



# The Refractor

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

Volume 80  
 Number 1  
 September 2003

This month's talk:

## The Decline and Rebirth of Astronomy in Medieval and Renaissance Europe

*With Special Mars Viewing at 11:00pm with the San Francisco Amateur Astronomers*

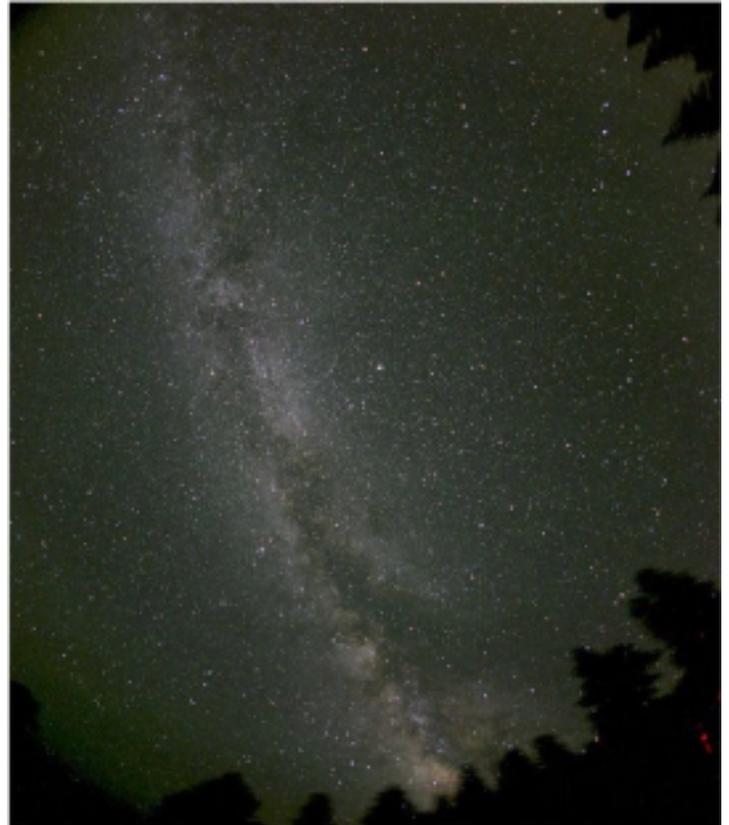
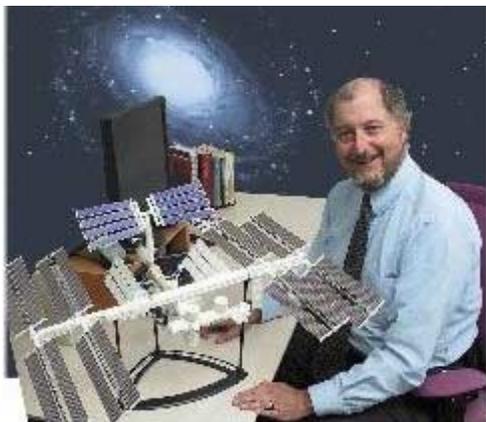
Saturday, September 13, 7:30 pm  
 Chabot Space & Science Center  
 Physics Lab, 2nd Floor, Spees Building  
*Please enter the meeting from the loading dock side*

Speaker: Nick Kanas, Ph.D.

Classical astronomy in Europe reached its zenith in the second century after Christ in the writings of Ptolemy, who summarized the state of astronomical knowledge in the book later to be known as the Almagest. But the subsequent decline and fall of the Roman Empire led to a loss of knowledge in Western Europe of the works of Ptolemy and earlier mathematically-oriented Greek astronomers. How did this happen? What was the state of astronomy during the Medieval period? What role did Islamic and Byzantine scholars play in preserving and enhancing classical astronomy?

