

★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

VOL. 49, No. 6 – June 2001

San Francisco
Amateur Astronomers



Sharing the Wonders
of the Universe



Information Hotline
(415) 566-2357

Web Page
www.sfaa-astronomy.org

Speaker, General Meeting, June 20

Ben R. Oppenheimer **White Dwarfs by the Billions**

Ben Oppenheimer is a Hubbell Postdoctoral Research Fellow at University of California, Berkeley Department of Astronomy. While working toward his Ph.D. at the California Institute of Technology he was on of the co discoverers of the first cool brown dwarf, Gliese 229B. Ben is now at UC Berkeley on the discovery team of the newly found dim white dwarf stars in the halo of our galaxy that could account for a significant part of the dark matter in the Universe. He is the author of a major article in the upcoming May/June issue of the Mercury Magazine on this very subject. The scientific investigation is happening now and Ben is on the team doing the work. This should make for a very interesting look into this exciting discovery.

Speaker, City Star Party, June 30

Toney Burkhart **The Eye and the Observation**

What factor contributes more to the enjoyment of observing than to unlock hidden details of deep sky objects and marvel at what one sees? To do this the astronomers ultimate tool is his/her own eye. Toney Burkhart past president of the SFAA and long time member will explain some of the trade secrets of the seasoned observers.

SFAA Officers 2001

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(415) 929-7035

Vice-President Bill Stepka
(415) 928-2367

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(415) 566-2357

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(415) 479-5313

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Jim Webster

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Subscriptions & Membership

Chelle Owens (415) 479-5313

Bulletin Editor

Lorrie Boen (415) 921-1432

Telescope Loans

Ray Cash (415) 665-8666

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 www.sfaa-astronomy.org

Above the Fog is the official bulletin of the San Francisco Amateur Astronomers. It is the forum in which club members may share their experiences, ideas, and observations. We encourage you to participate by submitting your articles, announcements, letters, photos, and drawings. We would also like to hear from our new members. Tell us about yourself – what you have done in the past and what other clubs you have joined. **The deadline for the next issue is the seventh day of the month.** Send your articles to Lorrie Boen at 765 Geary Street #302, San Francisco, CA 94109 or at LorrenLee@aol.com.

Club Telescopes

Desperately Seeking Good Home(s)

The club's long-term telescope godfather, Ray Cash must give up his charges on May 15. We are looking for a kind soul(s) to take over the loaner telescopes – for 6 to 9 months, at least. (We may have a volunteer for after that time.) We have 3 Newtonians: 6" f/10; 8" f/7; 10" f/8 and some accessories. You will need to be available to loan out the telescopes to club members. The loan is usually for a few weeks or even a couple of months, so it won't be too strenuous.

If you feel you can help out, please contact one of the club officers (phone number to the left), or Ray at (415) 665-8666, or r-mail him: raycash@aol.com

CLUB DATES

Board Meeting – June 13

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

SFAA General Meeting – June 20

Refreshments at 7:00 p.m.

Speakers begin at 7:30 p.m.

Morrison Planetarium, Golden Gate Park

Mt. Tam Star Party

June 23 at 8:30 p.m.

City Star Party

June 2 at 8:00 p.m.

June 30 at 8:00 p.m.

From the President

Jay White gave a nice presentation on how through history we have continued to try to put us in the center of the universe and how the observations seem to lead us elsewhere. We aren't in the center but where ever we are at is still to be determined.

Astronomy day was a big success. We had a great indoor exhibit do to some hard work by Bob Parvin, Fraser and Carol Reich, Randy Taylor and Renita Mock. The display panel was exquisite and the Video of various photography shots was also very good. We had a wonderful day outside with solar scopes of all kinds. Art and Chelle Owens had their 12" Meade with a H-Alpha filter, Paul Mortfield of the Peninsula astronomy club and Project SOHO joined us with a 6 inch refractor with solar filters of course. Lorrie Boen was there as was Bob Naeye of the ASP, myself with my 8" reflector with no filter – Moon viewing only. There were several scopes that came and went during the day. It is always a treat to see the expressions of wonder in the eyes of those who looked though the scopes at the huge sun. We must also thank Kirsten VanStone for coordinating the whole event. The other exhibits were also interesting with several booths manned by children and adults who made the day special for the children who came to see what astronomy day was all about. So therefore I would like to extend a special thanks to all the people that participated.

The Point Lobos star party that, followed was also a success with an interesting set of facts presented by Bob Berta. Good job there Bob and some reasonable sky until about 10 PM.

