



SVAS

newsletter

Sacramento Valley Astronomical Society | founded in 1945

Vol. 56 no. 12 | December, 1999

Star Birth in the Trifid Nebula

This NASA Hubble Space Telescope image of the Trifid Nebula reveals a stellar nursery being torn apart by radiation from a nearby, massive star. The picture also provides a peek at embryonic stars that are forming within an ill-fated cloud of dust and gas, which is destined to be eaten away by the glare from the massive neighbor. This stellar activity is a beautiful example of how the life cycle of stars like our Sun is intimately connected with their more powerful siblings.

The Hubble image shows a small part of a dense cloud of dust and gas, a stellar nursery full of embryonic stars. This cloud is about 8 light-years away from the nebula's central star, which is beyond the top of this picture. Located about 9,000 light-years from Earth, the Trifid resides in the constellation Sagittarius.

A stellar jet [the thin, wispy object pointing to the upper left] protrudes from the head of a dense cloud and extends three-quarters of a light-year into the nebula. The jet's source is a very young stellar object that lies buried within the cloud. Jets such as this are the exhaust gases of star formation. Radiation from the massive star at the center of the nebula is making the gas in the jet glow, just as it causes the rest of the nebula to glow.

The jet in the Trifid is a "ticker tape," telling the history of one particular young stellar object that is continuing to grow as its gravity draws in gas from its surroundings. But this particular ticker tape will not run for much longer. Within the next 10,000 years the glare of the central, massive star will continue to erode the nebula, over-

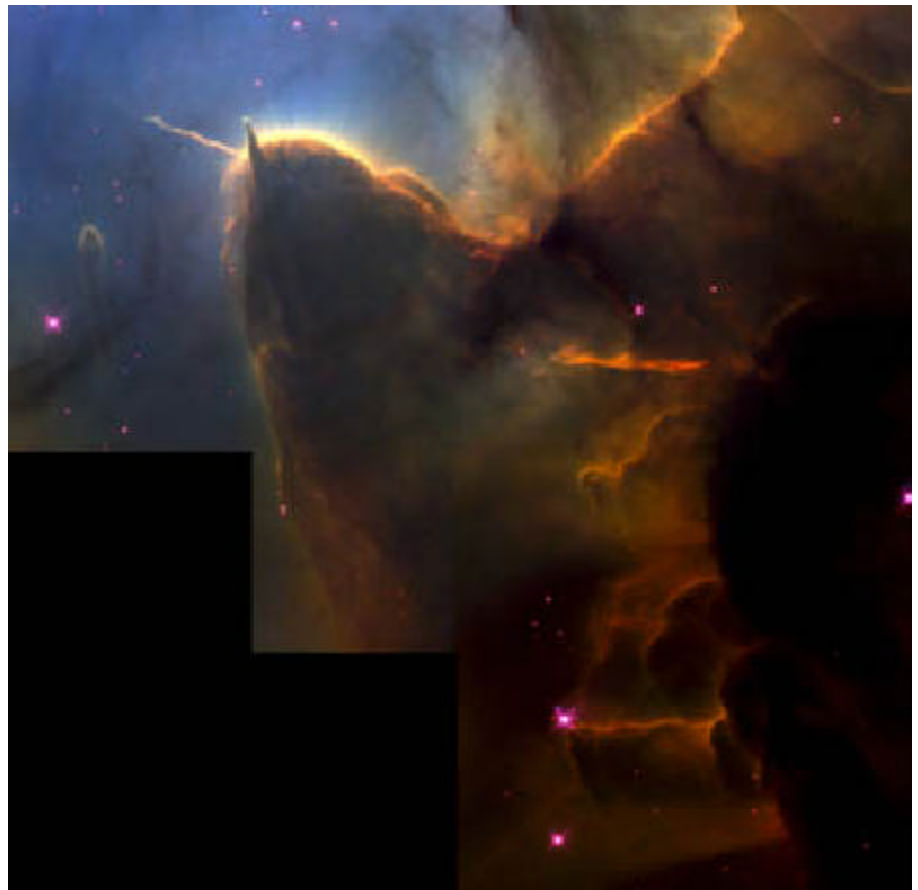
running the forming star, and bringing its growth to an abrupt and possibly premature end.