**Dr. Nick Kanas**, Professor of Psychiatry at the University of California/San Francisco, researches psychosocial issues

affecting astronauts and cosmonauts in space. He is a member of the San Francisco Amateur Astronomers, and has been interested in astronomy since childhood. Dr. Kanas will shed light on the fascinating progress of astronomy through



*All-sky photo by Carter Roberts from Glacier Point, Yosemite*  
 the so-called "Dark Ages" and its revitalization in the Renaissance. This promises to be a fascinating presentation of a little known subject that will be of value to all of us who are interested in the history of astronomy and the mapping of the Heavens. ★

### DINNER WITH THE SPEAKER

5:00 pm  
 Saturday, September 13  
**HUNAN YUAN**  
 4100 Redwood Rd., #11  
 (next to Safeway)  
 Oakland  
 (510) 531-1415  
 Contact Dave Rodrigues  
 at 510/483-9191 or  
 daverod@aol.com by Fri-  
 day, Sep 12 to confirm

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# Observing Hickson 50

By Jane Houston Jones

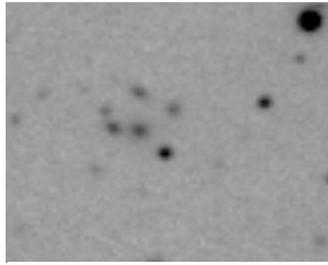
In 1755, Immanuel Kant published *Universal Natural History and Theory of the Heavens*. He noted that some nebulae have spiral structure and might be island universes. In 1877, E. M. Stephan discovered a small dense group of galaxies that now bears his name. Stephan's Quintet consists of five overlapping galaxies of unusual shape with structure of gas and stars that seem to interact with the neighboring galaxies. One large spiral in the quintet is probably a foreground object which happens to lie along the line of sight to the more distant galaxies.

In 1918, H. D. Curtis made galaxy observations at Lick Observatory on the Crossley reflector. He observed islands of stars or spiral nebulae. In 1923 Edwin Hubble made the discovery of Cepheid variable stars in the great nebula in Andromeda. For 30 years, astronomers using the 100-inch telescope at Mount Wilson made nightly discoveries of groups and clusters of galaxies.

In 1948 Carl Seyfert, observing with the 100-inch Hooker Telescope at Mount Wilson, discovered another compact group of galaxies, now called Seyfert's Sextet. These galaxies exhibit violent tidal forces, an intergalactic plume of galactic matter. These apparent interactions led astrophysicists to the conclusion that these are compact dense systems. Geoffrey and Margaret Burbidge studied the spectra of these galaxies and discovered that all but one of the galaxies in the two groups shared the same red shift velocity, but that discordant red shifts are found in many compact groups of galaxies.

In 1957 George Abell presented a paper with a catalogue of 2700 rich clusters of galaxies visible on the Palomar Sky Survey plates. In the early 1980's Paul Hickson, interested in taking a large sample of compact galaxy groups, composed a catalogue using these same Palomar Sky Survey plates. The search was intended to find a good cross section for study with the expectation of finding new examples of discordant red shifts, so he employed rigorous criteria to select 100 compact galaxy groups. This group of 100 compact galaxy groups are a popular observing project for amateur astronomers. Observing 30 is one requirement of the Astronomical League Galaxy Groups & Clusters project, my current project. <http://www.astroleague.org/al/obsclubs/obsclub.html>

One of the "Hicksons" is omitted from the Astronomical League program. Hickson 50 is deemed beyond the limit of almost all amateur telescopes, although it has been successfully observed in amateur telescopes ranging from 17 to 36 inches in aperture. Hickson 50 was my observing project over two spring weekends. First I attempted it May 26, 2003 at Lake Sonoma through my own 17.5" reflector. Next, I attempted it May 30 through the Fremont Peak 30" Challenger

