PRIMEFOCUS

Tri-Valley Stargazers

October 2002

TVS

Tri-Valley Stargazers

Meeting Info:

What
Telescope 101

Who
You

When
October 18, 2002
Conversation at 7:00 p.m.
Scope-o-rama at 7:30 p.m.

Where
Unitarian Universalist
Church in Livermore
1893 N. Vasco Road

Inside

October Meeting

Telescope 101

You

If you're in the market for a telescope and are not quite sure what kind of scope to get, this is the meeting for you.

If you've got a telescope and are not quite sure what to do with it, this is the meeting for you.

With the brisk sales of such scopes like the Meade ETX, many folks are delving into amateur astronomy. But a lot of them are discovering that there's more to using a telescope than just putting in a couple of batteries and pressing GOTO.

Our October meeting is geared to helping out those who are just getting into the hobby. We'll have our various loaner scopes out for people to look through and try out. If you've got a scope you're not sure what to do with, bring it to the meeting and our more experienced TVS members will help you figure out how to work it.

There will be a nearly full moon out that evening, as well as a few bright Messier items and some nice double (and triple) stars that we can look at through all the scopes that will be set up.

So come to the meeting with your scope and your questions. We hope that when you leave you'll have a better understanding of how various types of telescopes work and what you can see through them.

Lumicon Closed!

After many, many years of providing the astronomy community with all manner of astro products, Lumicon has gone out of business. They will be missed.

News & Notes

New Members

Welcome, welcome, welcome to our new members, **Greg Mack & Family** and **Richard Moore & Family**. Please say hello to them at the next meeting.

2002 TVS Meeting Dates

Below are the remaining meeting dates for 2002. 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 December 8th deadline is for the December issue).

Lecture Meeting	**Board Meeting**	***Prime Focus* Deadline**
Oct. 18	Oct. 21	Oct. 6
Nov. 15	Nov. 18	Nov. 3
Dec. 20	Dec. 16	Dec. 8

Our November speaker is Deanna Pennington who will speak on the Keck wave front correction systems. Our December meeting will be our Winter Solstice Potluck.

Money Matters

At the September Board meeting, Treasurer Mike Anderson reported the balances (as of September 23, 2002) of the following TVS accounts:

Checking	$1,119.65	
CD #1	$3,882.06	matures 11/17/02
CD #3	$2,395.77	matures 11/27/02
CD #4	$2,046.71	matures 01/16/03

Membership Renewal Season Starts

October starts our drive for membership renewals. For those who subscribe to *Sky & Telescope* or *Astronomy* magazine through the club, it's better to renew early so that your magazine subscription continues without a gap.

The big news this year is that our dues are going up. Our last dues increase was over five years ago, and since then we have seen additional expenses added to our yearly budget–insurance and newsletter printing being two of the highest added expenses.

We're changing the dues categories as well. We will keep the Student category at $5 a year, but will replace the Individual and Family categories with Basic at $25 and Regular at $30. The only difference between the two is that the Basic membership will access the newsletter online, the Regular membership will get a paper version mailed to them.

For the few of you who are Patron Members, your Patron status will be renewed automatically. At this time, since the Marling scope is still unoperative, we will not be collecting a Patron Membership fee. In the meantime, we will be placing one of the club's 10" dobs in the Sky Shack for Patron (and Open House star party) use.

Elections

We will have our yearly elections at the November meeting. The most pressing position we need to fill is that of Treasurer, as our current Treasurer **Mike Anderson** will be unable to continue in that capacity. The other officers plan on running for their positions again, but probably wouldn't mind if someone else wanted to take over. Anyone that is interested in running for office is encouraged to do so.

continued page 4

Calendar of Events

Classic Sci-Fi Film Series

Chabot Space & Science Center

The movies are shown at the 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:

Indiana Jones and the Last Crusade, November 1 – 3

2001: A Space Odyssey, December 6 – 8

Showtimes:

Friday – Sunday on the first weekend of each month.

Fridays – 7:30 p.m.
Saturdays – 4:00 & 7:30 p.m.
Sundays – 4:00 p.m.