The AANC symposium held at the new Chabot Space and Science Center was an interesting experience. We did a constellation marathon in the Planetarium and the show was well done showing how the system works. We had several workshops giving people a chance to exchange ideas between clubs and some interesting presentations as well.

Some of us went to hear Vera Rubin talk down at Foothill College. It was fascinating to hear such a legend give a talk on dark matter.

Upcoming events include: our next speaker Ben Oppenhiemer on Wednesday June 20th on the finding of new dim white dwarf stars; Alex Filippenko at Mt Tam. on May 26; RTMC in Riverside CA over Memorial Day Weekend; our Yosemite trip on August 24,25; and our picnic at Stern Grove on September 8. It seems that there is always a lot going on.

Dinner with the speaker is something we have been working on for our club members on the night of the general meeting presentations (the third Wednesday of the month). We cannot always expect the speaker to have time to do this but we have a fun dinner either way. If you are interested in attending these, let me know at 415 929 7035.

SFAA SPEAKERS CALENDAR 2001

July & August 2001

Speakers to be announced

September 19, 2001

John Dobson, the originator of the Dobsonian telescope mount design; the guru of the side walk astronomy movement; and teacher of telescope making and cosmology classes will be answering our questions. The meeting will be a question and answer session so bring your questions for John.

October and November 2001 Speakers to be announced.

December 19, 2001

Members' night. SFAA members talk about their astronomical experiences.

Build a Solar Filter for Your Telescope

By Michael Portuesi

You can build a solar filter for a large aperture scope for less than \$40, including the solar filter film. This is a great project to build with your kids, or perhaps as part of a Project ASTRO classroom activity.

I describe how I built a solar filter for my 10" F/7 Dobson scope, but you can easily adapt these instructions for other scopes.

For daytime use, I built an off-axis filter smaller than the scope's full aperture. For convenience sake, an off-axis mask on a large Newtonian is easy to make, takes less material and the off-axis size is often more than enough given the daytime seeing.



Required Materials

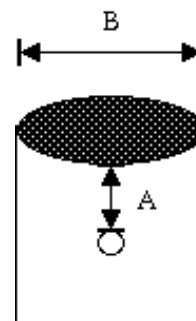
- Heavy posterboard, 20 x 30 inches
- Clear packing tape
- Duct tape
- Scotch tape
- Fine sandpaper
- Pencil
- Ruler
- Drawing compass
- Scissors, razor and/or x-acto knife
- Newsprint or tissue paper
- Baader Astrosolar safety film. An A4 (7.9 by 11.4 inch) sized sheet is \$29 not including shipping. A 1 meter by 1/2 meter sheet is \$69. It is available from one of these dealers:

Adirondack Video Astronomy
26 Graves Street
Glens Falls, NY 12801 USA
Phone: 1-518-812-0025
Orders: 1-877-348-8433
Fax : 1-518-745-4114
<http://www.astrovid.com>

Astro-Physics, Inc.
11250 Forest Hills Road
Rockford, IL 61115 USA
Phone: 1-815-282-1513
Fax: 1-815-282-9847
<http://www.astro-physics.com>

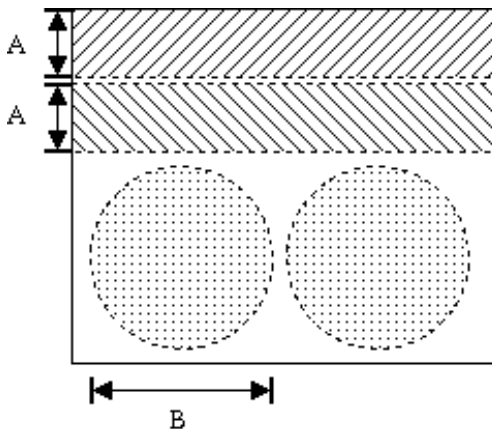
Procedure

1. Measure the distance from the focuser to the end of your telescope tube. Draw out two long rectangles on the poster board, whose height is the distance you measured.



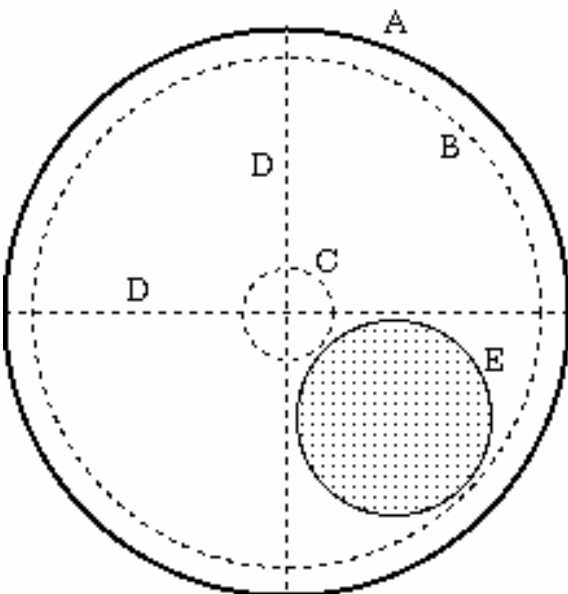
Measurements. A = distance from focuser to

end of tube; B=diameter of tube.



