effects of meteor storms remain unclear. Will a meteor storm cause satellites to malfunction? What chemical reactions will occur as the meteors incinerate? How much meteoric material sprinkles down on us every year? Might cometary debris have influenced the development of life on Earth?

The Leonid Multi-Instrument Aircraft Campaign (Leonid MAC) is a NASA and USAF sponsored interagency and international effort to study a rare natural phenomenon, a meteor storm, for clues to the composition of meteoroids, cometary debris, and the processes that occur when meteors enter the atmosphere. The 1998-99 Leonid showers are exceptionally good opportunities for such research. They represent a once-in-a-lifetime opportunity to witness a meteor storm.

During the upcoming Leonid encounters, Earth will be at the right distance from the comet's orbit and far enough behind the comet itself for rates to

exceed 1000 meteors per hour - perhaps ten times as much! This is a one-shot deal: Earth will not cross that cloud during the next two returns of the comet in 2031 and 2065. No other comet is known to have an orbit as stable and as close to Earth's orbit.

On the other hand, this year we will pass close to a debris trail ejected in 1899. Perhaps 1999 will be a (modest) repeat of the 1966 return. Rates are not expected to be quite as high as in 1966 because we are further from the center of the dust trail.

What are meteors?

Meteors are better known as "shooting stars": startling streaks of light that suddenly appear in the sky when a dust particle from outer space evaporates high in the Earth's atmosphere. We call the light phenomenon in the atmosphere a "meteor", while the dust particle is called a "meteoroid".

Size

The meteoroid that caused the bright meteor in the picture below was only 1 centimeter in diameter. A Leonid meteor of magnitude +5, which is barely visible with the naked eye in a dark sky, is caused by a meteoroid that weights only 0.00006 gram and is only 0.5mm in diameter. Most visible Leonids are between 1 mm and 1 cm in diameter.

Speed

That tiny particle can cause a light so bright that it can be seen over distances of hundreds of kilometers. The reason is the astronomical speed of the meteoroids. Just before they enter the Earth's atmosphere, Leonid meteoroids travel at 71 kilometers per second, or some 2,663 times as fast as a fast pitch in baseball, or, if you want, around the Earth in 3.8 minutes!

Source of light

When meteoroids enter the Earth's atmosphere, they collide with numerous air molecules. Those collisions sputter away the outer layers of the particle. In this process, electrons are stripped off the individual atoms. When these electrons are recaptured by the atoms, light is emitted. This is the same process as in gas discharge lamps.

Colors of meteors

The color of many Leonids is like the color of our sodium discharge lamps. For the same reason: meteoroids contain traces of sodium. The color of a meteor is an indication of its composition and the excitation temperature: sodium atoms give an orange-yellow light, iron atoms a yellow light, magnesium a blue-green light, calcium atoms may add a violet hue and silicon atoms give a red light.

Sounds

Meteors do not normally cause audible sounds. Hence, they will pass by unnoticed if not seen. But watch out for hissing sounds that have been reported for very bright meteors. These sounds are thought to be due to low frequency radio waves interacting with the local environment. A sonic boom is sometimes heard for very bright meteors, the fireballs. If the particle is larger than the mean free path of the air molecules, a high Mach number shock wave forms in front of the meteoroid. Very rarely, this shock wave penetrates deep enough in the atmosphere that it can be heard. It sounds like the sonic boom of an airplane, but as a distant rumble.

The persistent train

Meteors sometimes leave a persistent train in their path. The brief glow behind the meteor head is called the wake. The wake is mainly the green light of neutral oxygen atoms. Wakes last 1-10 seconds. After a rapid decay in intensity, bright Leonids often leave long enduring trains that last for 1-30 minutes (typically 4-6 minutes) at an apparent brightness of +4 to +5 magnitude. The light of these long enduring trains is from hot air (O+, N+, O++) and from metal ions from the meteoroid (Na, S+, Ca, Fe).

Radiant

All meteors of a stream appear to radiate from a single point on the sky, which is called the "radiant". The radiant of the Leonids is in the constellation Leo. The radiant is a perspective effect. All particles move in about the same orbit.

An observer in the middle of the stream sees the meteors fall left and right, above and behind him. However, they all seem to come from a certain direction. That direction is the radiant.

Where do meteors come from?

Meteor streams are caused by the debris of comets. Leonid meteoroids move in the orbit of comet P/Tempel-Tuttle. The stuff of comets comes from interstellar space where the materials are assembled in the atmospheres of stars and in the dense molecular clouds of gas and dust between the stars. The comets are built of that material and were formed in the outer parts of the solar system, in regions beyond Saturn's orbit, at the time of the birth of our solar system.

