

PRIME FOCUS

Tri-Valley Stargazers

June 2003



Meeting Info:

What

*Summer BBQ Potluck and
A Robotic Solar Observatory*

Who

You and Mike Rushford

When

June 20, 2003
Set up at 6:00 p.m.
Dinner starts 6:30ish p.m.

Where

Unitarian Universalist
Church in Livermore
1893 N. Vasco Road

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June Meeting

Summer BBQ and
A Robotic Solar Observatory
You and Mike Rushford

We'll start the summer observing season with our annual Summer BBQ and Potluck. After dinner, we'll adjourn inside for dessert and a short talk by Mike Rushford about his Eyes-On-The-Skies solar observatory. Note the early start time — set up at 6:00, dinner at 6:30.

For the BBQ, TVS will provide hamburgers and veggie burgers, buns, condiments, hot and cold drinks, plates and plasticware. To figure out what you need to bring, just look below for the first letter of your last name to find your dish. Please bring enough to feed about 8 people.

- A-F Green or Fruit Salad
- G-L Appetizers
- M-R Macaroni or Potato Salad
- S-Z Dessert

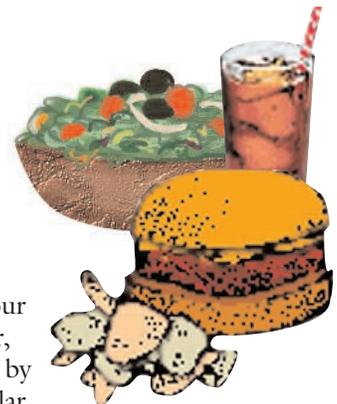


Photo by Fred Van
sien by Lenner Higgs

After dinner, we'll grab some dessert and sit down to hear Mike tell us about his home observatory. He had presented his talk at this year's Riverside Telescope Makers' Conference, the theme of which was "Building Your Own Observatory".

Some TVS members may not be aware of Mike's accomplishment in building a robotic solar observatory in his back yard. You can visit his Eyes-on-the-Skies web site at www.eyes-on-the-skies.org and actually control his solar telescope over the internet (provided it's daylight and the weather is cooperative).

Mike will also show some video of solar flare eruptions taken with his set up.

Mike's solar telescope.

News & Notes

2003 TVS Meeting Dates

Below are the next few TVS meeting dates. The lecture meetings are held on the third Friday of the month, with the Board meeting on the Monday following the lecture meeting. The *Prime Focus* deadline applies to that month's issue (e.g., the July 6th deadline is for the July issue).

Lecture Meeting	Board Meeting	Prime Focus Deadline
June 20	June 23	June 9
July 18	July 21	July 6
Aug. 15	Aug. 18	Aug. 3

Money Matters

At the May Board meeting, Treasurer **Gary Steinhour** left word as to the account balances (as of May 13, 2003) of several TVS accounts:

Checking	\$1,757.81	
CD #1	\$3,911.19	matures 08/17/03
CD #2	\$2,409.33	matures 05/27/03
CD #3	\$2,056.40	matures 07/16/03

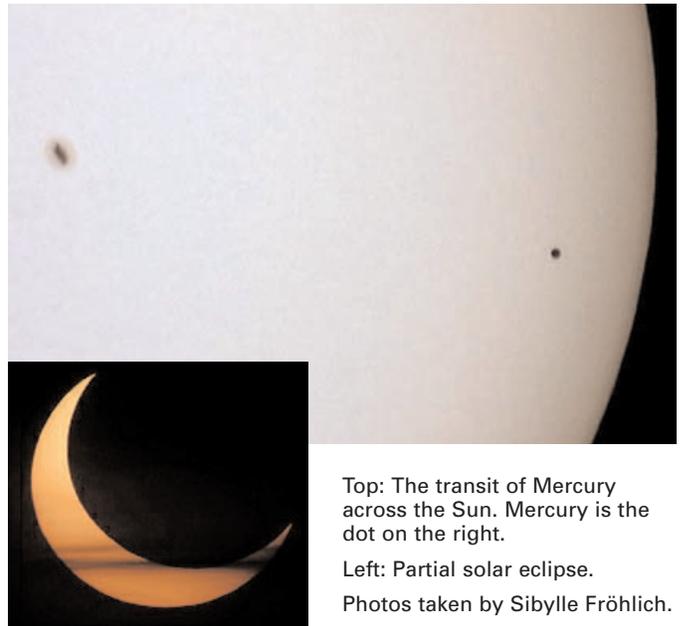
H2O Update and Open House

On May 31, four intrepid TVS volunteers took on the necessary task of painting the observatory. **Maggie Halberg, Frank Rogue, Chuck Grant, and Debbie Dyke** spent the day covering the building, themselves, and a few unlucky spiders, with two coats of gray paint. Another work day for cleaning out the interior of the observatory is in the works. We'll post details on the TVS e-mail discussion list.