Draw strips and circles on the posterboard.

2. Cut out the strips of cardboard. These two strips double up to form the sidewalls of the filter.
3. Using a compass, measure out two circles the diameter of the telescope tube on the posterboard.
4. On one of the circles, use the ruler to draw out lines indicating the vanes of your spider assembly. Then use the compass to draw a circle in the center representing your diagonal. Finally, draw a large circle the diameter of your mirror.
5. Using the compass, draw an off-axis circle within the diagonal, spider vane and mirror lines. For my 10-inch scope with a four-vane spider and a 1.85" diagonal, a 3.5-inch off-axis aperture fits perfectly.

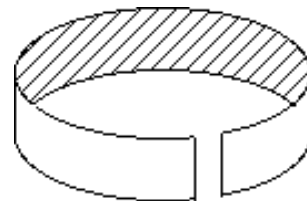


Cutting the aperture hole. A = diameter of tube. B = diameter of mirror. C = diameter of center mirror. D = spider vanes. E = aperture hole for solar filter film.

6. Cut both circles from the posterboard. Cut out the inside of the aperture hole from the one circle. Sharp scissors and/or a sturdy razor blade are useful to cut through the heavy posterboard.
7. Place the circle with the aperture hole atop the other circle. Trace out the aperture hole outline onto the other circle. Cut the second aperture hole. You may need to smooth out the edges of both aperture holes with some fine sandpaper.
8. Take the strips of cardboard, and arrange them into a circular collar the same circumference as one of the circles. At one end where the strips overlap, join them with tape into one long strip. Temporarily tack the other side of the collar so that it forms a cylinder.

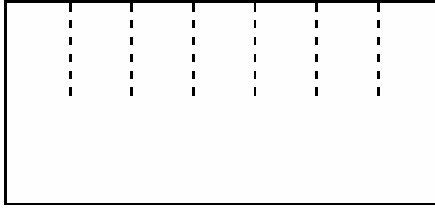


Join strips together, so the length is the circumference of the telescope tube.

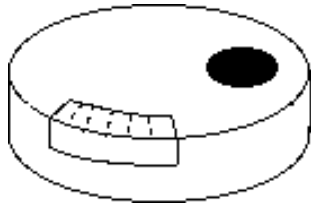


Join remaining ends into a cylinder.

9. Test fit the collar against your telescope tube. Adjust the diameter of the collar to fit snugly. Then seal the other end of the collar with packing tape, to permanently form the cylinder.
10. Attach one of the large circles to one end of the collar. Cut duct tape into six-inch strips, then cut notches about every 3/4 to 1 inch along the tape. Cut the notch halfway across the width of the tape.



Cut notches halfway through the tape.



Fold the tabs of tape to match the curvature of the filter collar.

11. Place the uncut end of the tape along the edge of the collar, then fold the tabs over the circle to follow the curve of the top.
12. Hold the cap up to a bright light, and check for small pinpoints where light may be showing through the tape. Cover any holes with small patches of duct tape.
13. Take the remaining circle, and place it inside the cap. You may need to trim or sandpaper it a bit to get it to just fit within the cap. Line up the aperture holes of the two circles. On both the sidewall of the cap and the circle, make some alignment marks and label them A, B, C, D, E.
14. Arrange the newspaper or tissue paper on a table. Cut out a square of solar film with sharp scissors or a razor, carefully following the instructions packaged with the film. You do not want to scratch the film or create pinholes.
15. Take the free circle, and use Scotch tape to attach the solar film over the aperture hole. Do this on the side opposite the alignment marks. Do *not* stretch the solar film tight; this will ruin its optical properties. It should be loose and maybe a little billowy.

16. Insert the free circle into the filter, and realign the alignment marks. Seal into place with packing tape.

17. Hold the filter up to a bright light to look for pinholes in the film. Dot the pinholes with a black or blue permanent marker. You can use a halogen lamp, but *do not get too close* to the lamp! The heat from the lamp will stretch or melt the film, ruining the filter.

The filter is now complete. Place the filter over the end of your telescope and enjoy.