How the meteoroids leave the comet

Comets are mountains of ice and dust. When comets approach the Sun, the ices evaporate and the dust particles are ejected into orbit in geyser like fountains.

Tails and trails

The large particles remain close to the comet and form a dust coma. The smallest particles (less than 0.1 mm in size) are ejected from the dust coma by solar radiation forces and form the dust tail of a comet. The remaining material stays close to the orbit of the comet. However, small ejection velocities cause large differences in orbital period of these particles. Hence, in the next return the slow particles will lag and the fast particles will proceed the comet. The result is a trail like structure in the orbit of the comet. We see a meteor storm when the Earth crosses that trail of dust.

Annual stream

Every year the Earth travels through the debris of many comets. That debris has moved far enough away from the comet orbit to collide with the Earth. The resulting meteor showers are referred to as "the annual meteor streams". In most years, the Leonids are a rather insignificant annual meteor stream. Rates peak at 13 per hour on November 17.

Some valuable information can be found at the NASA Leonid Mission Teacher Corner. Meteors and Comet activities and much more. http://leonid.arc.nasa.gov/teachers__corner.html



watch the Leonids from your area of the country. I'll tell you all about my adventures later!

And don't forget to make a wish! There's a lot of science to be learned from meteors, but there is also something magical about seeing a shooting star.



A bright Leonid meteor recorded while moving from left to right. Photo: Robert Haas, Dutch Meteor Society.

[Note from Jane: I've taken all of this information from <http://leonid.arc.nasa.gov/why.html>, the NASA Airborne Mission homepage. While you are reading this, I will be airborne over Africa and Europe on this mission, lead by Dr. Peter Jenniskens of SETI. I hope you join a group and

Volunteer for Project Astro

Eleanor Ely

Project ASTRO could use some volunteer help!

Project ASTRO pairs astronomers with classroom teachers in grades 4 through 9. It's a really neat project, but sometimes the coordinator gets so bogged down in paperwork she can't keep up with all the great work the partners are doing. There are many ways a volunteer could help, depending on their interests and skills. For example: Visit Project ASTRO classrooms or star parties and take photos; organize our "lending library" of slides and videos; help with mailings; help keep our databases current (FileMaker Pro, on a Macintosh computer); find out about interesting events that partners are planning and help get news releases out to local media; help recruit new partners, especially astronomers.

Project ASTRO is located at the Astronomical Society of the Pacific in San Francisco, near City College and SF State University. To volunteer, or for more information, please contact Eleanor Ely, Bay Area Coordinator, Project ASTRO, Astronomical Society of the Pacific, 390 Ashton Ave., SF, 94112; email astro@aspsky.org; phone 415-337-1100, ext. 101.

Wanted

I would like to thank Dennis Tye for his years of service as the Program Coordinator for the club. He has requested a replacement for that position.

So, I am now asking if anyone in the club is interested in being the Program Coordinator. This basically involves finding speakers for the club meetings and coordinating the requirements for their presentations and arrival at the Morrison Planetarium. Please contact me, Al Stern, at (510) 728-1851 if you are interested or call Dennis to find out more about the job. If one starts now, there is plenty of time to get oriented before many speakers are needed.

Evening with the Comet Hunter

By Tina Denetclaw

On September 5, 1999, Wil and I spent an evening star gazing with Don Machholz at his home in Colfax, CA. We were visiting Pam, my former technician and continuing good friend, who now lives in Grass Valley. Her husband, Rick, had pointed out to me a month before that there are dark skies (good star-gazing conditions) in that area. We found Don by accident while searching the internet for an astronomy club near Grass Valley. He and his wife, Laura, were very kind, and they invited us to join them for an evening.

Arriving

Rick couldn't come with us to Don's, but Pam did, even though she had never looked through a telescope before. Don's house is a little remote, and we felt as though we were following directions into a briar patch. That alone was quite an adventure, and it was a good precursor for finding our way though the constellations!

We arrived 20 minutes early (6:40) and were greeted by Don and his black Lab, Shadow. He told us to park right next to the observation platform and observatory. He'd already displaced his own 6 inch reflector to the side, and he showed us the platform where he wanted us to set up our 4.5 inch reflector.