Another nearby star may have already faced this fate. The Hubble picture shows a "stalk" [the finger-like object] pointing from the head of the dense cloud directly toward the star that powers the Trifid. This stalk is a prominent example of the evaporating gaseous globules, or "EGGs," that were seen previously in the Eagle Nebula, another star-forming region photographed by Hubble. The stalk has survived because at its tip there is a knot of gas that is dense enough to resist being eaten away by the powerful radiation. Reflected starlight at the tip of the EGG may be due to light from the Trifid's cen-

tral star or from a young stellar object buried within the EGG. Similarly, a tiny spike of emission pointing outward from the EGG looks like a small stellar jet. Hubble astronomers are tentatively interpreting this jet as the last gasp from a star that was cut off from its supply lines 100,000 years ago.

The images were taken Sept. 8, 1997 through filters that isolate emission from hydrogen atoms, ionized sulfur atoms, and doubly ionized oxygen atoms. The images were combined in a single color composite picture. While the resulting picture is not true color, it is suggestive of what a human eye might see.

Credits: NASA and Jeff Hester (Arizona State University)



Astronomy Day Science Plans

It's not too early to be thinking about Astronomy Day. The SVAS will celebrate Astronomy Day on May 20th. We had lots of room last year, so we can make even bigger and better displays this year. If 20 people helped with the science displays, we could have an awesome show! Walt Heiges and myself have visited the Exporatorium looking for ideas that might help promote science and astronomy in particular. Of course, astronomy can be very broadly defined for the purpose of our show (optics, the Doppler shift, radio, weather, geology - even volcanoes!) We would like to add two basic types of science displays:

- ★ Some larger interactive displays (if possible) but not expensive. We need to start planning these ASAP. They should include an explanation. To avoid duplication, we need to get a list of who will take responsibility for a given display and what it will consist of. Give name and particulars to Dave Buchla and/or send e-mail to dbuchla@oro.net requesting help or suggesting ideas, etc.
- ★ A science table of interactive science "toys" that children are not likely to destroy (!) and can handle safely. These might include (but aren't limited to) optical illusions, pendulums, springs, light box with mirrors, lenses, etc. Activities are suggested (write

your name so it can be read in a mirror, etc.). Table should have a monitor (any volunteers?).

We have taken pictures of many ideas for exhibits at the Exploratorium and can e-mail them to persons interested in constructing them. Most can be simplified over the Exporatorium's exhibit. We are looking for your ideas but to avoid duplication, we should coordinate these. If you can prepare a display, we will need to know power requirements or other special needs or special supervision requirements (such as might be necessary for a computer display). I am preparing one now for showing the location of solar eclipses when a button is pressed. Let me know if you can build a basic exhibit, and a bit about it or if you want to discuss ideas, give me a call or send an e-mail. Thanks!

— David Buchla

HGO Winterizing

I would like to remind everyone who might be insane and foolhardy enough to venture up to Henry Grieb Observatory this time of year, that there are no restroom facilities available. What little facility use we had prior to now has been curtailed until the spring. Everything has been winterized and it will not function. If anyone does visit the site and notices any problems or vandalism, please notify me immediately, so we can have repairs made. I believe our alternate site at Latrobe will be available but I do not know the status of restroom facilities.

— Walt Heiges

Winter Star Party Site

A site is to be used for the winter months, at Miller's Hill School, near Eldorado Hills. This site will be available to SVAS members on scheduled star party nights only, from December 1999 through approximately May 2000 (Note: The May star party will be at HGO if there is no snow on the ground).

This site must not be used on any other day than the Star Party day.

