

The Refractor

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

Volume 80
 Number 2
 October 2003

This month's presentation:

The Big Bang Band

Saturday, October 4, 7:30 pm
 Chabot Space & Science Center
 Physics Lab, 2nd Floor, Spees Building

The *Big Bang Band Traveling Star Show* is a trio of amateur astronomers and musicians. The band members are Matt Gardner, Terry Dye, and Angelo Parisi. This group travels to Sonoma County schools to perform a two-hour interactive musical program, aimed at inspiring interest in science and astronomy in children.

Their Show begins with a 45-minute live musical performance with educational astronomy-themed songs and slides. This segment introduces the concepts of galaxies, the life cycles of stars, and the physical nature of the sun.

When they do this for a star party, the musical performance is followed by more than an hour of hands on activities and (weather permitting) telescopic viewing. During this portion of the program, children learn about moon phases, the motion of stars across the sky, and the relative sizes and distances to the planets.

The show is designed to be entertaining and educational to people of all ages. Audience members receive a program containing lyrics to the songs, and are encouraged to sing along.

The Big Bang Band Traveling Star Show is available for

Friday Evening performances throughout the school year. We are also available for private events, summer camps, or birthday parties by appointment, as our schedules permit. ☆



Time to Renew!

Look for the year on your address label. If it's **2004**, you're safe; you've already renewed. If it's **2003**, then you haven't renewed, yet, and this will be your last issue (oh noooo!)

DINNER WITH THE SPEAKER
 5:00 pm
 Saturday, October 4 **HU-**
NAN 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, Oct 3 to confirm

Inside This Issue:

Gatekeepers	2
Membership Renew	3-4
Morrison Update	5
News 'n Views	6
ASP Annual Meeting	6
Spare Shots	7
Directions & Schedule	8

Are Amateur Astronomers Gatekeepers?

By Jim Scala

My scientific career spanned over 40 years with much “small talk” that I used to advantage by asking scientists, engineers, and physicians, “What got you interested in science?” Almost invariably, the replies included something about astronomy at a young age; often it was a gift telescope, planetarium visit, star party, or a neighbor who had a telescope. Although this wasn’t a scientific survey, the answer variations were so minor and I asked it so often, that I believe I’m onto something solid.

My analysis includes many scientific disciplines and, after 40 years, I have a tentative mental distribution. I found that about 80 percent of scientists (90 percent of astronomers), nearly 60 percent of engineers and about 50 percent of physicians were exposed to astronomy between the ages of nine and twelve.

Since I worked with two U.S. Olympic Ski teams, I asked (“small talk” again) jumpers, coaches and trainers when they first started jumping. At first I was surprised when they said by about age seven, but soon I had a similarly consistent pattern. It starts early, before anyone asks, “What are you going to be when you grow up?”

Have I happened onto something that says young minds have a special time when they are exposed to things that spark their interest? More, do they become comfortable with disciplines that seem to shape their career choice? I’ll come back to this issue of *comfort* because I think it’s important.

Star parties have a powerful influence.

Amateur astronomy is characterized by four kinds of star parties put on by astronomy clubs: most common are the formal public programs which are open to everyone; next are sidewalk viewings where telescopes are set up on a street corner by dedicated amateurs and passerby’s are invited to look; third are coordinated school programs where specific age groups are invited; and finally, parties open only to club members and their guests. The star party phenomenon is almost exclusively the domain of astronomy. You don’t find

chemists setting up on street corners or biologists conducting public frog dissections. Indeed, if they did, I suspect they’d be arrested.

My career took me all over the world and I attended star parties whenever it was convenient. I can assure you that these events take place wherever amateurs form a club, or a local science center or school nudges them along. It never mattered that I didn’t speak the local language, because viewing needs no verbal communication; the local version of “wow” was always clear. Although it was gibberish to me when the telescope owner exuberantly explained what was in view; one look through the eyepiece made it clear and I said, “wow!” I visited parties in Asia, Central and South America, Europe, New Zealand and Australia and I can say unequivocally that they’re the same everywhere.

