

The Refractor

The Bulletin of the Eastbay Astronomical Society
 Founded in 1924 at Chabot Observatory, Oakland, California

Volume 79
 Number 9
 May 2003

This month's talk:

Women in Astronomy

Saturday, May 17, 7:30 pm
 Chabot Space & Science Center
 Physics Lab, Spees Building

Speaker: Jane Houston Jones

**“Observing with Caroline, Williamina and Jocelyn
 (and their friends)”**

You've got your Messiers, your Arps, your Hickeys. But have you observed the Caroline Herschels yet? Yes, Caroline Herschel discovered 14 deep sky objects in addition to the comets she is so well known for. The next time you look at the beautiful spindle galaxy in Sculptor, NGC 253, tip your hat to its discoverer, Caroline Herschel. And did you know that Caroline also discovered M110 independently of Mr. Messier? Due to some sloppy bookkeeping on his part, Messier's discovery of this object was never recorded. Williamina Fleming discovered over 200 variable stars, including RS Ophiuchi, while Annie Jump Cannon discovered 300 variables. And the next time you observe M1, the Crab nebula, think of the pulsar spinning within, discovered by graduate student Jocelyn Bell in the 1960's. Join Jane Houston Jones on an indoor observing session featuring the discoveries of women astronomers.

Jane Houston Jones caught the astronomy bug in 1988 when she enrolled in John Dobson's telescope making class and made her first telescope, Stardust, a 10 inch f/7.3 reflector. She is President of the Astronomical Association of Northern California, co-editor of the San Jose Astronomical Association's monthly newsletter *The Ephemeris*, and is completing her first term on the board of directors of the Astronomical Society of the Pacific. She is happily married to Morris Jones and they have two cats, six reflectors and three refractors. This talk can be found in the November 2002 issue of *Sky and Telescope* magazine. ★



Jane Houston Jones setting up her 17" Litebox

2003 Astronomy Day Saturday May 10th

Thirty years ago, Astronomy Day was first conceived during a board meeting of the Astronomical Association of Northern California (AANC) held at Chabot Observatory in 1973. The simple idea of bringing astronomy to the public was the brainchild of then AANC president, Doug Berger, who is still a current member of the Eastbay Astronomical Society. The idea has since become an internationally recognized time for clubs, planetariums, and observatories to celebrate and share the wonders of our Universe with the public. ★

DINNER WITH THE SPEAKER

5:30 pm
 Saturday, May 17, 2002
HUNAN YUAN
 4100 Redwood Rd., #11
 (next to Safeway)
 Oakland
 (510) 531-1415
 Please call Betty Neall at
 510/533-2394 by Friday,
 May 16th to confirm your
 place.

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Visit to Owens Valley Radio Observatory

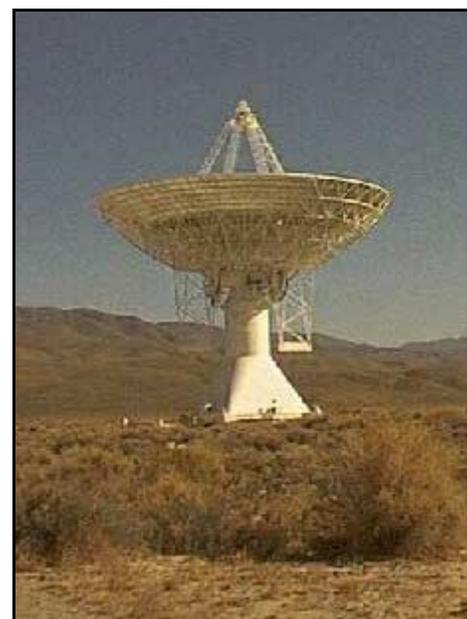
by Linda Lazzeretti

On a crisp spring day while driving along the empty stretches of Hwy 395 beyond Bishop, I spotted an interesting array of radio telescopes backing up to the hills. I stopped, turned round and after a hour of traveling down dead ends, landed on a road that took me directly to OVRO (the Owens Valley Radio Observatory) funded by the National Science Foundation (NSF) where a host of radio dishes awaited my exploration.

The astronomers there were happy to assist. They included Todd Hunter from The Smithsonian, and Hector Arce from CalTech. They explained the inner workings of the two arrays. One array is circular and measures red-shift galaxies, the Milky Way, and the interstellar medium to determine star formation in the distant past. The other array is a baseline solar array studying active areas of the sun. Then there's the famous "40 meter" dish used in the past to study the cosmic microwave background, which has since been retired after being replaced by interferometers. Now it sits quietly educating groups coming by to learn about the OVRO.