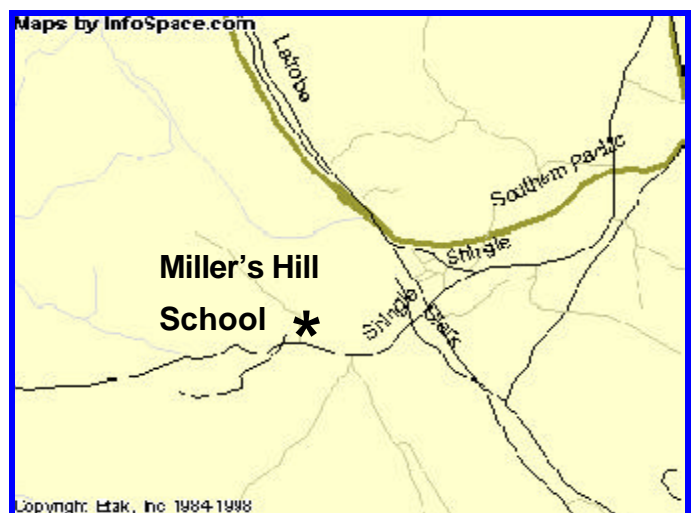
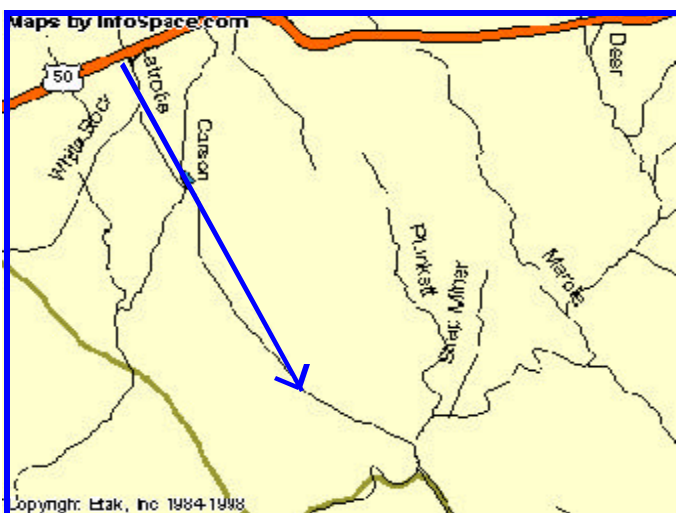
Directions:

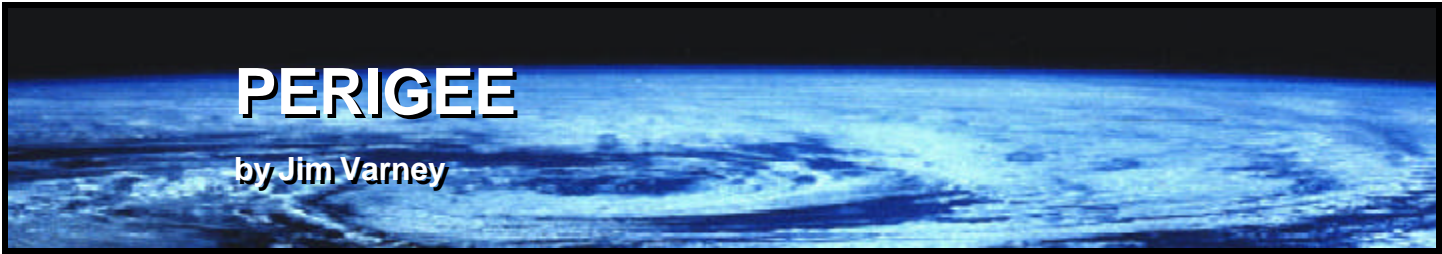
From Highway 50, exit at Latrobe-Eldorado Hills Blvd. Drive South on Latrobe Road for 8.5 miles.

After entering town, cross Railroad tracks on Latrobe road. The next intersection (about 1/2 mile) is Latrobe Road and South Shingle Road. Turn right on South Shingle Road.