Newsletter header image: The Witch Head Nebula, IC 2118, is a reflection nebula located in Eridanus, although the star that illuminates it is Rigel, just 2.5° to the east in Orion. This image has South at the top so that the witch's profile is more noticeable. The Witch Head Nebula is approximately 1,000 light years away and has a very low surface brightness.

Axel took this photo on 29 December, 2000, at the Natural Bridges National Monument, Utah (air temperature was 14°F!). He used his 8" f/4 Newtonian with coma corrector and Kodak PJ-400 hypered film. He took three exposures (06:32 - 07:14 UTC, 07:17 - 07:57 UTC and 08:05 - 08:45 UTC) and stacked and stitched the images together.

Photo and info from Axel Mellinger.

Calendar of Events *continued*

October 12, 7:30 p.m.
What: *Astronomy is Women's Work*
Who: Tinka Ross (California Academy of Sciences)
Where: Mountain Theater, Mt. Tamalpais
Cost: Free

"Historically some extraordinary women were able to overcome societal pressures and lack of opportunities to make significant contributions in astronomy."

The talk will be followed by observing through telescopes in the Rock Spring parking area.

October 12, 7:30 p.m.
What: *Planets, Satellites in our Solar System: Special Focus on Io and Titan*
Who: Dr. Imke de Pater (U.C. Berkeley)
Where: Morrison Planetarium, S.F.
Cost: $3.00. Purchase in advance of lecture date recommended.

Recent images obtained from the Galileo Spacecraft and by using adaptive optics on the Keck Telescope in Hawaii are giving us a new understanding of our outer solar system.

Make checks payable to Morrison Planetarium. Send self addressed stamped envelope and check to:

Dean Lecture Series, Morrison Planetarium
California Academy of Sciences
Golden Gate Park
San Francisco, CA 94118

October 17, 7:30 p.m.
What: *Bad Astronomy*
Who: Dr. Phil Plait (Sonoma State University)
Where: Tien MegaDome Theater, Chabot Space & Science Center, Oakland
Cost: $5.00

"What makes Bad Astronomy? We learn a lot from school and our parents, but a lot of what fills our brain is "common knowledge," things we seem to accumulate out of thin air. Everyone knows that you can stand an egg on end on the first day of spring... or can you? Of course toilets flush the other way in the southern hemisphere... don't they?

It's these types of concepts that got the now-famous Bad Astronomy website & popular Moon Hoax debunking started in the first place. A lot of what we "know" about astronomy really just isn't right. This lecture is my humble attempt to set the record — and your brain — straight about the world's real oldest profession."

Phil's talk is part of Chabot's Distinguished Lecturer Series. A dessert reception follows the talk.

[Editor's note: I had the pleasure to hear Phil's lecture last year. I highly recommend his talk- he's very funny and really knows his Bad Astronomy.]

Star Parties

The summer star party season comes to a close for the year. Time to get out the long underwear.

October 12 Mt. Diablo Star Party
The Mt. Diablo Astronomical Society's last public star party on top of Mt. Diablo. Check their web site for more info: http://www.mdas.net/mdaspublicnights.htm. They will be discussing "Why is there a North Star?".

Officers

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

Vice-President:
Gary Steinhour
steinhour1@juno.com

Treasurer:
Mike Anderson
andersonm@prodigy.net

Secretary:
Maggie Halberg
925-736-8627

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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 Green (unofficially)
richgreen@pacbell.net
925-449-2190

Public Star Party Chair:
Roger Gathers
925-846-1525

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 Meeting:
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.

continued from page 2

The elected positions are:

President
The President conducts the lecture and board meetings, and is responsible for getting everything done (usually by delegating it to others).

Vice President
The Vice President does the President's job when the President is unavailable.

Secretary
The Secretary takes the minutes at the board meetings and takes care of general correspondence.

Treasurer
The Treasurer handles the memberships and reimbursements, maintains the financial records, prepares the club's budget, pays the rent and insurance. The Treasurer also works with the newsletter editor by providing the mailing label file and sending out the *Prime Focus* e-mail notification messages each month.