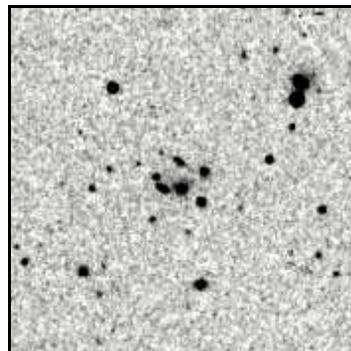


Hickson50-1

- by Josef Muller, Germany

reflector. My 20 other weekend Hickson sessions can be read at: <http://observers.org/tac.mailing.list/2003/May/0615.html>

May 26, 2003: 17.5" f/4.5 Litebox reflector. 222x 9 Nagler, 333x 6 Radian. Hickson 50 in Ursa Major 11h 17m 06.1s +54.55.07. Five components, something fuzzy seen. M97, the Owl nebula is so close to this object, at the edge of the eyepiece field of view at 125x of my 16 Nagler, 20 arc minutes away. My 125x eyepiece chart (SkyTools 2) website - <http://www.skyhound.com/skytools.html> - made it a snap to get the field of view in the eyepiece. A distinctive trapezoid (like the Hercules keyhole) asterism of stars led the way east of M97. Exactly one asterism further east were the pair of mag 13 stars. Directly between these two and a little north should be Hickson 50. I did get confused because the SkyTools map showed an object that I took for a cluster - a circle with a cross in the middle. It's just a second confusing galaxy symbol it turns out, and this turned out to be Hickson A, the brightest component of the group. I did see a smudge of something in the right spot. To me the smudge was more than one object. The only other star in the area is a mag 17 star to the north, and I could see that star as well. These galaxies are in the 18 and 19 blue "B" magnitude range meaning a little brighter in the visible range.



Hickson 50 by

Andreas Domenico, Germany

May 30, 2003: 30" f/5 reflector at Fremont Peak Observatory. I noticed that Mojo had the 30" aimed at M97 at our SFAA night at Fremont Peak. I took over the telescope for about 45 minutes and visually moved the big scope by pushing the truss poles and peering into the eyepiece while moving the telescope and holding a paper chart in my other hand while balancing at the top of the tall ladder, since Ursa Ma-

major was high over head. From M97, the Owl Nebula, I changed the eyepiece from 9 Nagler (400x) back to the 31 Nagler (114x), moved the telescope past the trapezoid shaped asterism and voila, a little clump of galactic matter popped into view! Then I pumped up the power to 200x with the 16 Nagler, and then higher using the 9 Nagler for 400x. At each magnification change, I presented Hickson 50 to a group of about 12 members of the SFAA for their viewing pleasure. Some saw more than one clump. I think all were mighty impressed. I distinctly made out 4 components, roughly in a tight circle. Two of the galaxies - 50a and 50c were brighter than the others, and appeared more elliptical or round. The other two - 50b and 50d were elongated. I didn't see 50e.

The group was ready to move on to other brighter objects. I think mag 13.7 Pluto was the next target. Like Hickson 50, Pluto was also next to a distinctive asterism - shaped just like the constellation Delphinus, on this night, May 30, 2003. If you look at Pluto tonight, it will have moved on. ☆

# EASTBAY ASTRONOMICAL SOCIETY MEMBERSHIP APPLICATION FORM

NAME: (please print) \_\_\_\_\_ Date: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

DAY PHONE: \_(\_\_\_\_)\_\_\_\_\_ EVE PHONE: \_(\_\_\_\_)\_\_\_\_\_

EMAIL ADDRESS: (please print) \_\_\_\_\_

## MEMBERSHIP CATEGORIES:

*Important Note: If your address label has 1004 next to your name, you are already renewed for 2004!*

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

## Optional discounted 12-month magazine subscriptions:

- Sky & Telescope ..... \$32.95
- Astronomy ..... \$29.00

*Important Note: All magazine subscriptions must be in to the Treasurer before September 30th for prompt handling!*

Optional, tax deductible donation(s) to any of the projects of the Eastbay Astronomical Society:

- Burns Library      ● General Project Fund      \$ \_\_\_\_\_

Other: \_\_\_\_\_

Total Enclosed: ..... \$ \_\_\_\_\_

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

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

For further information, please contact Treasurer and Membership Chairman Don Stone at (707) 938-1667, ddcstone@earthlink.net, or write him at the Sonoma address, above.