Using the Filter

Here are some tips for using the filter:

- Inspect the filter every time you use it, to ensure there are no holes or scratches in the film.
- Make sure the spider vanes do not obstruct the aperture.
- To aim the telescope, *do not use your finder or Telrad!* Instead, point the telescope until it casts the smallest shadow possible behind it.
- If your scope has an open tailgate, you will need to cover it with some type of shroud to prevent daylight from leaking in the scope and overpowering the view.
- You may need to counterbalance your scope against the added weight of the filter.

Moon Filter

You can use these plans to build an off-axis aperture filter for Moon viewing. A Moon filter lowers the brightness of the Moon through medium and large aperture scopes. Just omit the inner circle, and the solar safety film.

A New Member Profile

By Madelyn Dovano of Los Gatos, CA

A hop, skip and a jump back in my memory, I remember a grade school teacher telling me I should forget the star gazing books I always brought from the library and concentrate on something more practical. It wasn't healthy to spend one's time on a cold mountaintop loosing sleep, said he. Fortunately, I didn't listen. A term paper I later submitted, entitled "Stars in Myth and Fact" now contains not one "fact" that still is! Such is the excitement of living in this dynamic time.

It was my good fortune to have a chemistry teacher in high school who agreed that, if I could recruit 5 more students who were interested, he would help us build a telescope. I did, and we did. It was still operating on the roof of North High School in Akron, Ohio, when I moved to California 28 years ago. Thank you Mr. Zimmerman. Along the way, I was secretary of the Astronomy Club at Youngstown State University in Ohio, when both Warren Young and Ted Pedas were there. One son who was active in that same club went on to become an honest to gosh rocket scientist.

I have been a member of SJAA and ASP since 1986. As the demands of work and children grew, I became more of an armchair observer, except for my penchant for taking my grandchildren and their classmates to Grant Ranch or Fremont Peak to expose them to celestial wonders, thanks to those members of SJAA who so graciously shared their 'scopes.

In 1980 I saw my first total eclipse, and was immediately, hopelessly hooked. After July 1991, I formalized my travel education and began leading my own groups to "chase" eclipses. Now, most of my travel time is spent chasing celestial and geologic wonders, and searching for dark skies the way surfers search for the perfect wave. This June 21st, we will be in Zambia for the solstice total solar eclipse and will enjoy a star party under the Southern Cross and other sparklers, in what I am told are the second darkest skies on the dark continent of Africa (the darkest are said to be in the northwest corner of South Africa). We're also planning on viewing the annular eclipse from Costa Rica, meteor showers in the South Pacific, and hope to again enjoy the aurora this Autumn while the shimmering curtains of light are still boosted by the current heightened solar activity. And.... ah, well, so many stars, so little time....

Mt. Tamalpais State Park

Star Programs

May 26 - 8:30 p.m.

"Cosmic Antigravity and the Accelerating Universe"

Dr. Alex Filippenko, Professor of Astronomy, UC Berkeley

The recent discovery that the Universe is speeding up with time, rather than slowing down as expected, suggests the presence of a long-range "antigravity" effect."

June 23 - 8:30 p.m.

"Hunting for Planets"

Dr. Debra Fischer, Postdoctoral Fellow, UC Berkeley

Multiple planetary systems appear to be common; now the search is on for Earth-type planets.

Dinners with the speakers: at Lau's China Bistro, Tam Junction, 252 Almonte Boulevard, Mill Valley, 2 1/2 hours before the scheduled talk. To participate, call the restaurant at (415) 389-8868, and add your name to the "Mt Tam Party." The no-host dinners run between \$10 and \$15, including tax and tip.

Information Contacts: Telephone: (415) 455-5370, (415) 388-2070 Same day Hotlines: (415) 566-2357, (415) 455-5370 (messages after 4:00 pm) **Mailing Address:** MTIA/Astronomy Programs, P.O. Box 3318, San Rafael, CA 94912

Astronomy Day 2001: A Brief Report on SFAA Activities

By Fraser Reich and *Lorrie Boen*

Saturday 29th April was ‘Astronomy Day’ this year; a chance to tell the world about astronomy both as a science and as a rewarding amateur pursuit. Some time ago, SFAA club members Renita Mock and Randy Taylor decided that this year they wanted a stronger ‘presence’ at the California Academy of Sciences, where we were to have a display table. Co-ordinating with the indefatigable Kirsten Vanstone of the Academy’s Morrison Planetarium, they organized a small group of SFAA members to organize our contribution to the day.