All these positions require attendance at the majority of the board meetings.

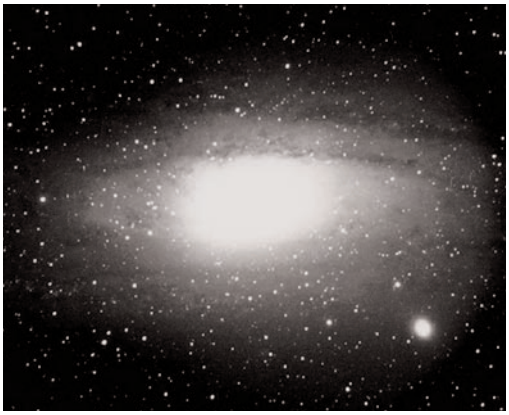
We're also looking for someone to fill the volunteer position of Program Director. The Program Director is responsible for getting speakers for our monthly lectures.

Messier Master

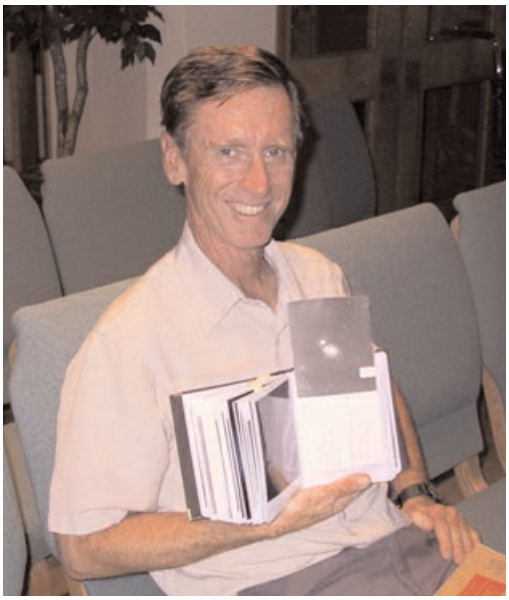
Congratulations to **Bob McKoon** who completed observing—and photographing—all the items on Messier's list. This monumental task took several years and many hours glued to the guiding eyepiece.

Bob's first Messier photo was of M42 on January 15, 1994 at H2O. He took his last photo, M24, on June 15, 2002, also at H2O.

Bob writes "Eight years of peace and serenity with some great views of Copernicus' "heavenly sphere" and one remarkable night, March 30, 2001, when I observed the Aurora Borealis. Well, I suppose there were those occasional windy, freezing nights when my fingers could no longer twist the knobs, but they were few."



M31 as photographed by **Bob McKoon**. Below is Bob displaying his Messier photo album.



Most of his photos were taken at prime focus using his Celestron 8" SCT at f10. All were manually guided and all were taken with a 35 mm SLR camera. He used an f6.3 focal corrector for some photos. He also did some piggyback shots using lenses in the 28 to 300 mm range. He used hypered tech pan 2415 for most of the photos, but also used color film for a few objects.

He developed and printed all the B&W shots in a makeshift darkroom on top of his washer & dryer. He developed some of the color photos but decided that commercial developing them were a lot easier.

"Photographing the Herschel 400 is definitely not part of my future plans. Think I'll just observe for a while."

Global Call for Extrasolar Planet Watching

by Steve Nadis, New Scientist

Professional astronomers are calling for amateurs around the globe to help them glean valuable information about planets orbiting distant stars. They want the backyard stargazers to sign up to a programme called TransitSearch, to spur the discovery of planets that pass between us and their parent stars. Most of the 100 extrasolar planets discovered to date have been detected by the wobbles they cause in their stars' orbits. But you can only get so much information about a planet using this method. If it passes directly between Earth and its parent star, however, astronomers can study how the star's light dims during the transit. So far, astronomers know of only one star, HD 209458, with an orbiting planet that passes in front of it in this way. Follow-up observations yielded details about the planet's mass and density, as well as its composition and atmosphere.