Once Wil got our scope set up, Don came to take a look. He showed Wil how to balance the tube and Wil says that this is the most helpful thing that he learned from Don; our scope didn't come with an instruction manual for using it, or even very clear instructions for putting it together. And Wil says that balancing the tube makes everything work out better. Then Don began putting the equatorial mount through all of its motions, and he inspected the optics.

Two months before, we had impatiently plunged into telescope-owning by purchasing the best scope on display at the Knowledge Store in Corte Madera. We hadn't done any homework at all on how to buy a good scope, and we were

subsequently mortified to learn that purchasing a scope from a hobby shop is a serious transgression. We were planning to give this scope away the moment we got a decent one. But, Don said that our optics are excellent, and that our scope is good and sturdy. Wil asked him directly, "Is this a good starter scope?" and Don's reply was "Oh, yes!" which, of course, makes us very happy, and suddenly our scope acquired a value all of its own. We're planning to keep it, now, and we feel very fortunate to have bought a good scope by accident!

Next, Don and Wil turned their attention to the finder scope and its alignment. At that point, Don's wife Laura joined us and chatted with Pam and me. Then, our own scope having been aligned and pronounced sound, Don took us on a tour of his 3 (famous) scopes and binoculars.

The Rounds

Don's very first scope was a 2" refractor, bought at Sears and given to him when he was in the 8th grade. It took him 2 or 3 nights of hard work to get a bead on Saturn, but once he did, he was nonretrievably hooked. That scope, even yet, occasionally makes a showing at Don's star parties.

He's had his 6 inch Criterion Dynascope (displaced this night to the side, to make room for the guest scope) since he was a sophomore in high school. It cost \$200. As a Christmas present, his parents gave him \$50 toward the scope, and he earned the rest delivering papers. "Early enough to see the stars for which you were buying the scope," I remarked. "Yes...it was," Don replied with a smile.

This was 1968. Within a year, he had viewed all of the Messier objects.

Don built his 10 inch reflector around a commercial mirror. The instrument rests in an unguided pipe mount. The mirror cost him \$125 in 1975. He had already started logging hours looking for comets with an 11 cm f/5 reflector at 20x, beginning January 1 of that year. "I look for a fuzzy patch," he told us. "That's what comets look like far away."

He found his first comet on Sept. 12, 1978 after 1700 hours of searching.

In 1983, Don designed and built a pair of binoculars for under \$400 using two aerial photography lenses, rated at 36" (914 cm) fl, f/8. They are mounted in a plywood box, painted black inside, and they have a surplus eyepiece which has been slipped into PVC pipe.

In 1988, Don built a 12 cm refractor out of an additional aerial photography lens. Well-baffled and in a plywood box, it has a rotating turret that allows him a choice of eyepieces. He most often uses it at 20x, but seldom sees much fainter than the Messier Objects. It was used, however, for the discovery of Comet Tanaka-Machholz (1992d).

Don saw his first two comets with the 10 inch reflector, then 2 comets with the binocs, then 1 comet with the 5 inch refractor, then 2 comets with the binocs again, then 2 comets with the 10 inch reflector again. "Symmetry!" I said. "Yes," Don replied, shaking his head. "And that's probably why I haven't seen a comet since. It would destroy the symmetry. Right now, I'm within 30 minutes of 1000 hours observing since I saw my last comet."

The 10 inch reflector, 5 inch refractor, and big binocs are housed in a home-made observatory, with a roof that slides and wall-panels that move. Again, wood painted black inside. The observatory was built in 1993, three years after Don had moved his family from San Jose to Colfax. He'd begun observing in his backyard in Concord, and then spent 15 years observing on Loma Prieta, from the side of a road, on the south side of the mountain, at 3300 feet elevation. This was a mile from the fault of the '89 earthquake. Don is not pleased at all that someplace he spent so much time gave rise to such a thing. Three of his comets were discovered there.

The Stars

Don had asked me to make a list of objects that I wanted to see. I put the list together from things we had already seen, but wanted to see again, and things that we had never seen, but which were suggested in the books *NightWatch* and *Turn Left at Orion*. I named eleven objects in all, plus a request to see "everything in Cassiopeia."

Don looked over my list. He chuckled about the Cassiopeia note. "Everything?" he asked.

"Yes, everything," I answered.

He chuckled again and continued. "Ras Algethi!"

"Yes, in Hercules."

"I know. Gamma Delphini," he shook his head. "Not what I usually show at a star party."

"Well, can we see them?"

"Yes."