The viewing site is less than one mile west on South Shingle Road at Miller's Hill School.

Lights Out!





China Launches Shenzhou

China launched “Shenzhou,” an unmanned space capsule, for a 14-orbit flight on November 20. The test capsule is a prelude to a future manned flight that, if successful, will make China the third nation to have a manned space program.

Shenzhou is very Soyuz-like in appearance. Some observers have speculated that an empty Soyuz shell was purchased from Russia and then modified. The official Chinese news agency has not indicated the purpose of the Chinese space program. Speculation is that China will ask to become a late partner in the International Space Station effort.

A modified Long March rocket put the empty capsule into a 42-degree orbit. The photo was taken in Inner Mongolia.



Photo Xinhua News Agency

More Shuttle and ISS Delays

STS-103, Discovery, has been rescheduled (again) for launch on December 9 to perform maintenance and servicing on the Hubble Space Telescope. The mission is slated for 9 days.

STS-99, Endeavour, is scheduled for January 13. The Shuttle Radar Topography Mission will create high-definition topographic mapping of 80 percent of the Earth’s surface.

STS-101, Atlantis, will carry the next addition to the International Space Station. The Service Module will be carried aloft by Atlantis no earlier than March 16, 2000.

The Shuttle fleet has been grounded for a major rehabilitation of failing and abraded wiring harnesses.

Long-Range Satellite Predictions

These are bright, naked-eye satellites that are fairly easy to spot. To use these predictions, just look in the listed direction somewhat prior to the time indicated. Take the listed time and subtract the error estimate and go out one minute before that. The “Drag Paradox” says that if a satellite experiences more drag than expected, it will appear earlier than predicted. If there’s less drag, it will be late.

If you can’t deal with uncertainty, go to my web page at www.softcom.net/users/jamesv a day or two before the event and get an updated prediction.

Selected Bright Naked Eye Satellites for Greater Sacramento
December 10 to 20, 1999 Times are PST

Start looking at least a minute prior to Time minus Error.

Don’t give up until at least a minute after Time plus Error.

Date	Name	NORAD Cat No	Time	Error (min)	Azim	Elev	Mag
Dec 10	Cosmos 389	04813	5:24 pm	11	260	75	2.6
	Cosmos 1455	14032	5:47 pm				
Dec 11	Intl Space Statio	25544	5:58 am	48	221	47	0.1
	Cosmos 1083	11331	5:24 pm				
Dec 13	Cosmos 2219 Rk	22220	6:36 pm	1	247	76	2.4
Dec 14	Mir	16609	5:42 am	8	137	33	-0.7
Dec 15	Mir	16609	5:56 am	91	098	66	-2.9
	Cosmos 1626	15494	6:35 pm				
Dec 17	Cosmos 2219 Rk	22220	5:34 pm	1	65	85	2.3
Dec 20	Cosmos 1220	12054	5:22 am	1	304	73	1.8

Azimuth is measured around the horizon from due north. North is 0, East is 90, South is 180 and West is 270.

Elevation is measured from the horizon (0) up to the zenith (90). “v” in front of a magnitude indicates reported flashing behavior.

Rk indicates satellite is a dead rocket booster, not a live payload.

Mercury transit

One of the best movies I've seen is from the TRACE spacecraft in Earth orbit. Check out the MPEG movie at:

<http://chippewa.nascom.nasa.gov/~dcm/transit/1600.mpeg> about 1.26 Megs.