Star parties and sidewalk astronomy are probably traceable to the first telescope. I can envision Galileo offering friends (even the Pope) a look at Jupiter and then hearing expressions of astonishment as more folks lined up for a view. This evangelical nature of amateur astronomers wanting to share their views with other people is quite unique.

There are amateur anthropological groups and even paleontology

groups, but they seldom attract children and are often difficult to attend because they’re held in remote locations. Consequently, astronomy is especially accessible and attractive to everyone; especially youngsters.

Star parties are about becoming comfortable with science.

Star parties usually begin at dusk with a short talk by a club member followed by viewing through telescopes that are generally pointed at different objects. Telescope owners describe what visitors are looking at and often impart some scientific information regarding the subject. For example, explaining how we determine the height of lunar mountains helps a person become comfortable with geometry and trigonometry; similarly with stellar distances and double stars. Star and nebula colors impart concepts of temperature and spectroscopy. With the assistance of a youngster, the scope can be turned to another object using setting circles, which familiarize them with stellar coordinates. Most important,

Continued on Page 5



Who is having the most fun, here? Ralph Requa shows off the Moon to this gaggle of (possibly) future amateurs. Photo by Jim Scala

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



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 latest news on Morrison Planetarium

I recently emailed Mr. Bing Quock, Assistant Chairman/Show Producer at Morrison Planetarium, about getting an article about Morrison Planetarium, which is due to close by the end of the year for renovations that will take about 4 years to complete. Here was his response: (Ed.)

Hello Don,

There's a history of our planetarium that I wrote for our website (www.calacademy.org/planetarium) that you may find useful. The paragraphs specifically detailing the manufacture of the starplates were written by Ron Hipschman of the Exploratorium. I also wrote an article for the Spring issue of the Academy's magazine, "California Wild," that might still be available online, also on the Academy's website. It covered Dallas Hanna's involvement with the "Roof Prism Gang" during World War II and how that led to the construction of the Morrison star projector. What will happen to the projector is still under discussion, and I honestly can't tell you at this time what its ultimate disposition will be. The Academy has decided on the parameters for the new planetarium that will be part of the renovated Academy in 2008 or so, and our magnificent, old projector just isn't compatible with the new design, which involves a tilted dome - so after 51 years, it'll be retired from service and replaced with a newer machine made by one of the major manufacturers. We don't intend to scrap the projec-



tor or sell it for parts, since we certainly think of it as an important historical artifact that should be preserved, but so far, the Academy hasn't shown much interest in putting the machine on display - I have lobbied for it to do so as a nod to our history, but I haven't received any authoritative response. To my knowledge, no formal inquiries to the Smithsonian or the Adler Planetarium have been made yet to see if they want to add it to their collections, and I know that Steve Craig (Chairman at Morrison Planetarium) has been hoping that some needy planetarium or museum that may actually want to use it will step forward. As far as I'm aware, though, the current plan is to put it in a storage crate for the time being. The

exact replacement for the star projector has not yet been decided upon, and since our re-opening is still about five years away, it's still a little early to be committing to anything. The administration feels that we can wait at least a couple of years to give upgrades or developing technologies time to mature, and then see what becomes available at the last minute. Likewise, although we have stated to the administration our support for keeping the Foucault pendulum, the details of the final exhibit plan are still under development, so we still

don't know whether or not there will be a place for a pendulum. Hope this helps.