Don gave my list back to me, and did not look at it again. He didn't need to. He would show me everything on my list (including NGC457 and NGC869/884 in Cassiopeia), plus the Pleiades, M31, the Whirlpool Galaxy, the Ring Nebula, at least 2 red stars, and the four jovian planets. But, first, we went into the house to have some of Laura's home-made apple pie, and to wait for dark to come.

As the group later walked outdoors into the night, I went back into the house to get my forgotten books, and I got caught up chatting with Laura. My first sight as I returned to the group was Pam, sitting quite naturally, with her arm resting on Don's 6 inch reflector, waiting for further instructions for what star to find next. She'd already gotten her sights on Mizar! When I'd left her 20 minutes earlier, she was a normal citizen. When I returned to her, she was manning a doorway to the stars!

And there was Wil, posted at our good starter scope, with a blue and gold double in his eyepiece. It was his first bead on Albereio. He stood in a relaxed manner to peer into the lens, as if our scope had become part of himself. The scientist had found a new instrument!

I remarked to Pam about her hidden star-finder talent. She'd been my right hand for years, and I knew that she's sharp, but I hadn't expected this. "Everything's upside-down and backwards," she told me. Not a puzzle she couldn't solve, apparently.

The air was windless, and mildly warm. The night sky was seeded with stars. Don was using a

high-powered flashlight to send a guiding beam into the heavens, like a giant pointer-stick tracing objects on an immense overhead map. We seemed to be in a classroom of magnificent proportions. He drew out Hercules for us, the Keystone, and the legs. And Cygnus. "Alberio is in the nose of Cygnus," he said as he showed Pam with the light. It was then her job to find the double with her telescope. He told her that, over time, the telescope would feel like an extension of her arm, and that she'd be pointing to a star with it as easily as she does with her finger.

The next 3 hours were a whirlwind succession of bright-points-on-black-background-in-tubes. Don set about to show us all that I had requested. He captured every object with his 10 inch reflector or binocs, or both. Many objects were seen again as Pam and/or Wil found them with the smaller reflectors.

Jupiter was due up at 10 p.m. Don announced it's coming arrival by flashing to the exact point where it would rise. We watched intently as the planet's light peeked from behind the rise of trees on the ridge across the valley. Then, scopes! Pam and Wil both had readied their reflectors the moment that Jupiter cleared the trees. Captured! When Saturn rose, it met the same greeting and fate as Jupiter.

While Pam and Wil worked on the giant jovians, Don continued with my list from his observatory. Some views were dramatic, some were faint. "Do you see it?" he would whisper with encouraging patience, as we concentrated to make out the more subtle objects.

The Swan Nebula looks like a "2." The Wild Duck Cluster doesn't look like ducks at all to me. Neptune is green. The night wound down. Epsilon Lyrae was resolved at 150x. Each of the initial two stars was spread into a bar of light. The famous Double-double.

Shadow had stayed with us the whole time. Sometimes he looked very serious as he watched our endeavor. Sometimes he wanted his turn to socialize. He was a pleasant and persistent companion to us all. Don's own Sirius on earth.

Going Home

By the time we departed, we were exhausted, but Don was not. He was planning to sleep a few hours, then get up for some comet hunting. Morning sky is his preference for that.

We left a loaf of Semifreddie's Cinnamon Bread with Don for Laura to make french toast, and set back onto the road that had brought us to the Comet Hunter's home. We talked the whole way back to Grass Valley about all that we had seen that night, and what an amazing surprise it was that Pam had learned to star-hop in one evening.

By night's end, Wil had piloted his own finding of M31, NCG869/884, Antares, the Pleiades, M22, Jupiter, and Saturn. Our first deep sky light ever had been 2 sessions before. It felt as though we finally had set sail, looking for the open sea. It only gets better from here!

We had a wonderful time. Thank you, Don.

Job Opportunity

If you are interested in working at Scope City, they are offering full and part time positions, at their new San Francisco location. They will train you, but wish to hire an amateur astronomer. Please drop by at 350 Bay Street or give them a call at 415-421-8800.

For Sale

Coulter Optical Odyssey (I) f/4.5 Tube Assembly / Rocker box without spider and mirror.
Make offer! Call Toney Burkhart at 415-668-9691.

Morrison Planetarium's
Benjamin Dean Lecture Series
presents

A forum for emerging theories with insights into the process of contemporary astronomical research.

November 23 at 7:30 p.m.

A Black Hole Adventure

Not rigorously proven, yet generally accepted, black holes have been thought to be either stellar or supermassive. Recent observations suggest a class with intermediate masses.