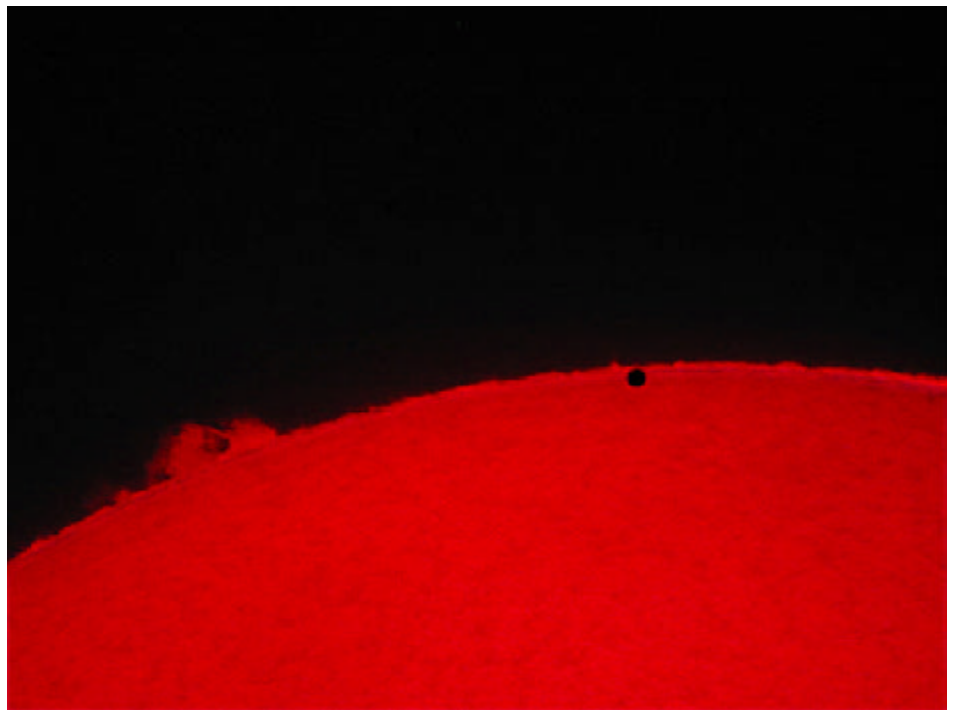
The Homepage for the above, which also has some nice still shots is at: <http://chippewa.nascom.nasa.gov/~dcm/transit/transit.html>

The SOHO spacecraft did NOT have a transit visible on the surface of the sun, but Mercury's passage in front of the solar corona was recorded. Try: <http://umbra.nascom.nasa.gov/eit/movies/merc.mpg>

A bit more information about the transit and upcoming events including the 2004 VENUS Transit can be found at: <http://eclipse.span.ch/transit.htm>

ENJOY!

— Rick Baldrige



PAS V.P. William Phelps got a TREMENDOUS H-alpha shot.

Others HAD to see more than I did!

Observing from Oakridge Observatory the Santa Cruz Mountains west of San Jose, California, I observed from 11:40pm PST (at radiant rise - 7:40UT November 18th) until 3:30am (11:30UT) and saw only 5 Leonids! High cirrus clouds undoubtedly lowered the count, but I could still see 4.5 magnitude stars throughout most of the night, sometimes to 5.3. If any "storm" or "fireball peak" occurred, I'm sure I would have seen it. I only saw one real nice bolide, about magnitude -5 very low on the northeast horizon, just a few minutes after the radiant rose at about 11:45pm. I should have left for a nice, warm bed after that first one because that's all I got the rest of the night! (Just kidding. The possibility always existed to see more. So like a dummy, I stayed!)

I was also armed with an image intensified video system of my own making which I aimed above the radiant and taped for 4 hours STRAIGHT! The system cov-

ers a field about 24° wide by 18° high (covers about the full constellation of Gemini) and was easily recording stars to magnitude 6.1 (much fainter than I could see with my naked eyes). Looking over the tape this morning, I recorded two nice sporadics (about mag 2) but only two Leonids at mag. 4 near the radiant. That was IT!

What a disappointment, at least for the West Coast of the USA! The LeonidsLive Website did show counts coming in up to 1600/hr Zenithal Hourly Rate (ZHR) from Europe, but that must have fallen off real fast (as the Leonids normally do).