The observatory was originally set up many years ago because there were no radio transmitters around at the time to interfere. Now, of course, such is not the case, and eventually the observatory will be moved up the hill a bit into the Inyo Mountains to improve observing conditions. It will then be connected with the current UCB array at Hat Creek after the Allen Array goes on line up there.

Hector and Todd were wonderfully informative and helpful despite the cold, windy



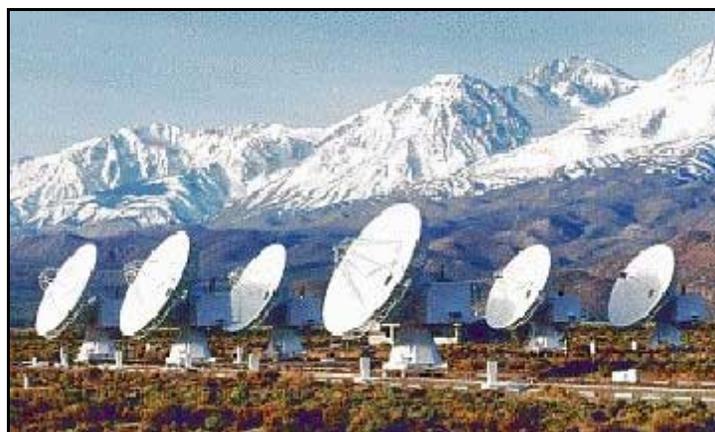
The 40-meter radio telescope in its stow position



Closeup of a 10-meter radio telescope, part of the millimeter wavelength array. The array consists of six 10.4 meter telescopes with rms surface precision of 35 microns. The aperture efficiencies are 0.70 and 0.45 at 2.7mm and 1.3mm, respectively. The pointing accuracy is about 4" (day and night), except for brief excursions at sunrise and sunset. The halfpower beamwidth is 65" at 100 GHz and scales inversely with frequency.

weather which they endured for a week, working on theirs and others' projects at the observatory. They were not there when the Columbia disaster photos were taken which appear on the cover of the aviation magazine we saw at our April EAS meeting. According to Todd, some professional photographers came to photograph the event and brought lights to illuminate the telescopes, etc. He added that OVRO is a popular site for filming movie scenes & TV commercials, such as the sci-fi film, "The Arrival."

The Owens Valley Radio Observatory (OVRO) is the largest university-operated radio observatory in the world. It is located near Bishop, California, approximately 250 miles north of Los Angeles on the east side of the Sierra Nevada. For reference, its coordinates are 37°14'02" latitude, 118°16'56" longitude at 1222 meters above sea level.



The newly completed millimeter-wavelength array consists of six high-accuracy radio telescopes, each 10.4 meters (34 feet) in diameter. The individual telescopes can be moved to observing stations along a T-shaped railroad track and pointed toward the same object in space. By combining the detected signals through a process called interferometry, extremely high-definition pictures can be produced. As in all interferometry, the degree of detail achieved depends upon the distance between the telescopes; for example, a single dish with a diameter of 300 meters (about one fifth of a mile) would be required to match the resolution that can be obtained with these new instruments. (Excerpted from the <http://www.ovro.caltech.edu/> website.) ★

Library Help Needed!

FROM THE CSSC LIBRARY TASK FORCE CHAIR

Hi all,

Library volunteers have merged the Chabot and EAS collections and are working to get the Library open beginning on July 5th. To make this goal, there will be work parties from 2:00 to 5:00 pm every Saturday from now to the end of June.

Most of the books we have for students date from the 1960s. We plan to have a kids section when we open and also a youth section (which may open later). The guiding philosophy for these as expressed by Alex Barnett, our new Executive Director: *We have to bear in mind the target audiences. The library is an educational resource so we have a duty to ensure that the users get the best information possible. We do not want a student losing marks on a project because they used an out of date book from our library because they didn't know it was out of date*

If you have recent kids and/or youth science books you no longer need please donate them to the Chabot Library. Since there have been so many discoveries and changes in astronomy and space recently we need books published within roughly the last 8 years. For other sciences where there haven't been significant changes that would find their way into kids books we can probably use any from the last 20 years.

We will also be adding a section for videos, DVDs, science on CDs etc so will be looking for those also.

The contact person for donations or if you have questions is Ryan Diduck, Director of Astronomy, rdiduck@chabot.space.org, (510) 336-7340. Books may be left at the front desk for him.