"We've been able to do amazing science from this one case, but we definitely need to find more transits," says Debra Fischer, a planet hunter at the University of California, Berkeley. Other transits are likely to be found among the other 99 planets, she adds. "But professional astronomers don't have enough telescope time to follow up on them all."

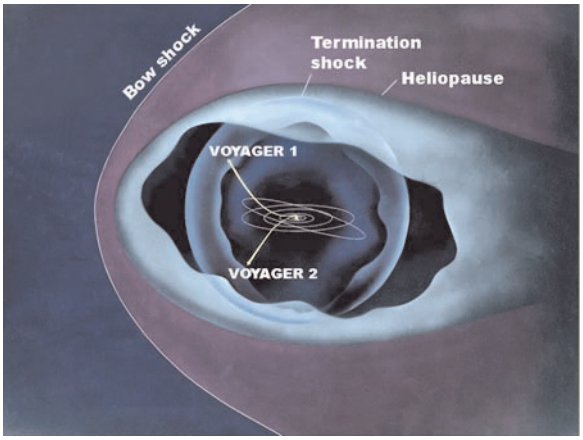
continued page 7

NASA's Space Place

Seeking the Edge of the Solar System

In September and August, respectively, 2002, the Voyager 1 and 2 spacecraft observed their 25th anniversaries in space, continuing to perform long after their original mission to visit the Jupiter and Saturn systems. After Voyager 1's encounter with the two gas giants, it was aimed upward out of the plane of the ecliptic. Voyager 2, after its visit at Jupiter and Saturn, was given two more planetary destinations, Uranus and Neptune. It completed its "grand tour" of the outer planets in 1989. It was then aimed downward out of the ecliptic plane.

Now, at about 85 AU, Voyager 1 is the most distant human-made object. Round-trip light time is 24 hours. Voyager 2 is at about 68 AU. Their mission now is to study the heliosphere, the vast bubble of space within the Sun's influence, and the heliopause, the boundary of the solar system with interstellar space. At the heliopause, the outward pressure exerted by the solar wind balances the inward pressure of the interstellar wind. The region where



solar wind particles begin piling up against the heliopause is the termination shock, where the solar wind should drop from about 1,500,000 kilometers (nearly 1,000,000 miles) per hour to 400,000 kilometers (250,000 miles) per hour. Voyager 1 is already detecting a slowing of the solar wind from the pressure of inbound interstellar particles leaking through the heliopause.

No one knows exactly how much farther Voyager 1 must travel to reach the termination shock or the heliopause. Dr. Ed Stone, Voyager Project Scientist since mission inception, estimates that the spacecraft could reach the termination shock within three years. Once there, Dr. Stone predicts it will still have about 5 billion to 8 billion kilometers (3 billion to 5 billion miles) and 10 to 15 years to go before actually crossing the heliopause into interstellar space. Because the heliosphere expands and contracts with the level of solar activity and the inward pressure of the interstellar wind is uncertain, it is very difficult for scientists to estimate the actual extent of the heliosphere.

Read more about the Voyager mission to find the heliopause at http://voyager.jpl.nasa.gov/. For children, go to http://spaceplace.nasa.gov/vgr_fact1.htm to read about the Voyagers' grand tour of the outer planets and find out the secret code they use to send pictures back from space.

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

by David Feindel

My problem with amateur astronomy is that juggling the responsibilities of family, job, etc., does not leave much time for "serious" observing. So I've changed strategies a bit and have started to do 30-45 minute sessions a couple of times during the week doing binocular astronomy from the back yard. Dark adaptation doesn't matter quite so much; it's a bright, suburban sky anyways. You change your target list to double stars, asterisms, and occasional globulars and/or open clusters, rather than nebulas or remote galaxies. Add the moon to the list in its full and last quarter phases. The area you can search is also more limited; generally 60 degrees altitude and above. The lower magnification (8x in my case) makes air turbulence almost irrelevant. With care, I can tease M71 in Sagitta into appearing. But most other M objects are out of view, at least to my inexperienced eyes.