Dr. Edward Colbert, Goddard Space Flight Center

December 14 at 7:30 p.m.

Redshifts as the Key to a New Cosmology

The "Big Bang" theory of cosmology is based on the assumption that redshifts are due to recessional velocity. Yet there is observational evidence that objects of enormously different redshifts can be in the same region of space.

Dr. Halton Arp, Max-Planck Institut für Astrophysik

DEAN LECTURE INFORMATION LINE at (415) 750-7141



**Halloween Astronomy
San Francisco Style**

By Jane Houston

The corner of 24th and Noe Streets is just a few blocks from San Francisco's Halloween Central, Castro Street. That street was jam-packed with thousands of costumed celebrants and just as many out-of-town looky-loos last night, Halloween. 24th Street was a great place to be on Halloween too. Tiny teletubbies, pint sized princesses, and medium sized apartment buildings, one pizza slice, three Darth Mauls, and

a lot of sailors, at least four wizards and Fred Flintstone thought so, too.

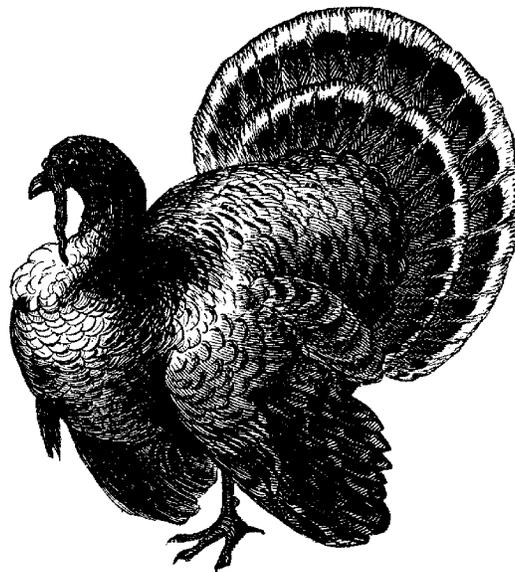
Plenty of Castro Street denizens walked by. Some of their costumes were pretty wild. There must be a feather boa, and gold lame and fishnet stocking (large size) shortage right now in the great city by the bay! These were just a few of the hundreds who stopped by to get some tasty eye-candy from the Sidewalk Astronomers on Halloween. There were three of us and two telescopes. I didn't count how many stood in the line and took a look, but John Dobson brought 500 Purple flyers and came away with less than 100. So at least that many sets of eyeballs got Jumpin' Jupiter and Snazzy Saturn views along with their other tricks and treats last night.

The busy neighborhood called Noe Valley is full of stores, residential flats, and many restaurants. It was hopping till 10:30 PM when we left. Then the partiers just moved down a few blocks to the real action after that. Each store on our street stayed open and offered candy to the kids. Residents were outside their front doors, all decked out in their holiday finery, and responding to every "Trick or Treat" uttered, with the usual sugary dental delights. The number 48 Muni bus stopped just like it did two weeks ago when we were set up on the same corner. Same driver, too! All got out, took a look, boarded the bus again, and went on their costumed way.

Our treats included a glorious clear warm night, no moisture in the air, no wind and a nice street corner right outside an Italian restaurant, from which we offered the solar system to our visitors. Fall is the grand season in San Francisco - our best weather of the year, and last night was the best of the best. We aimed the 6 inch Pierre Schwaar "Red Dwarf" and 12.5 inch "Strider", my reflectors, at Jupiter at 60 to - 125X for an hour or two, 'till Saturn rose. Then we kept the small scope on Jupiter and moved the big scope over to Saturn. We pumped up the power to 202X as the lines got shorter. At least half the first two hours of visitors were kids with parents in tow. The last

hour and a half were mostly older kids, some who came back after their dinner for more dessert. Five moons were visible 'round Saturn, and Jupiter's 4 were in a nice lineup of three in an arrowhead shape on one side and arrow shaft on the other. It was great fun while Jupiter's great red spot rotated to prime viewing on the central meridian, too.

Standing on a busy street corner on Halloween isn't for everyone. There was one giant who bumped up against the 12.5 incher, for example. I kept the celebrants away from the business end of the large dobsonian, while my sweetie aimed and explained. I primed them for the views as they were waiting in line, answering questions and dispensing facts. Some sugar-crazed kids didn't notice there was a big black thing between them and their destination and we were forced to reaim frequently. Forgetting the Telrad wasn't so bad as we were able to sight off a corner of the mirror box. We didn't get a lot of candy. And we had to stand and talk for 4 hours 'till we were hoarse and our legs were sore. But we got to introduce a whole flock of fun people to the most glorious of views attainable from the city, many for the very first time. And we got to be with John Dobson, sharing the night sky of his beloved San Francisco to its colorful inhabitants. That was treat enough for me.