Since there are many unneeded duplicates in the Library, we expect to have a book sale sometime after we get the Library open. If you have a potential donation and aren't sure if we need it, consider donating it anyway and we'll turn it into cash if we don't need it.

Carter Roberts
CSSC Library Task Force Chair

FROM THE EAS LIBRARIAN

Some of the jobs needing to be done include: moving and arranging, stamping and filing, packing for storage, labeling, some computer work, etc. Volunteers will also be needed after the opening to keep the room open regularly and to keep materials secure. If you can help, come any Saturday afternoon, especially in May and June. Your participation in this wonderful endeavor will be greatly appreciated. If you have any questions, please feel free to contact either Carter Roberts or Don Saito (their phone numbers and email addresses are listed on the back page of all newsletters).

Anne Creese – EAS Librarian ☆

AANC Annual Awards for 2003

The Astronomical Association of Northern California bestows annual awards for outstanding and continuous support in distinguishing and fostering amateur astronomy. The first awardees, in 1976, were Paul Zurakowsky and Herman Fast who shared the amateur award and Kingsley Wightman who was honored as the professional astronomer of the year.

As the years passed, the AANC recognized special people each year. Dobson, Machholz, Berger, Medlock(s). Neall, Westfall, Ryan, Van Nuland. Vaughn, Le Clert, Borde, Striking Sparks. Gould, Stone, Jenniskens, Naeye, Sperling. Filipenko, McKay, Morrison, Reynolds. The 89 name list is inspiring and grows by four more this year.

I am pleased to announce the AANC Awards for 2003.

The John Hewitt Memorial Award for Amateur Astronomy goes to Marni Berendsen of the Mount Diablo Astronomical Society. Marni is past president of the MDAS, astro-volunteer, club speaker, author, outreach coordinator and more. Marni is currently working on the amateur astronomy outreach project for JPL, on the staff of the Astronomical Society of the Pacific.

The Professional Astronomer of the Year Award goes to Steve Craig of the Morrison Planetarium in San Francisco. Steve has been chairman of the Morrison Planetarium since 1984, and keeps the 50-year old equipment running and thrilling thousands of visitors every year with fresh programs for young and old alike. In addition, Steve determinedly supports local and regional amateur astronomy day and night. From astronomy day activities to amateur astronomy club meetings at night and much more at the chairman's desk.

The Commercial Astronomer of the Year Award goes to Marshall Smith. Marshall managed the Orion Telescope store in the SF Marina district for many years and now works in the technical support department of Orion. Marshall, an active amateur astronomer himself, continues his support to amateur astronomy and astronomers through his advice, support, attendance and commercial sponsorship of club events.

The Special Astronomer Award goes to Kirsten Vanstone, also of the Morrison Planetarium. Kirsten recently moved back to her home in Toronto, Ontario, where she is a member of the Toronto RASC Centre. While in San Francisco, Kirsten was tireless in her efforts on behalf of amateurs and enthusiasts who attended her classes, read her articles, and met her at club meetings and other astronomy events where she volunteered her help or represented the Morrison Planetarium.

The award plaques will be dated May 10, International Astronomy Day. Astronomy Day has truly grown to an international celebration of the joy and significance of astronomy from beginnings by the AANC and EAS in 1973. Without special people like Marni, Steve, Marshall and Kirsten, astronomy would touch a much smaller universe. ☆

Jane Houston Jones
AANC John Hewitt Amateur Astronomer 2002
President, Astronomical Association of Northern California



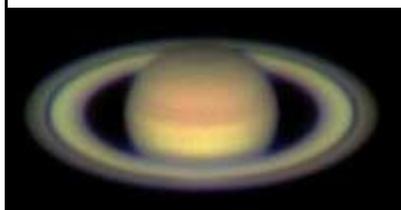
Editor's News 'n Views

Howdy Astro Fans! Wow, what a great event for Chabot's volunteers held last month! Great food, several fun activities, all Mars-oriented (making an edible Mars rover was my personal favorite – though I didn't quite make a

“rover,” per se, but a robot, ala “Lost In Space”) (well, you could say he was kind of a pre-concept rover, of sorts), costume contest (our very own Debbie Dyke won! coming dressed as a kind of vertical Mars rover, sandwiched between the solar panel and the wheel base), a great talk by NASA Jet Propulsion Lab scientist Dr. Deborah Bass who is working on the MER Project (Mars Exploration Rover), a fun and funny astro-oriented version of the TV game show, Jeopardy, and to cap it off, a live (not pre-recorded) planetarium show given by Director of Astronomy, Ryan Diduck, himself. The whole evening and event was simply Chabot's way of saying “thanks,” to all the volunteers, without whom the Center could not do without. And speaking of volunteers: they can always use more. The EAS and CSSC have a truly symbiotic relationship; we help each other become much more than either one could be by itself. So, if you've got some spare time you could donate toward the worthy cause of educating the public in the space sciences, and have a ton-o-fun whilst donating it, do consider becoming a CSSC volunteer. And be sure to let 'em know you're also an EAS member, too.