In other H2O news, our first **Open House** of the year is just around the corner on June 21, the day after our meeting. If you're curious about our club's dark sky observing site, now's your chance to see what it is like. Since getting to the site can be a little confusing for first timers, a caravan will depart from the corner of Mines and Tesla in south Livermore. A meeting time has not yet been determined, but most likely it will around 6 or 7:00 as it takes an hour to drive down to the site and we want to arrive before it gets dark. We'll post the departure time on the TVS e-mail discussion list and announce it at the meeting. There is a \$3 entrance fee, so bring exact change. H2O is a primitive site (i.e., no electricity, no running water, pit toilets) so come prepared.

Transit of Mercury

Our German delegate, **Sibylle Fröhlich**, sent us images of the Mercury transit as seen from Berlin, Germany. Sibylle and her friends at the Wilhelm-Foerster-Sternwarte got up early in the morning to catch the transit. Due to clouds,



Top: The transit of Mercury across the Sun. Mercury is the dot on the right.

Left: Partial solar eclipse.

Photos taken by Sibylle Fröhlich.

they missed some of the transit but were still able to photograph what they could see once the sun became visible.

Sibylle was also able to photograph the May 31 partial solar eclipse. For more eclipse pictures, visit www.trival-leystargazers.org/gert/sofi_030531/sofi_030531.html.

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Calendar of Events

Classic Sci-Fi Film Series Chabot Space & Science Center

The movies are shown in their original theater format at the 60' Tien MegaDome Theater. Tickets are \$5 per person and are available at the door, at TicketWeb.com, or the Chabot Box Office, 510-336-7373.

Movies:

War of the Worlds (1953), July 4-6
Mars Attacks (1996), August 1-3

Showtimes:

Friday – Sunday on the first weekend of each month.
Friday & Saturday – 7:30 p.m., Sunday – 4:00 p.m.

Newsletter header image: May Transit of Mercury.

This picture of the transit of Mercury was taken May 7th, 2003, in Berlin. It's a prime focus, using a 4.5" f/8 Newtonian and a Nikon Coolpix 950 digital camera at 1/500 second.

Photo: Sibylle Fröhlich

Calendar of Events *continued*

June 19, 7:30-9:30 p.m.

What: *The History and Future of Mars Exploration*
Who: Erik S. Bailey (Jet Propulsion Laboratory)
Where: Chabot Space & Science Center, Oakland
Cost: \$7

Mars, the red planet, has fascinated us for a long time. We've imagined invaders from Mars, little green men with antennas inhabiting the planet. We know better now, but we expect to send explorers to Mars in the next two decades. With Mars approaching its best view from Earth in over 10,000 years, Erik Bailey, an aerospace systems engineer at the Jet Propulsion Laboratory in Pasadena, will take us on a journey from the very first American probes to Mars to the bold plans for future vehicles of exploration.

June 26, 7:30 p.m.

What: *Martians Invade Hollywood*
Who: Dr. Dr. Seth Shostak (SETI)
Where: Chabot Space & Science Center, Oakland
Cost: \$7

Dr. Shostak will take a look at how our ideas about Martians and alien life have been influenced by Hollywood's quest for drama and the absurd, plus a look at what's really real in the cinematic reels.

June 28, 8:30 p.m.

What: *Extragalactic Globular Clusters: Insights into Galaxy Formation*
Who: Dr. Jean Brodie (UC/Lick Observatory)
Where: Mt. Tam
Cost: \$3

Hubble Space Telescope and Keck telescope observations reveal extragalactic globular clusters, giving clues as to how and when galaxies assembled.

The lecture is held in the Mountain Theater, telescope viewing is in the Rock Springs parking area. For more information and directions, call 415-455-5370 or 415-388-2070, or visit www.mttam.net.