Sincerely, Bing

Bing F. Quock
Assist Chairman/Show Producer, Morrison Planetarium
California Academy of Sciences, Golden Gate Park
San Francisco, CA 94118 ★

Continued from Page 2

young minds are getting the opportunity to observe, help operate a sophisticated scientific instrument, and practice real science while they are saying "wow" and obviously having a **Why do amateurs do this?**

Most clubs get more telescopes at public star parties than "members only" parties, so I ask amateurs ("small talk" again) why they take part in public star parties. Two clear answers and a vague third tell it all. First, "I like to hear kids say wow!" Second, "If only I had this when I was a kid." A vague third, "We need more scientists." I suspect reasons go much deeper, relate to ego, border on religion, gregariousness, national interest and a basic human need to share. Hopefully, a psychologist will study what drives amateur astronomy because I know there's a solid PhD. thesis there.

Astronomy is a powerful motivator.

When parents, teachers, and friends bring youngsters to a star party, they accomplish more than they realize. Many peo-

ple in the USA graduate from college without ever confronting math developed after the 17th century, or hardly touch a scientific instrument after a high school biology microscope. In contrast, familiarization with science, math, and scientific instruments all takes place at a star party, and nobody realizes it because they are all saying "wow!" Walt Disney proved people learn when they're having fun and that's what's going on at a star party.

About the author's insights.

Jim Scala enjoyed a long scientific career in teaching, research and as author of 14 books on various aspects of health, nutrition and dietary management of chronic illness. These activities included much worldwide travel during which he attended star parties in many countries where English was seldom spoke the spoken language. This article summarizes his impressions gained by countless discussions with scientists, engineers, and physicians and his observations of more star parties than he can count. ★



Editor's News 'n Views

Howdy Astro Fans! The Mars craziness is beginning to slow down, much to the relief of us telescope operators and other late-nite volunteers for Chabot's Public View Nights. And, as a kind of reward from Ma Nature, when our

combined EAS and SFAA club meeting was held on Saturday, September 13, we were blessed with *excellent* seeing conditions and shirt-sleeve temperatures the whole night. By prior arrangement with Chabot, the EAS secured the exclusive use of Rachel, the 20" refractor, to view Mars from 11pm on. I'll tell you one thing: I've never seen such a short line take 4 hours to look at one object (and I hope I never do again). Actually, I'm just funnin' ya; we all had a great time, and Mars was *spec-TAC-u-lar*. So big, clear, detailed, and steady, it was no wonder people would climb up the ladder, take a good long look, climb back down, and then go to the back of the line, again. I swear: there was an initial group of about 90 or so, and as the hours progressed, the line would *slowly* shrink, as a few people would trickle off by ones or twos; but there were some real die-hards, and they just kept on getting back in line, looking again, and getting back in line again, over and over *and over*. I think it was around 4 o'clock in the morning when I bit the head off of someone who said, "Can we look at M15, now?" Oh, sure...

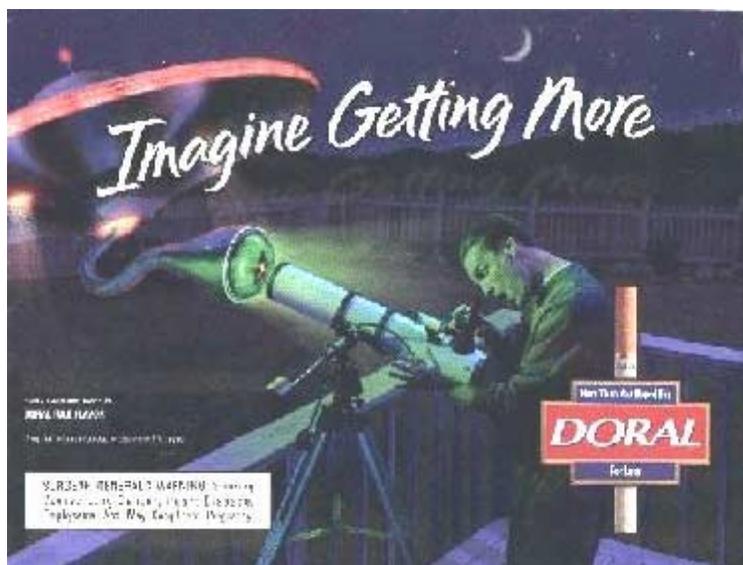
RAWRRRR! CHOMP! Tasted like chicken.