In other news, Chabot's new 36" classical Cassegrain telescope, *Nellie*, has finally begun assembly, with its base and fork mount being recently installed. It looks kind of like one of those giant horseshoe magnets from a Saturday morning sci-fi cartoon. It weighs probably a couple of tons, but you can easily push it into motion with one hand. That Summer Solstice target for having *Nellie* open for public viewing is actually starting to look realistic! In anticipation of having a third telescope available for free public viewing, **Conrad Jung, Debbie Dyke, and myself** have been busy training up several new Operators on Leah and Rachel. These include **Lynn Brechtel, Fred Patton, Roland Maski, Brian Sullivan, Mike Hanley, Ralph Requa, Joe Arata, and Gerald McKeegan**. If YOU are at all interested in learning to operate these wonderful telescopes, let us know! We definitely need the help, and I can tell you from experience, running these scopes is an absolute *blast*! It *will* take a certain amount of commitment and work on your part before you'll actually become an Operator, but it's well worth the effort. ★

One last, loving look at the best view of Saturn we'll see in a long time. Photo by Conrad Jung



Spare Shots



◀Kevin Medlock, Mike Martinez, and Alan Roche putting *Nellie's* mount together inside its rolling-roof observatory

▶Merrill Martin is on site to witness the installation of the mount for Chabot's new 36" reflector telescope. (He and his wife, Lillian, provided major funding for the project.)



▲Installation crew: Mike Martinez, Umberto Chavez, Andre Filimonov, Kevin Medlock, Alan Roche, Ken Fong (Photos by C Jung)



◀Sunset over the Bay Area as seen from Leah's dome (Photo by D Saito)

Riverside Telescope Makers' Conference – 2003

The 35th Annual RTMC Astronomy Expo will be held Friday, May 23, through Sunday, May 25, 2003 (Memorial Day weekend). It will be held at the YMCA Camp Oakes in the San Bernardino Mountains southeast of Big Bear City on State Route 38. This location is about 50 miles northeast of Riverside in the San Bernardino mountains. The theme for 2003 is "Building Your Own Observatory." The Moon doesn't rise until long after midnight. Details are available at <http://rtmc-inc.org/>

We open the gate about 9:00 am on Friday and there is a mad rush by those wanting to get "their" spot in the camp. In fact, the line has begun forming when the organizers arrive the previous morning!

Vendors get three hours to get set up then the feeding frenzy begins. This is a great place to talk to a wide variety of vendors, see (or see through) their products and take advantage of their specials. If you are looking for an obscure part for an old telescope it just might be there. The biggest booth is that of Meade with two tents, one open to the sky so they can demonstrate equipment Friday and Saturday nights.

There is an informal program Friday evening (probably largely eclipse trip talks) and the main program of talks etc. begins Saturday morning. Saturday morning is also the time for the swap meet where almost anything might turn up.

Numerous door prizes are handed out Saturday and Sunday evenings. The grand prize is typically a very nice telescope from Meade.

IMPORTANT NOTICE: The Chabot Telescope Makers' Workshop will be closed Friday, May 23rd, to let the workshop's organizers to attend the Conference.

The Ten Best Indicators

You Are An Amateur Astronomer:



10. Every other t-shirt you own is "glow-in-the-dark."
9. You think red LEDs are the best invention since sliced bread.
8. You've got a wristwatch that tells sidereal time.
7. You get quite the opposite of "warm and fuzzy" at the sight of a full moon.
6. You wish you had electric underwear.
5. For you, breakfast time is right around noon.
4. Your other car is a goto Meade.
3. You feel compelled to lecture whenever you're out at night in the company of non-amateur friends or family.
2. In your heart of hearts, size *does* matter.
1. You have a bobble-head figure of Edwin Hubble glued to your car's dashboard.