Two resources have proven quite useful in my changed strategy. One is *Touring the Universe Through Binoculars* (Philip Harrington); the other is the software program *Astro Planner*. *Touring the Universe* is a classic in the field; it made me aware of just how much you can expect to see through binoculars, and inspired this strategy. *Astro Planner* is a shareware program (available at http://www.ilangainc.com/ilanga/astroplanner; free trial version, $20 download, $30 for a CD). Unlike most astro programs, its metaphor is a spreadsheet. It has an excellent search/filter function that sorts through its numerous databases to list all targets meeting your specified criteria for type, visibility through your telescope, position in the sky, and observing site limiting magnitude. The free version has "only" the Messier, NGC, and Yale Bright Star lists; the shareware versions provide over 150MB of other lists, including Tycho 2, with 3 million plus objects. Perhaps even more useful is its observation notes function; it has the first good computer-based observer's log capability I've come across.

What's Up *by Debbie Dyke*

All times Pacific Daylight unless otherwise noted.

October

2	Wed	1608 J. Lippershey patents the telescope. Meade sues claiming they were first.
4	Fri	1957 Sputnik 1 is launched by the Soviet Union, becoming the first artificial satellite to orbit the Earth.
5	Sat	Possibility of the Zodiacal Light being visible in the east before morning twilight for the next two weeks.
6	Sun	**New Moon** 4:18 a.m. Moon at perigee (221,289 mi.) 6:00 a.m. 1995 First extrasolar planet discovered orbiting 51 Pegasi.
7	Mon	1959 First photo of the "dark side" of the Moon taken by Luna 3. Fourteen years later, Pink Floyd decides that "dark side of the moon" would make a nifty album title.
10	Thurs	Mercury 2.8° S of Mars low in the east at 6:00 a.m. 1604 Kepler saw a supernova appear between Jupiter and Saturn (visually speaking, of course).
13	Sun	**First Quarter Moon** 10:33 p.m. Mercury at greatest elongation W (18°) 1:00 a.m.
18	Fri	**Tri-Valley Stargazers general meeting**. 7:30 p.m. at the Unitarian Universalist Church, 1893 N. Vasco Road, Livermore.
19	Sat	Moon at apogee (251,943 mi) 10:00 p.m.
20	Sun	**Tri-Valley Stargazers discussion meeting**. 2:00 p.m. at the Round Table Pizza on 1024 E. Stanley Blvd., Livermore. Get together with your fellow members to chat about all things astronomy related.
21	Mon	**Full Moon** 12:20 a.m. This month's Full Moon is also known as the Hunter's Moon. **Tri-Valley Stargazers Board meeting**. 7:00 p.m. at the Round Table Pizza in Livermore.
22	Tues	1975 Venera 9 becomes first spacecraft to return images of the surface of Venus. Orionid meteor shower peaks at 1:00 a.m.
25	Fri	Saturn 2.6° S of Moon 11:30 p.m.
27	Sun	**Daylight Savings Time ends 2 a.m.** Set your clocks back one hour.
28	Mon	**Last Quarter Moon** 9:28 p.m. PST
31	Thurs	**Halloween** 1992 The Vatican absolves Galileo of all heresy charges. Venus at inferior conjunction 4:00 a.m. PST

November

2	Sat	Mars 4.5° S of Moon 6:00 a.m. PST
3	Sun	S. Taurid meteors peak 12:00 a.m. PST Moon at perigee (222,058 mi) 5:00 p.m. PST 1957 First dog in space (Laika).
4	Mon	**New Moon** 12:34 p.m. PST
6	Wed	Ramadan begins.
8	Fri	1656 Edmond Halley born.

continued from page 4

OFF-THE-SHELF KIT

TransitSearch was set up by Tim Castellano of NASA Ames Research Center and Greg Laughlin of the University of California, Santa Cruz, after they heard that Finnish amateur astronomer Arto Oksanen had charted the passage of the planet across HD 209458 using off-the-shelf equipment.

Thousands of amateurs around the world have similar equipment, so Castellano and Laughlin wondered if they could tap into their expertise. After duplicating the feat with an 8-inch commercial telescope, they started recruiting in California this summer.