At our EAS Board Meeting, we heard some interesting little tidbits from Terry Galloway about what's in store for Chabot in the (hopefully) not too distant future. 1) The "Dungeon" storage area (located under the Library and offices in the Dellums Building) is going to be temporarily converted into three or four classrooms, until the new addition is built. That space will then be converted into exhibit space, and a corridor into the new building. 2) The *Our Place in the Universe* exhibit will have its east wall removed, and will also merge with the Biology classroom space. The Bio lab will then go into one of the temporary classrooms in the former Dungeon space. The same thing will happen to the Physics lab. We don't yet know what exhibits will go into this increased space, but when we find out, we'll let you know. 3) North of Nellie, a tower for Chabot's research-grade solar telescope from the Canary Islands will be built to capture the Sun's light and pipe it into a display in Nellie's observatory building. Originally, the solar telescope images were to be projected into the half-round space in the Planetary Landscapes building, but that apparently didn't work out.

These are the plans for Chabot Space & Science Center for the near future. Remember: you heard it *here*, first!

And finally, here's a funny little something that Bob Garfinkle found somewhere, that is sure to tickle the funny bone

of any self-respecting astronomer. See if you can figure out "what's wrong with *this* picture!"



Here's a couple of clues: He says: "Aieee! I've got a terminal case of naval lint!" The Eye says: "Hmm, what this mean, *made in Taiwan*?" One supposes the "more" one would get from smoking this brand of cigarette, would be "more stupid"

Answer: the telescope is backwards! The front end of the scope is pointing at his belly button, and the eye is looking at the bottom of the mirror cell. Dumb aliens Dumber humans! Dumber!

advertisers!

ASP's 115th Annual Meeting

San Francisco Bay Area, October 11-12, 2003

Includes a tour of the SLAC (Stanford Linear Accelerator), Awards Banquet on the 11th, and the Cosmic Explosions lecture series on the 12th, including:

9:15-10:05 am Sandra Faber (UC, Santa Cruz): *The Big Bang: Truth or Nonsense?*

10:30-11:20 am Matthew Malkan (UCLA): *Blasts from the Centers of Galaxies*

11:20 a.m.-12:10 pm Alex Filippenko (UC, Berkeley): *Supernovae: Catastrophic Stellar Death*

1:50-2:40 pm Shrinivas Kulkarni (Caltech): *Death Cries Across the Universe: The Brilliant Gamma-Ray Bursts*

2:40-3:30 pm Sumner Starrfield (Arizona State University): *Nova Explosions: Stars that Go Bump in the Night*

3:30-4:00 pm Break and telescope drawing

4:00-4:50 pm Robert Lin (UC, Berkeley): *Solar Flares: the Most Powerful Explosions in the Solar System*

4:50-5:40 pm Kevin Zahnle (NASA/Ames Research Ctr): *Cosmic Calamity: Asteroid & Comet Collisions w/Earth*