MEMBERSHIP APPLICATION FORM

(Please print clearly)

Name: _____

Address: _____

City: _____

State/Zip: _____

Email: _____

Day Phone: _____

Eve Phone: _____

Do not print address in Membership Directory listing

MEMBERSHIP CATEGORIES:

- Regular..... \$24
- Family \$36
- Contributing..... \$40
- Sustaining..... \$60 or more
- Student (digital newsletter only)... \$10

Optional discounted magazine subscription:

- Sky & Telescope \$29.95
- Astronomy \$29.00

Optional tax deductible donations:

- Burns Library \$ _____
- General Fund \$ _____

Total Enclosed: \$ _____

To help save the club money, I prefer to receive the newsletter in digital format.

Please cut out and mail this form and your check or money order payable to:

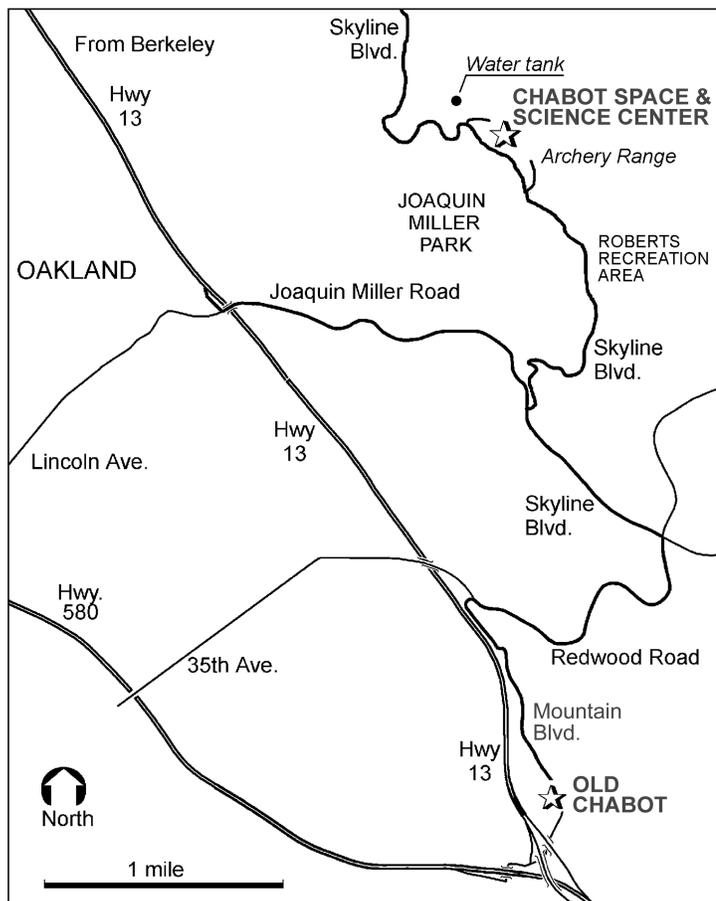
Eastbay Astronomical Society
19047 Robinson Road
Sonoma, CA 95476-5517

For more information, contact Treasurer Don Stone at: (707) 938-1667, or ddcstone@earthlink.net, or the address above.



Eastbay Astronomical Society

At Chabot Space & Science Center
 10000 Skyline Boulevard ● Oakland, CA 94619
 May 2003
 RETURN SERVICE REQUESTED



FUTURE CONJUNCTIONS

- May 8 7:30pm EAS Board Meeting at Chabot
- 10 Astronomy Day – EAS Solar & Night Sky Viewing at Jack London Square and Solar Viewing at the Oakland Zoo.
- 17 7:30pm EAS General Meeting at Chabot
- June 12 7:30pm EAS Board Meeting at Chabot
- 21 7:30pm EAS General Meeting at Chabot

From now until July 2003, Library Work Parties at Chabot each Saturday afternoon from 2:00 – 5:00 pm

Eastbay Astronomical Society

President:	Carter Roberts	(510) 524-2146
		cwroberts@earthlink.net
Vice President:	Phil Crabbe II	(510) 655-4772
Treasurer, Membership:	Don Stone	(707) 938-1667
		ddcstone@earthlink.net

Articles and photos for *The Refractor* are encouraged. Deadline for the June issue is May 29, 2003. Items may be submitted by mail to the editor, Don Saito, 3514 Randolph Avenue, Oakland, CA 94602-1228. Internet email address: donsaito@pacbell.net Hm: (510) 482-2913.

Join the Eastbay Astronomical Society

- Regular, \$24/year
 - Family, \$36/year
 - Contributing, \$40/year
 - Student, \$15/year (digital newsletter, only)
 - Sustaining, \$60/year or more
- Contact: Don Stone, EAS Membership Registrar
 Telephone: (707) 938-1667 Email: ddcstone@earthlink.net
 Mail: 19047 Robinson Road, Sonoma, CA 95476-5517