July 10, 7:30 p.m.

What: *Water and the Martian Landscape*
Who: Taylor Perron (UC Berkeley)
Where: Chabot Space & Science Center, Oakland
Cost: \$7

The quest for locating water on Mars is the key to understanding its past, interpreting its present and humanizing its future. Taylor Perron will take us through that journey and discuss the current status of this exploration.

Astronomical insights

by David Feindel

The light pollution in Pleasanton/Livermore/Dublin certainly constrains visual observing; it's not at all atypical to only see 3 of the Ursa Minor stars at night, giving a limiting magnitude of around 3.5-4.0. But there are a couple of alternatives; TVS is lucky to have access to a site within Del Valle Park, as well as H2O.

The Del Valle site sits behind a locked gate on the road into the park. There are ridges to the east and west, raising the horizon a few degrees. But there's a convenient "Alpha Centauri notch" southwards, and the LM easily goes up to (typically) 5.0-5.5. The site is usually above any ground fog, too. Not bad for a 20 minute drive. To use the site, you need to get one of the TVS permit holders to go with you. (I'm one, and am usually willing to be

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Officers

President:

Chuck Grant
cg@fx4m.com
925-422-7278

Vice-President:

Frank Rogue
frankrogue@attbi.com

Treasurer:

Gary Steinhour
steinhour1@juno.com

Secretary:

Maggie Halberg
925-736-8627

Board of Directors

Alane Alcorn, Jim Alves,
Mike Anderson, Paul Caswell,

Debbie Dyke, Gert Gottschalk,
Mike Rushford, John Swenson.

Volunteer Positions

Librarian:

Jim Alves
jim_alves_engr@yahoo.com
925-634-0220

Newsletter Editor:

Debbie Dyke
ddfam@pacbell.net
925-461-3003

Program Director: unfilled

Loaner Scope Manager:

John Swenson
johnswenson1@attbi.com

Webmaster:

Chuck Grant

Observatory Director/

Key Master:

Chuck Grant

School Star Party Chair:

Rich Campbell
r_photo@hotmail.com
209-834-1324 (evenings)

Public Star Party Chair:

Rich Campbell

Historians:

Paul Caswell & Debbie Dyke

Addresses

Mailing:

Tri-Valley Stargazers
P.O. Box 2476
Livermore, CA 94551

Lecture Meeting:

Unitarian Universalist Church
1893 N. Vasco Road, Livermore

Board & Discussion Meetings:

Round Table Pizza
1024 E. Stanley Blvd., Livermore

Web & E-mail

www.trivalleystargazers.org
tvs@trivalleystargazers.org

Eyes on the Skies

Eyes on the Skies is a robotic solar telescope run by Mike Rushford (rushford@eyes-on-the-skies.org). You may access it by visiting www.eyes-on-the-skies.org.

Astro Events

Jupiter Transits

The end of the Jupiter season is upon us. Below are a few listings of transit times for various Jupiter related objects. The abbreviations are fairly straight forward: G=Ganymede, C=Callisto, I=Io, E=Europa, GRS=Great Red Spot, and if you see a 's' next to one of the moons, it means its shadow (e.g., Cs=Callisto's shadow); na means Jupiter is below the horizon or it is daylight at that time.

June

Date	Object	Starts	Transits	Ends
Sun 15	GRS	na	9:50p	11:40p
	E	na	10:10p	11:32p
	Es	10:42p	na	na
Tues 17	GRS	9:30p	11:30p	na
Wed 18	I	na	na	9:58p
	Is	na	9:40p	10:53p
Fri 20	GRS	na	na	10:45p
Sun 22	GRS	na	10:30p	na
Tues 24	GRS	10:25p	na	na
Wed 25	GRS	na	na	10:55p
	I	9:43p	10:50p	na
	Is	10:36p	na	na
Fri 27	GRS	na	9:45p	na
Sun 29	Gs	na	na	9:45p
	GRS	9:35p	na	na

Star Parties

H2O Open House

June 21; July 19; September 20

For TVS members who would like to check out our club's dark sky site, the H2O Open House offers them just that chance. For more info, see the H2O update blurb on pg. 2.

Shingletown Star Party 2003

June 25-30

Shingletown is 17 miles from Mount Lassen Volcanic National Park. A public star party and community BBQ with the people of Shingletown and Shasta County. The star party takes place on a closed airstrip.