More info: <http://www.astrosociety.org/events/meeting.html>

Spare Shots

All photos by Don Saito, except one

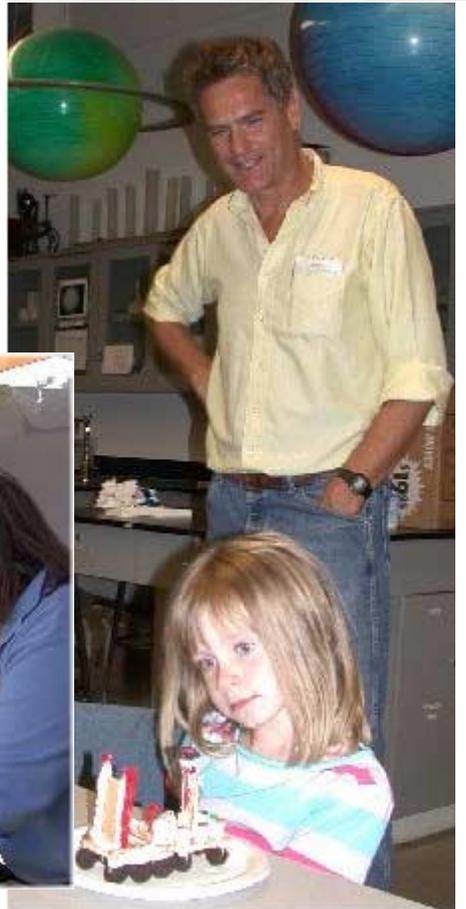


◀ Ariane Gerrard takes her first look at Mars through a BIG telescope (Nellie, no less!)

▶ A Star Wars storm trooper keeps these alien riff raff under guard.



◀ Volunteers Alan Roche and Paul Hoy work the Chinafest Street-fair crowds to promote CSSC using Carter's h-alpha Coronado Solar Telescope



▲ NASA Mars expert, Dr. Chris McKay oversees the construction of this technician's (edible) Mars Rover



▶ Jean Quan always drops by for a visit to the Chabot booth at the Chinatown Streetfest.

▲ Is Chabot Mark Vandewettering's entire world? Not really, though this picture of his might give one that impression.

▶ This is what San Jose looks like from Mt. Hamilton

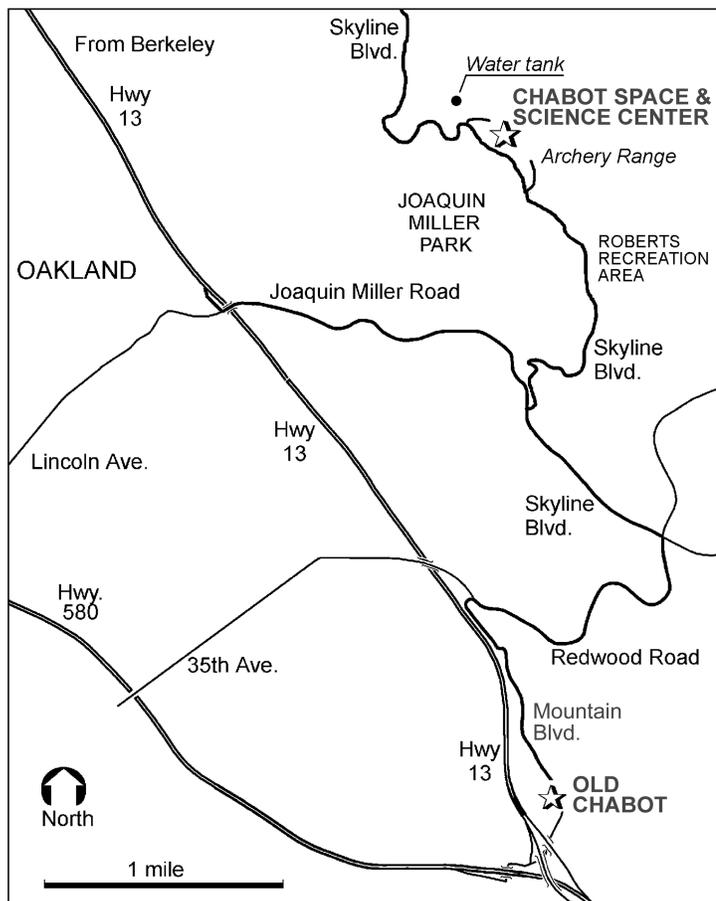


That's it for now! ☆



Eastbay Astronomical Society

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



FUTURE CONJUNCTIONS

- Sep 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 October issue is November 8, 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
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- Contact: Don Stone, EAS Membership Registrar
 Telephone: (707) 938-1667 Email: ddcstone@earthlink.net
 Mail: 19047 Robinson Road, Sonoma, CA 95476-5517