Happy Thanksgiving

Dear AANC Member or Friend,

At the past few meetings, we've discussed the creation of an award for novice/intermediate observers to be called the AANC Century Award. The award is to be presented on submission of an observing log of objects from the AANC Century list.

By design, the list is intended to be exactly 100 targets. I currently have a candidate list of 110 objects for your review. I'm soliciting additions and deletions.

On the web page, I have a document outlining my philosophy in choosing the objects for the list, and the list candidates sorted by type and by constellation. I've outlined a timeline for finalizing the list and the award design.

I greatly appreciate your suggestions for list objects I have overlooked that fall within the guidelines of the list, and suggestions for candidates on the list which could be dropped.

Over the past few months, Jane Houston and I have been observing the list candidates on an informal basis with an eye to weeding out objects that are exceedingly faint, difficult to find, or otherwise uninteresting. At the moment I have not made any deletions from the list of candidates, but I do have a few in mind.

I would like to finalize the list by December 1, and have design work ongoing for the award certificate and plaque. We can discuss the nature of the award itself and other logistics at the next board meeting.

I would like to announce the award before the end of the year, and have observers begin on the list not before January 1. I also plan to make myself available for any AANC member clubs to do a slide show and talk about observing the AANC Century list.

Please review the candidate AANC Century Award list on the following web page:
<http://www.whiteoaks.com/AANC-Century>.

Morris Jones (aka Mojo)

John Dobson Honored

Those present at the annual SFAA Picnic on September 25th had the honor to witness the re-presentation, by yours truly, of two awards John Dobson received at the Stellafane Convention in August.

First, at the pre-Stellafane Convention Meeting of the Springfield Telescope Makers, John was made an Honorary Member of the Springfield Telescope Makers. This honor, I would guess, has been bestowed on, maybe, a dozen people. The second award, presented in front of 2,000 convention attendees just before the keynote address, is the Russell W. Porter Award, given for John's outstanding contribution to the worldwide astronomical community. I do not recall this award being given in my fifteen years of attendance at Stellafane.

We are proud of the fact that John is an active member of the San Francisco Amateur Astronomers.

Al Stern, President

The 2000 Astronomical Pocket Diary Available

You receive a request for a star party. Do find yourself checking your personal availability in one book, then checking the moon phase and other sky events in a different source? How much easier to have it all in one place!

The annual Astronomical Pocket Diary is a personal date book and almanac all in one. Published by Norbert Haley of New Zealand, this fascinating and practical little calendar is filled with astronomical and historical trivia. Moon information is given daily, solar system "flip book" diagrams and data weekly, special sky events like eclipses, meteor showers, conjunctions, etc. when they happen. And all the sky information is calculated for your location. Check it out on the web: <http://members.tripod.com/~apd2/apd.htm>.

If you are in the San Francisco Bay Area, you can order copies of the 2000 diary locally, and \$5.00 of the price of each one will be a donation to the Mt Tamalpais Astronomy Programs co-sponsored by the Mt Tamalpais State Park, the SFAA and the MTIA. These special editions include the dates of Mt Tam star parties and astronomy programs in the Mountain Theater.

Use your diary to plan your observing sessions, or organize your life.

They also make great gifts for anyone with an interest in the sky. Get a head start on holiday shopping by ordering your copies today.

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Founded in September 1952, the San Francisco Amateur Astronomers (SFAA) is an association of people who share a common interest in astronomy and other related sciences. Our membership consists of people from all walks of life, educational backgrounds and ages. Many SFAA members own their own telescopes; some have been made by hand in local telescope-making classes and vary in size from 6 to 25 inches.

Treasurer, SFAA, 13 Mabry Way, San Rafael, CA 94903

make checks payable to **San Francisco Amateur Astronomers** and mail to:

- \$25 enclosed, individual membership
- \$30 enclosed, foreign membership
- \$30 enclosed, family membership
- \$30 enclosed, institutional membership
- \$8 enclosed, youth membership (under 18)

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San Francisco Amateur Astronomers Membership Application

San Francisco Amateur Astronomers

c/o Morrison Planetarium
California Academy of Sciences
Golden Gate Park, San Francisco, CA 94118

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