As a cost savings to us, instead of getting a mailed newsletter, would you prefer to be notified via email that:

The .pdf version of the newsletter is available for download from our website

And,

Are you interested in volunteering your time/equipment for public stargazing at Chabot?

Are you interested in doing other volunteer work for Chabot and/or the Eastbay Astronomical Society?

**THANK YOU FOR RE-JOINING US!**

# Join the Eastbay Astronomical Society

[www.eastbayastro.org](http://www.eastbayastro.org)



**What you get when you join the Eastbay Astronomical Society:**

**Monthly newsletter, The Refractor**, with interesting articles on currently visible constellations, upcoming lectures, club events, and other local news.

**Monthly meetings with featured guest speakers** on diverse subjects having to do with astronomy and the space sciences (CCD astro-photography, planetary geology, finding deep-sky objects with telescopes or binoculars, NASA space probes, etc.), and are usually held in the 2nd Floor Astronomy classroom on the first Saturday of the month at 7:30pm. Look for direction signs.



**Yearly events**, including but not limited to: Meteor shower watches, the annual EAS awards dinner, Bort Meadows star party (local), Barcroft Station high-altitude star party in the White Mountains (several days, about a 6-hour drive from the Bay Area).

**Weekend stargazing at Chabot on Friday and Saturday nights** (weather permitting). Along with the big 'scopes (Rachel and Leah,

the 20" and 8" antique refractors housed in two separate observatory domes), members are welcome to bring their own equipment to gaze at the current night sky's wonders, receive free volunteer training to help Chabot with public viewing, get advice on how to buy or use equipment, and just have a good time chatting with old and new friends. As a member, you'll also have the satisfaction of contributing to the educational opportunities for children in our community.



**Automatic membership in the Astronomical League, with quarterly newsletters.**

**Opportunity to subscribe to Astronomy or Sky & Telescope at discount prices.**

**Special discount rates for purchases from various astronomical vendors.**



Also, in conjunction with the Chabot Space and Science Center, the Eastbay Astronomical Society also sponsors the Telescope Makers' Workshop at Chabot; you buy the mirror blank and grinding tool; the Workshop provides the instruction, grinding and polishing supplies, and configuration testing free of charge. You can make your own telescope, and with a little luck, it will be optically superior to most anything you could buy for twice the price from the stores or catalogues(!) And you will have a much better idea how telescopes work. Every Friday night in the Physics Lab., 7 - 10 pm.- look for the signs.

Don't delay! Join the Eastbay Astronomical Society, and begin expanding your knowledge of, and appreciation for, the night sky, our world, and the Universe!

# The Amazing GALAXY EXPLORERS!

## Participants:

Stefan Armijo, Natasha Cayco-Gajic, Andrew Chin, Adrienne Chin-Perez, Ho-Hin Choy, Sara Frost, Roger Fu, Nick Galano, Nick Geiselman, Channel Hunt, Sullivan Lee, Daniel Nowicki, Sophie Lee, Kenny Oslund, Jessica Staneley, Sara Thomas, and Austin Yung.

The Galaxy Explorers Program, in a nutshell, is a group of high school students volunteering and working as interns at various positions around Chabot. They work many jobs, from exhibit explainers, to activity designers, to classroom assistant. Their work is made possible by a grant from the National Science Foundation and they're led by Lisa Hoover.