For information, images and more, visit their web site at www.shingletownstarparty.org.

Yosemite

July 3-5

TVS will host public star parties on Glacier Point in exchange for free park entrance and camping for up to thirty people. Fabulous views of the heavens and the

earth. Contact **Dave Rodrigues** to reserve a spot on this trip. DaveVRod@aol.com or 510-483-9191.

White Mountain High Altitude Star Party July 24-27

View celestial wonders in a very dark, low oxygen environment, with wonderful food to boot. Our annual high altitude star party is at the Barcroft Lab (altitude 12,435') in the White Mountains northeast of Bishop, CA. We'll have up to 5 nights of observing. This is a joint activity of TVS and the EAS (Eastbay Astronomical Society).

The first night of the trip will be at the Grandview Campground (8,600') for altitude acclimation. If you don't like to camp, you may spend the night at Mammoth Lakes (8,000'). On Friday the 25th, everyone makes their way to Barcroft. Most people will stay there for 3 nights and return home on Monday, but you do have the option of staying until Wednesday. Meals and bunk beds are provided for \$55 per day per person.

We are limited to 20 people, so priority will be given to those staying 3 nights or more. Send your check, payable to **Dave Rodrigues**, to Dave at 1633 Graff Ct., San Leandro, CA 94577. If you have any questions, contact Dave at 510-483-9191 or davevrod@aol.com.

Starry Starry Nights August 15-17; 22-24

Don Machholz is the host for a series of star parties taking place in the Sierra Nevadas. Visit www.geocities.com/donmachholz/StarryStarryNights2003.html for info.

The Third Annual California Star Party (CalStar) September 25-27

CalStar, hosted by the San Jose Astronomical Association, will be held at Lake San Antonio. Visit www.sjaa.net/calstar2003.html for details.



Eggs In The Air

by Patrick L. Barry

The sky will be filled with flying eggs on May 10, 2003, when a thousand students converge on The Plains, Virginia, for the first-ever national high school rocketry competition.

Called the Team America Rocketry Challenge (<http://www.rocketcontest.org>), the competition sets the goal of flying a custom-built, two-stage rocket carrying



A Boeing Delta II (7326) rocket launched the New Millennium Program Deep Space 1 spacecraft on October 24, 1998.

two raw eggs to a height of exactly 1,500 feet, and then returning the eggs to the ground unbroken. The team that comes closest to 1,500 feet without breaking their eggs will win the national title.

The competition is being organized by the Aerospace Industries Association and the National Association of Rocketry (NAR). NASA administrator Sean O'Keefe will attend the final event.

"The idea is to get kids interested in the world of aerospace," says Trip Barber, director of the competition and vice-president of the NAR. "And they will learn some important lessons about the power of math and science—and cooperation and teamwork—along the way."

To develop their designs, the students first used computer simulator software provided by NAR. Then they had to apply old-fashioned ingenuity and craftsmanship to bring the design to life and flight testing to refine it.

Students constructed rocket bodies using a combination of hobby-store rocket kit parts and custom materials. A typical rocket might consist of cardboard tubes from paper-towel or wrapping-paper rolls, a pre-made nose cone, rocket-kit body segments cut to size, and light-weight balsa wood fins. But the greatest challenge for many was designing the compartment for the eggs.

Some used plastic Easter eggs as casings, padding the inside with bubble wrap, foam peanuts, or even gelatin. Others decided not to "reinvent the wheel," making a cradle from the egg-crate material used for shipping eggs. Some chose to make larger, more powerful rockets big enough to carry the eggs inside, while others made smaller, more efficient rockets that have a bulging egg compartment mounted on top.

A hundred unique designs will be put to the test in Virginia. Only one will win. But for the students, the real

prize has already been won: Learning an approach to problem-solving that works, whether you're launching eggs over a field or sending astronauts to Mars.

In the end, it's all about the future: Future technologies and the kids who will grow up to create them. Many advanced technologies are being developed now by NASA's New Millennium Program (<http://nmp.nasa.gov>). Who will do that work in the future? Perhaps some kids who spent their weekends launching eggs in the air.