Well, here's to losing sleep for the Geminids in December. At least I expect to see a lot more of THEM! You can look forward to nice (or not-so-nice) accounts of the Leonid-effort by other PAS Members in the December newsletter.

— Rick Baldrige

Editor, "nite skies" — newsletter of the Peninsula Astronomical Society

The SVAS
has a
new
website!

Check it out at
[http://www.
skywatchers.org](http://www.skywatchers.org)

You can also
download our
newsletter and be
able to see it in
color.

COMET COMMENTS

by Don Machholz

Periodic Comet Machholz 2 remains in the southern evening sky. In late October Component D was found several arcminutes southwest of the primary component. As the comet brightens perhaps other parts will be found.

In the Elements portion of this column I've included information for Comet LINEAR (C/1999 S4). As stated last month, it should brighten to unaided eye visibility next July in the northern polar region.

During the past month the LINEAR program in New Mexico found three new comets while the automated equipment at Lowell Observatory in Arizona (LONEOS) found three. The Catalina program found two, one being shared with LONEOS.

The satellite SOHO found one new comet. Most notable is that Robert McNaught and M. Hartley discovered a comet (C/1999 T1) which is faint now but should be visible in amateurs' telescopes next summer. The Southern Hemisphere is favored until Jan. 2001, when the comet will move rapidly northward.

COMET HUNTING NOTES: We are nearly half-way through the year for the Wilson Comet Award. This award of \$20,000 is divided among amateurs who find comets each year (June 12 to the next June 11). This "year", with seven months to go, only one person is eligible for the award. That is Steve Lynn of Australia who found a comet with handheld 10x50 binoculars on July 13. Obviously the automated search programs have taken away some of the potential amateur finds, with LINEAR's C/1998 T1 and C/1999 J3 being two recent examples.

EPHEMERIS

141P/Machholz 2

Date(00UT)	R.A. (2000)	Dec	EI	Sky	Mag
12-03	19h58.5m	-11d25'	50d	E	7.7
12-08	20h19.5m	-11d29'	50d	E	7.4
12-13	20h42.5m	-11d41'	50d	E	7.2
12-18	21h08.2m	-12d04'	50d	E	7.1
12-23	21h37.7m	-12d38'	52d	E	7.2
12-28	22h12.2m	-13d21'	55d	E	7.4
01-02	22h53.4m	-14d07'	59d	E	7.8
01-07	23h42.1m	-14d41'	65d	E	8.2
01-12	020h37.6m	-14d41'	72d	E	8.7

ELEMENTS

Object: P/Machholz 2

Peri. Date:	1999 12 09.2752
Peri. Dist (AU):	0.748905 AU
Arg/Peri (2000):	149.2991 deg.
Asc. Node (2000):	246.1434 deg.
Incl (2000):	012.8116 deg.
Eccen:	0.751075
Orbital Period:	5.22 years
Ref:	MPC 35815
Epoch:	1999 12 08
Absol.	Mag/"n": 12.0/7.5

Object: LINEAR (1999 S4)

Peri. Date:	2000 07 26.3979
Peri. Dist (AU):	0.766182 AU
Arg/Peri (2000):	150.9998 deg.
Asc. Node (2000):	083.1500 deg.
Incl (2000):	149.3473 deg.
Eccen:	1.0
Orbital Period:	Long Period
Ref:	MPC 36213
Epoch:	2000 07 26
Absol. Mag/"n":	7.0/4.0

Don Machholz (530) 346-8963 DonM353259@aol.com.
Web Page: <http://members@aol.com/cometcom/index.html>

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December Highlights

Easy



Betelgeuse

variable star, varies in magnitude from 0.3 to 1.2 over a period of almost 7 years.

M42 The Great Nebula in Orion

the swirls of nebulosity spread out from its core of four stars called the Trapezium. Henry Draper was the first person to successfully photograph the nebula in 1880.

Medium



NGC 1300

Nudge your scope 10 degrees north and a little west of Alpha Fornacis, magnitude 10. Beautiful barred galaxy with a bright core.