They are now searching for amateurs worldwide to monitor stars already known to have planets orbiting them, and have posted a list of target stars and predicted transit times at www.transitsearch.org.

"This may not be as exciting as discovering new planets, but it can yield a greater scientific pay-off," Castellano says.

ALWAYS MIDNIGHT

One advantage of observers around the globe, notes Laughlin, is that "it's always midnight somewhere". When it is cloudy at one site, conditions may be better at another. And if two telescopes record the same event, the observations gain more credence.

Collaborations between professional and amateur astronomers are not new, but they are growing because of the falling cost of high-quality equipment, now within reach of many amateurs. **Ron Bissinger**, a Californian amateur, spotted HD 209458 transits with a 4-inch telescope costing only $2000.

But the team may get more information than it bargained for, cautions Brian Marsden, who as head of the Minor Planet Center at the Harvard-Smithsonian Center for Astrophysics is regularly besieged with observations sent by amateurs.

"The trick is getting capable amateurs on board without wasting time on people whose contributions aren't useful," he says.

Halloween Observing List

by Jane Houston Jones
PK 164+31.1 (Jones 1)

It's time to get out the Milky Way and Mars candy bars, and time again to fill the candy jar with Moon Pies and Starburst chews. It's October and it's time for Halloween. While the kiddies will be out trick or treating on October 31, some of you will no doubt be showing the boo moon to them through your telescopes before handing out your astronomically correct treats. Well good for you. But save some scary treats for yourself, too. Here is a list of scary nuggets to savor and devour some dark clear night. Try some now, and save some, just like you save your favorite Halloween candy, for later.

Mirach's Ghost, NGC404 in AND, r.a 01 09.33, dec +35° 43', mag 10.3, 4.3 x 3.9' gxy

The Phantom Streak, NGC6741 in AQL, r.a. 19 02.42, dec. -00° 26', mag 12, 9" x 7" pn

Ghost of the Moon Nebula, NGC6781 in AQL, r.a. 19 18.31, dec +06° 33' mag 11.8, 1.9' x 1.8' pn

The Spider Galaxy, NGC5829 in BOO, r.a. 15 02.45, dec. +23° 20', mag 13.4, 1.7' x 1.5' gxy

The Skull Nebula, NGC246 in CET, r.a. 00 47.6, dec -11° 52', mag 8.5, 4' x 3' pn

The Witch Head Nebula, IC2118 in ERI, r.a.05 06.9, dec -07° 13' bright neb

The Ghost Ring, IC5148 in GRU, r.a.21 59.38, dec -39° 22', mag 11, 2' pn

Little Ghost Nebula, NGC 6369 in OPH, r.a. 17 29.3, dec. -23° 46', mag 10.4 pn

Red Spider Nebula, NGC 6537 in SAG, r.a. 18 05.18, dec. -19° 50' mag 12,5" pn

Phobos and Deimos (Fear and Terror), the moons of Mars

Hell, Rukl's Atlas of the Moon, chart 64. 33 km crater near Deslandres 32.4° S, 17.7° W

Lacus Doloris (Lake of Suffering), Rukl chart 23, 110 km mare 17° N, 9° E

Lacus Mortis (Lake of Death), Rukl chart 14, 150 km diameter flooded crater, 45° N, 27° E

Lacus Timoris (Lake of Fear), Rukl chart 63, 130 km long mare, 39° S, 28° W

Palus Putrendis (Marsh of Rot), Rukl chart 22, 180 km small plain on the prime meridian, near Hadley Rille and Apollo 15 site, 27° N , 0°

Epsilon (36) **BOO**, r.a.14 45.01, dec +27° 04.20, double star, mag 2.5 and 4.9, yellow/orange and blue/green double

Mu (51) **BOO**, r.a.15 24.32, dec. +37° 22, triple star, mag 4.3 and 7 and 7.6 triple, yellow primary, yellow/orange pair

Xi (37) **BOO**, r.a 14 51.26, dec. +19° 6', quadruple star, mag 4.7 and 7.0, with a 9.6 and 12.6 companion, yellow and reddish/orange

Happy Halloween!

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

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.