Are you a kid? Would you like to build your own rocket? Visit NASA's Space Place and learn how to make a bubble-powered rocket! (<http://spaceplace.jpl.nasa.gov/rocket.htm>.) It won't take you to Mars, but it's a good way to get started.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Astronomical insights *continued*

"coerced".) They'll call in for permission (on 8-24 hours notice), and you show up. That's it. You can stay as long as you like. There are also several permit holders from the Eastbay Astronomical Society (EAS) and a few from The Astronomy Connection (TAC). Last week, we hit the jackpot in multiple ways; Dave and Alan from EAS with a 13" Discovery dob, Julius from TAC with a 4" apo, and myself from TVS with my 8" SCT.

None of us had formal observing programs laid out; it was wander around looking at what caught our fancy. It was dead calm at 9:30 p.m. when we set up; a slight breeze soon materialized, keeping any insects at bay and removing some haze. Early objects included M13, Jupiter, and Algeiba (γ Leo). But we all noticed that the seeing needed to improve to wrest the best out of our 'scopes. It did. By 11:00, it had warmed up 5-10 degrees to around 60, the remaining haze departed, and it remained pleasant the rest of the night. I hopped around Leo, stumbling across NGC6210, a planetary that seemed to be there, then disappear. This immediately set us off looking at others, including the "real" Blinking Planetary, NGC 6826; the Dumbbell, M27; and of course, M57. As you'd expect, aperture rules; you could easily rank the scopes' views of these by their aperture. (The Radian EP on the dob didn't hurt, either!) None of us, however, guessed the name given it by NASA/Ames, "The Turtle in Space" Planetary Nebula. By this time, it was past 1 a.m.; the others left. I hung around to see Mars rise, which it did into a mass of turbulent air around 1:30 a.m. I think seeing it

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What's Up *by Debbie Dyke*

All times Pacific Daylight Savings Time unless otherwise noted.

June

- 13 Fri 1831 James Clerk Maxwell born.
- 14 Sat **Full Moon** 4:16 a.m.
- 15 Sun Father's Day
- 16 Mon 1963 Flying in the Vostok 7, Valentina Tereshkova becomes the first woman in orbit.
1977 Werner von Braun dies.
- 18 Wed 1983 Sally Ride, on board STS-7, becomes the first U.S. woman in space.
Mars 1.7° north of Moon at 11:00 p.m.
- 20 Fri **Tri-Valley Stargazers general meeting.** 7:30 p.m. at the Unitarian Universalist Church,
1893 N. Vasco Road, Livermore.
Mercury 0.4° south of Venus 7:00 p.m.
- 21 Sat **Last Quarter Moon** 7:45 a.m.
Summer Solstice 12:10 p.m.
TVS's H2O Open House. See page 2 for details.
- 22 Sun **Tri-Valley Stargazers discussion meeting.** 2:00 p.m. at the Round Table Pizza on 1024
E. Stanley Blvd., Livermore. Discuss astro stuff with your fellow members.
1675 Royal Greenwich Observatory founded.
1978 James Christy discovers Pluto's satellite Charon.
- 23 Mon **Tri-Valley Stargazers Board meeting.** 7:00 p.m. at the Round Table Pizza in Livermore.
- 24 Tues Saturn at superior conjunction (far side of the Sun) 7:00 a.m.
1730 Charles Messier born.
1824 Lord Kelvin born.
- 25 Wed 1178 Five British monks observe an impact hitting the crescent Moon. Theory has it that the resulting
crater is the one we know as Giordano Bruno.
- 29 Sun **New Moon** 11:39 a.m.
1976 Viking 1 landed on Mars.
1868 George Ellery Hale born.
- 30 Mon 1908 An asteroid about 98-200 feet in diameter breaks up and explodes 3 miles above Tunguska near
Siberia with the force of a hydrogen bomb. Trees are flattened in an area 36 miles in diameter. Over
1,000 reindeer were killed.

July

- 1 Tues 1967 Jocelyn Bell discovers the first pulsar.
- 3 Thurs Earth at aphelion (152,100,000 miles/ 1.016729 AU) 11:00 p.m.
- 4 Fri Independence Day.
1054 Chinese and Native American astronomers observe the supernova that created the Crab Nebula.
1997 Mars Pathfinder lands on Mars.
1868 Henrietta Swan Leavitt, discoverer of 2,400 variable stars, was born.
- 5 Sat Mercury in superior conjunction.
- 6 Sun **First Quarter Moon** 7:32 p.m.
- 9 Wed 1979 Voyager 1 passes by Jupiter.