NGC 1360

About 6 degrees southwest from NGC 1300, planetary nebula about 6 arcminutes across, magnitude 11 with a bright central star.

NGC 1365 The Great Barred Spiral

About 10 degrees south from NGC 1360, magnitude 9 galaxy and the best example of a barred spiral galaxy.

Challenging



IC434 The Horsehead Nebula in Orion

Also known as Barnard 33, the nebula is projected against a background of diffuse nebulosity alongside the bright belt star Zeta Orionis.

Photos: Horsehead Nebula (right) NGC 1365 9 (center)

School and Public Star Party Calendar

The last two star parties of 1999 are coming up soon. The SVAS members who have volunteered have been a tremendous help this year. Please check your schedules and see if you can help with either of these. No experience is required! If you want to come out for either of these star parties with your telescope, please email me at: susan_strosahl@hp.com or call me at 785-5556. I will supply directions to those who sign up to each respective star party. Don't forget to wear lots of layered clothing, it will be cold this month!

1. Saturday, Dec. 4, 1999

Time: Sundown 4:45 p.m.

Moonset 3:16 p.m.

Arrive 4:00 p.m. to setup

School: Green Valley Elementary School (100 people)

We have enough volunteers for this one (you know who you are), but I would never turn away anyone who wanted to come.

Location: Green Valley Elementary School
Bass Lake Road
Cameron Park, CA

2. Thursday, Dec. 9, 1999

Setup: 6:30pm Sunset: 4:55pm

Moonset: 8:32pm

Need four more volunteers with telescopes

School: Albert Schweitzer Elementary School

4350 Glenridge Drive

Carmichael, CA

(near San Juan and Winding Way)

Number of People: 200 persons



Classifieds

For Sale: Mead LX 50 10" F/10 SCT

Goodies: tripod with equatorial super wedge, dual axis motors and hand controller keypad, variable power source AC/DC, 8x50 view finder and 1x orion Ezfinder, 24.5 super wide angle eyepiece, 1.25" eyepiece holder and 1.25" star diagonal, Meade heavy duty carrying case (foam lined), SCT viewing chair (handcrafted) and mini chair, dew shield.

Astrophotography goodies: Pentax ME camera body (needs work), lenses 28 mm, 50mm, 135 mm; illuminated reticule eyepiece 9mm, T-mount (Pentax) and T adapter, piggyback mount and adjustable camera mount, shutter trigger cable, tele-extender, counter-weight system. \$2,500.00 FIRM. Contact Lloyd Townsend Home (530)756-5618 or niclSH@SOLISYS.COM

For Sale: Celestron C-8 Computerized. Purchased 12/15/98 for \$1929.43, will sell for \$1000 or best offer. Contact: Bill Hollister Home: 916-652-2349 after 5PM

Work: 916-785-0827

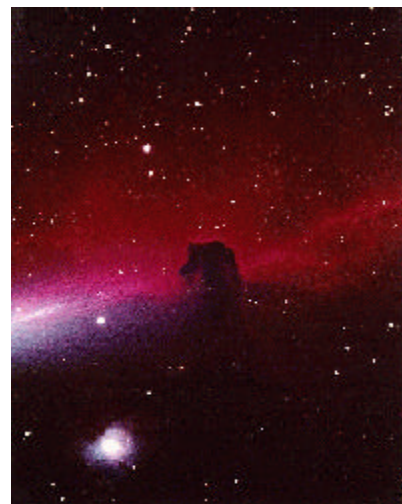
For Sale: Orion 2 inch Skyglow broadband filter \$75.00. New condition. Contact George Storm at 916-731-4036.

For Sale: Celestron 8" StarHopper reflector with 25 mm eyepiece. Excellent condition. \$400. Call Branko at (916) 483-2887.