As part of this volunteer/internship organization, participants are allowed to join teams of specialized skills that help out at Chabot. The astronomy team is one of several, and is one of the two largest teams. The astronomy team is comprised of 17 members who all share a common interest in astronomy, telescopes and astronomy education. The team meets once a week to go over current astronomy topics, decide on project, and restore already existing telescopes. The team also uses their newest telescope, Maya, to observe with during public viewing nights at Chabot on the weekend. They help with the lines waiting to view through the telescopes by answering questions on Mars and directing traffic. And soon, they will be moving on to other, larger telescopes, as time allows. Don't forget to look for them and say 'hi' during evening observing! ★

## Upcoming Events

September 9, 2003 – The moon within 1 degree of Mars just before dawn.

At Chabot Space & Science Center:

### **Distinguished Lecturer Series**

**Dr. Fritjof Capra**

*Gaia and the New Understanding of Life*

Wherever we see life, we see networks—from the metabolic networks of cells to the cellular networks of organisms, the food webs of ecosystems, and the entire planetary web of life. Dr. Capra will discuss the new scientific understanding of life with special emphasis on the recently developed Gaia theory, which implies that life is really a property of an ecological system rather than a single organism or species. He will also discuss the profound social, economic and political implications of the

Gaian view of life.

Fritjof Capra, Ph. D., physicist and systems thinker, is a founding director of the Center for Ecoliteracy in Berkeley. He is the author of several international best-sellers, including *The Tao of Physics* and *The Web of Life*. This lecture is based on his most recent book *The Hidden Connections: A Science for Sustainable Living*. Tickets: \$5; call 510-336-7373.

### **Galileo "Landing" on Jupiter**

Come to Chabot Space & Science Center on Sunday, September 21, 2003, as NASA space probe *Galileo* hits Jupiter's atmosphere. Track *Galileo* from Chabot as it descends into Jupiter's atmosphere, with a slide/video presentation on the history and discoveries of the Galileo Mission and a public question and answer period. FREE with General Admission. ★

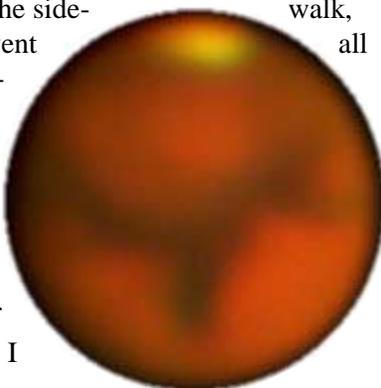


## Editor's News 'n Views

Howdy Astro Fans! The Mars thing this month has really whipped up a frenzy of media coverage, and as a result, public interest has skyrocketed! The two weekends of free public viewing before opposition saw record atten-

dance up at Wightman Plaza, with lines around the dome, out the door, out the gate, down the side-walk, all down the road, and once, it went the way out to the parking garage! The night of opposition was a sold-out pay-for event (Tue, Aug 26), but, of course, like your least favorite relative dropping by for a visit, a cloud came and plopped itself down on top of us and stayed the whole time. I hate it when it does that.

Otherwise, we held special view nights during the week just after opposition, and Chabot was even making money by selling hot drinks, pastries, and sweatshirts in the Conference Room. This whole business would not have been possible without the volunteers, some of whom worked almost non-stop for 7 hours straight on the nights of extended view times. (Normally, we only do public viewing using Chabot's big scopes on Fri/Sat nights from dusk until 11pm, but for the Mars opposition, we stayed open until 2am, PLUS, we opened for Tue/Wed/Thu until 1am!) We sure had a group of sleep-deprived volunteers *that* week. **Conrad Jung** is to be commended for gathering his cadre of Telescope Operators and Operator Trainees to meet this difficult assignment; keeping us all scheduled and informed to the best of his ability in a difficult and often-times changing (challenging) schedule. As of this writing, there's two more nights of the extended view hours (Sep 5 and 6) to go, so if you haven't seen Mars through the big scopes you should do it quick like a bunny. We are still working on arranging it, but after the meeting on Sept 13<sup>th</sup>, starting at 11:00pm, the EAS will have the big scopes all to our-