News & Notes *continued*

Eastbay Asteroids

The Bay Area has witnessed an explosion of newly named asteroids. At the May Eastbay Astronomical Society meeting, **Dave Rodrigues**, guest speaker **Jane Houston-Jones** and her husband **Morris (Mojo) Jones** were presented with their very own asteroids. Later in the month at RTMC, **Paul Zurakowski** received his own asteroid.

Asteroid 24626, now known as **Asteroid Astrowizard**, was discovered in 1980 by Carolyn & Gene Shoemaker at Palomar. It is named in honor of **David Rodrigues** who "...has dedicated his life to explaining the riches of the universe to anyone anywhere. Wearing the costume of a wizard to get children's attention, he makes astronomy come alive in his presentations at the Morrison Planetarium in San Francisco and in school classes."

Asteroid 22338, now known as **Asteroid Janemojo**, was discovered in 1992 by Carolyn Shoemaker and David Levy at Palomar. It is named in honor of **Jane Houston-Jones** and **Morris Jones**, "...who are, first and foremost, sidewalk astronomers in San Francisco, helping the general public enjoy the beauties of the heavens. They are co-editors of the San Jose Astronomical club's newsletter, write articles for *Sky and Telescope* magazine, and "run" the AANC web site."

Asteroid 12321, now known as **Asteroid Zurakowski**, was discovered in 1992 by H.E. Holt at Palomar. It is named for **Paul Zurakowski**, who has been the volunteer director of the EAS/Chabot Observatory Telescope Makers' Workshop for more than 30 years, and "...is best known for testing thousands of mirrors, help-

ing numerous students make their own telescopes and also judging telescopes at the Riverside Telescope Makers Conference." Paul received a standing ovation from over 600 people in the audience.

Photos by Carter Roberts and Morris Jones.

Nellie Grand Opening

Besides being a hot bed of newly named asteroids, the Eastbay is also getting a new 36" telescope named Nellie. On June 21st, the Chabot Space & Science Center will have a Nellie grand opening for the general public to take their first views through the scope. You do need tickets for this event (\$8 adults, \$5 12 and under) so visit the Chabot web site for ticket info (www.chabotspace.org). After the 21st, Nellie, as well as Chabot's other two scopes, Rachel and Leah, will be available for free on clear Friday and Saturday nights.

Astronomical insights *continued*

through a very thick atmosphere (being so close to the horizon) was the problem; stars more than 15 degrees up or so were solid.

Saturday night offered another interesting opportunity; the ISS passed almost directly overhead at 9:55 p.m. Sweeping from the NW to SE, it was very obvious at around magnitude -6 and fast moving. You can find future occurrences of the ISS as well as most other satellites, at www.heavens-above.com.



Jane and Mojo's reactions upon hearing the news.



L to R: Dave Rodrigues, Morris Jones, Jane Houston-Jones, Don Stone. Don was one of the instigators of the asteroid naming venture.



L to R: Carter Roberts, Paul Zurakowski, Jean Mueller. Jean was the one responsible for getting the asteroid named after Paul.

Tri-Valley Stargazers
P.O. Box 2476
Livermore, CA 94551



PRIMEFOCUS

Tri-Valley Stargazers Membership Application

Member agrees to hold Tri-Valley Stargazers, and any cooperating organizations or landowners, harmless from all claims of liability for any injury or loss sustained at a TVS function.

Name _____ Phone _____ e-mail _____

Address _____

Do not release my: _____ address, _____ phone, or _____ e-mail information to other TVS members.

- Membership category:
- _____ \$5 Student.
 - _____ \$25 Basic. You will receive e-mail notification when the PDF version of *Prime Focus* is available for download off the TVS web site.
 - _____ \$30 Regular. You will receive a paper version of *Prime Focus* in the mail.
 - _____ \$29.95 Subscription to *Sky & Telescope* magazine.
 - _____ \$29 Subscription to *Astronomy* magazine.
 - _____ \$20 Hidden Hill Observatory (H2O) refundable key deposit (key property of TVS).
 - \$ _____ Tax deductible contribution to Tri-Valley Stargazers.
 - \$ _____ TOTAL – Return to: Tri-Valley Stargazers, P.O. Box 2476, Livermore, CA 94551

Membership information: Term is one calendar year, January through December. Student members must be less than 18 years old, or still in high school.