The SFAA had an indoor and outdoor presence. The indoor exhibit comprised two display tables, amateur telescopes representing the most popular designs, and a set of display boards with various displays about amateur astronomy, buying a telescope, and the SFAA club activities (see the photo below). Outside, ‘scope were set up for solar observing, staffed by various club members, including Chelle and Art Owens, Bob Naeye, Michelle Lau, Al Stern and Rita Nossardi-Stern and Lorrie Boen. Paul Mortfield of the Stanford SOLAR Center, who spoke at our General Meeting last October, also joined us.



The indoor exhibit, early in the day before the public arrived

The sun was, for the most part, co-operative, and one of us (LB) got to enjoy chatting to members of the public throughout the day from the comfort of a new foldable, outdoor canvas chair. It’s even equipped with its own cup-holder for goodness sake!

Hey, I just packed up “baby” (my globetrotting Meade ETX 90mm) while the sun took a break behind the fog & clouds. Baby came out again with the sun. It was a very satisfying day, watching the expressions of folk that had never looked through a telescope, see the sun and its spots for the first time. There were the odd frightened rabbits that rushed by us, not willing to take up the offer for a look at old Sol. I daresay that they saw us as something from another planet.

Adults and children alike were awestruck, some asking in disbelief, “Is that really the sun?” It’s moments like those that give me the greatest kick. Child-like, wide-eyed wonder is most gratifying. One small girl came back several times. Her father had to drag her away. (We may have a future astronomer there!) A young fellow, suspiciously eyeing Bob’s PortaBall, asked when the burgers would be ready. Everyone, however, was impressed with the PortaBall’s performance.

Al Stern was his usual, professorial self, dispensing astro wisdom to all who had ears to hear, and Bob Naeye got to answer just as many questions about his sleekly designed telescope as he did questions on the sun! Over the course of the day, we had a very healthy number of people looking through the ‘scopes.

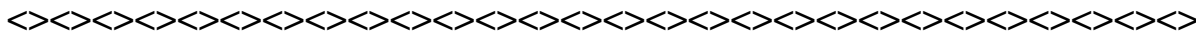
Indoors, Renita, Randy, Bob Berta, Bob Parvin and Fraser Reich staffed the display. Renita put together a wonderful slide show on her laptop, filled with great images, that looped every ten minutes or so on a display monitor, and was a really professional touch. Bob Berta modestly answered those "Wow, did you really take those pictures?" questions as people perused his astrophotography offerings, and Bob Parvin answered questions on binocular astronomy, as well as encouraging people to explore some of the best astronomy and kid-friendly astronomy sites on the web. Incidentally, Bob P. put together a very nice pamphlet listing all those sites, and they are listed elsewhere in this bulletin.

The telescope display was a nice touch too, literally. Lots of people were keen to touch and get a close-up view of even these simple beginner 'scopes. Randy had reproduced line drawings showing the path of light rays inside the different types of telescopes, and he had laminated these and hung them around each telescope. Throughout the day we collected cards that people filled in to be a part of the raffle. We were fortunate to have a great pair of 7 x 50 Meade binoculars donated by Lumicon, courtesy of Bob B., as the main prize, as well as posters and calendars and assorted other gifts for the runners up. Kirsten and Renita supervised the raffle draw which took place at the end of the day, at ~4.30 p.m.



The raffle draw at the end of the day

We had advertised the evening City Star party during the course of the day, and a number of families who had been at the Academy turned up to hear Bob Berta talk about 'Astronomy for children'. The high, light clouds were not particularly kind to us, but we did get to view the moon and Jupiter, and most importantly we got to share our enthusiasm for the skies with others.



SUMMER SOLSTICE CELEBRATION

Saturday, June 23, 2001 2 pm-midnight
Robert Ferguson Observatory, Kenwood, California

Join the Valley of the Moon Observatory Association (VMOA) in conjunction with the Heart of the Valley Winery Association for a day of exploration, astronomical education, and general merriment. Highlights include:

- * Author TIM FERRIS speaking on a topic from his latest book, "Life Beyond Earth"
- * Docent-led Planet Walks and Solar Observing
- * Wine tasting, fine dining, silent auction, music and dancing
- * Intimate observatory and night sky tours by docent astronomers

Tickets are \$75.00 per person. Proceeds benefit the VMOA's public science education programs. Reserve your place before June 8, 2001 by sending a check payable to "VMOA" c/o 458 Winding Wood Way, Sebastopol, CA 95472. For more information call (707) 829-2219 or email kaizen@sonic.net.

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)

Select one category:

Email address:

Address:

Name: Telephone:

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

**In This Issue of SFAA's
Above the Fog**

- **June Speakers**
- **From the President**
- **Announcements**
- **Make a Solar Filter**
- **Astronomy Day Report**
- **and more...**