*This photo of Mars was taken on August 11, 2003 by Conrad Jung*

selves to view Mars while it's still close by and big. It will still be much larger and detailed than we normally get to see it for the next several weeks, but from here on out, it's going to gradually decrease in size from marble-size with detail, to an orange BB with little to no detail. Miraculously, no planet-wide dust storms killed our views this time around; knock, knock (knocking on wood). **Carter says to be sure to note that there will be a private event happening during the night of our meeting on Saturday, September 13, so please be sure to enter the meeting from the loading dock out in the back (see image at bottom of page).**

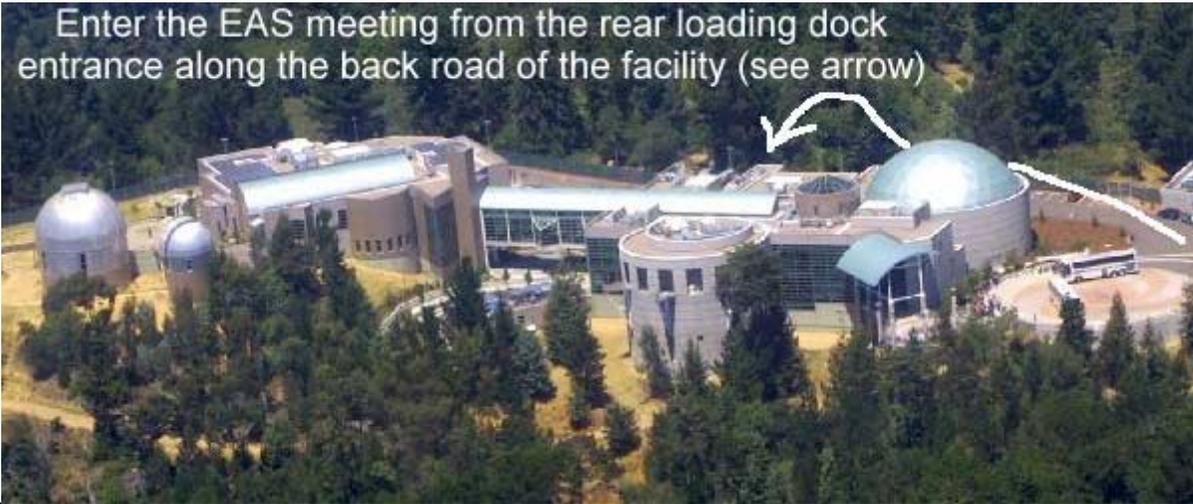
Besides all THAT, we've been also doing other events, such as **Carter Roberts, Paul Hoy, Alan Roche, Dan Arthur**, and myself helping man the CSSC booth at the annual Chinafest Street Fair, and doing public solar viewing using Carter's remarkable Coronado solar telescope. On August 28, Chabot hosted **Dr. Tim McCoy** and **Dr. Cari Corrigan** from the Smithsonian Institution for their talk, *Martian Meteorites: What They Tell Us About Mars & Life*, and brought an actual Martian meteorite with them for all to view up close after their talk. When I looked at it, it seemed like just another rock; yet it was a piece of an alien planet – quite remarkable!



*The Martian meteorite!*

Labor Day weekend, me and **Dave Rodrigues** went to Briones Park to visit the Tilden/Wildcat Horsemen's Assn, and we had a good time showing them some constellations, some deep-sky objects, and of course, Mars. And on other fronts, Carter, Dave, and Paul recently joined up with **Project Astro**, and have already had their first meetings with the teachers they will be working with, to bring astronomy to their teacher's classrooms. Good on 'em! We'll be hearing more about their exploits in the future, and perhaps some of YOU will thereby become interested in getting involved, too.

And that's it for now. Dark skies, and we'll be seeing you - IN THE FUTURE! ☆



Enter the EAS meeting from the rear loading dock entrance along the back road of the facility (see arrow)

# Spare Shots

A gallery of pictures from the month of August



◀ A bit hard to see in this photo, but it's the Wightman Telescope Plaza literally jam-packed with people clamoring to for Mars' glamour! Photo by Carter Roberts

▶ Jane Houston Jones has been searching for a particularly difficult Hickson object (number 50) with her 17-inch Lite-box. Read her story on Page 2 of this issue. Photo by Morris Jones



◀ Carter went to Yosemite this month to get those extra dark and crispy views that one gets at Glacier Point. As the night ended and the stars began to fade, the silhouette of somber Half Dome emerged from the blackness. Photo by Carter Roberts



▶ The amazing Martian Meteorite from the far-distant planet Smithsonian. When some large object hit Mars, it threw nearby rocks up so hard, they attained escape velocity, traversed the space between Mars and Earth, and finally fell here to be found and picked up. Photos by Don Saito

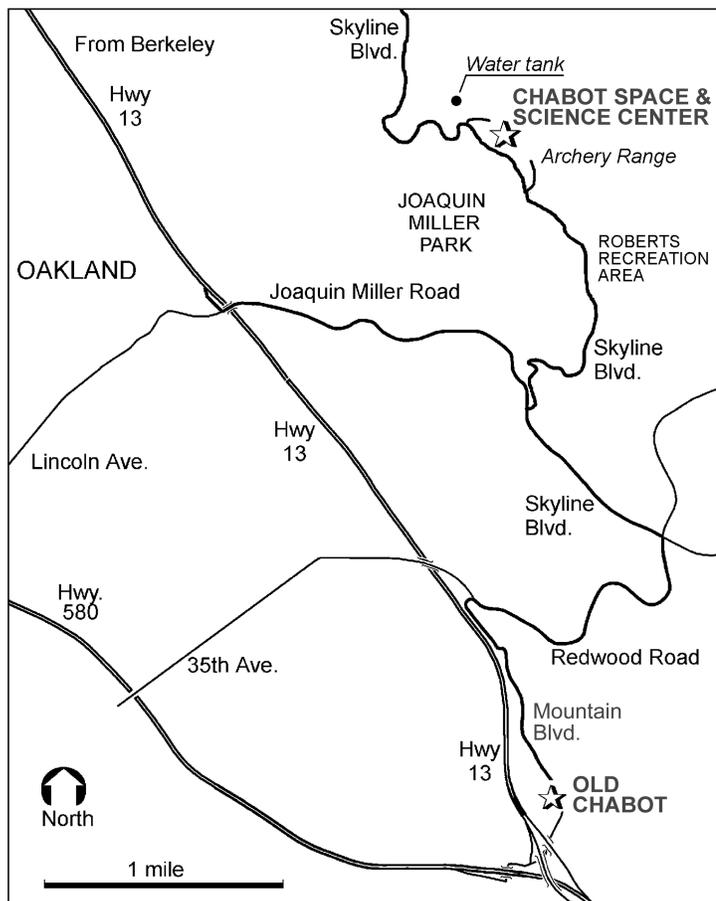
◀ Volunteer Don (?) assists celebrity alien visitor "Marti" (who has been seen on several billboards in and around Oakland, recently).  
That's it for now! ☆





# Eastbay Astronomical Society

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



### FUTURE CONJUNCTIONS

- Sep 11 7:30pm EAS Board Meeting at Chabot
- 13 2:00 – 5:00pm EAS Library Task Force Workparty
- 13 7:30pm EAS General Meeting at Chabot and Mars Viewing with EAS and SFAA (enter Physics Lab from loading dock)
- 27 2:00 – 5:00pm EAS Library Task Force Workparty
- Oct 4 7:30pm EAS General Meeting at Chabot
- 5 Dusk Japanese Moon Festival at Garden Center, Lake Merritt
- 9 7:30pm EAS Board Meeting at Chabot
- 31 Uninterrupted Membership Renewal Deadline!
- Nov 29 7:30pm EAS General Meeting at Chabot

### 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 September issue is September 17, 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