If you love books and astronomy and have a few hours to spare, the Astronomical Society of the Pacific, located in San Francisco, has great need of a volunteer to help maintain our library. Contact Marilyn Delgado @415.337.1100 x100 or write to the Society at 390 Ashton Avenue, San Francisco, CA 94112.

William Fritz Frey, a member of the SVAS, is running for congress. For more info, check out his website:

<http://www.fritz4congress.org> or email him at: fritz@pinkfloyd.com



WHOM TO CALL

(916) SVAS-111 To save time, press:

- 1-Last minute changes & updates for SVAS events
- 4-General Meeting information & location
- 5-Star party information & location

SVAS Web Page: <http://www.skywatchers.org>

1998 SVAS OFFICERS:

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Past President

Ray Gray 771-3712

Vice President

Walt Heiges 684-3421

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Joe Riddle 488-5634

Alysse Rocha 985-4825

Susan Strosahl 920-0247

Welcome Chairman

Stosh Groner 989-9281

Telescope Making

Cary Chleborad 457-9115

WHERE TO MEET (See below for directions)

General meetings are held on the third Friday of each month, 7:30 p.m. at **Sacramento State University (CSUS), Mendocino Hall, Room 1015, 6000 J Street, Sacramento, CA.**

Visitors Welcome!

To Subscribe to the SVAS email list, send an empty message to svas-subscribe@makelist.com. Once subscribed, emails can be sent to svas@makelist.com.

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Articles—Manuscripts and letters are welcome preferably via email or 3.5" diskette, in Word or text format. Items may be mailed to *Anne-Marie Wheatley, 2320 Sanford Ct, Rescue, CA 95672*, or emailed to amwheat@ix.netcom.com. **Deadline for the following month's newsletter is the Wednesday following the SVAS General Meeting.**

Advertising—Commercial non-personal advertising, business card through full page, is available. Contact Sheri McFarland at 961-9667 for information.

Classified advertising is free to members of SVAS. Submit ads monthly to the SVAS Newsletter at the above address.

HGO

SVAS maintains the Henry Grieb Observatory (HGO) in the Sierras for members only.

Monthly star parties are also held at the site.

For directions and regulations, please call Vice President Walt Heiges at 684-3421

DIRECTIONS TO CSUS MENDOCINO HALL

From Hwy 50, take the Howe/Power Inn exit. At stop light, go straight across Howe. Go down two lights and turn right to enter the CSUS campus. Park in the parking lot across from the Hornet Bookstore. Mendocino Hall is located next to the Hornet Bookstore.

Membership Renewal/ New Member Application

Yes! Please renew my membership, or make me a new member of the Sacramento Valley Astronomical Society.

Renewal New Membership

General, \$25 — Enjoy monthly meetings, informative monthly newsletters, and awe inspiring views of the universe at monthly star parties.

Observatory, \$75 — Enjoy all the benefits of a general membership plus private use of the Henry Grieb Observatory (HGO). Must be a member for 6 months or longer, and must be approved by the Board of Directors.

1 year 2 years 3 years

Tell us about yourself...

Name(s) _____

Address _____

City _____ Zip _____

Telephone (_____) _____

E-Mail Address _____

Yes, I would like to be contacted about volunteering.

I agree to abide to the terms and conditions* governing use of the Henry Grieb Observatory property. I understand that failure to abide can result in revocation of use privileges and SVAS membership.

Signed _____ Date _____

*A copy of the HGO Rules of Operation and Regulations will be available upon request to all members.

Note: The term of annual membership is March-to-March. Dues for persons joining in September to December will be pro-rated. New members joining in January or February will be advanced to March.



Enclose payment and mail to:
**Sacramento Valley
Astronomical Society**
P. O. Box 15274
Sacramento, CA 95851-0274



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SVAS Calendar of Events

Please call SVAS-111 to verify event locations, dates, and times.

December

- 11 — **Star Party**, Latrobe (open only to members and their guests).
- 16 — 7:00 pm. **Board Meeting**, Denny's at Watt & Auburn.
- 17 — 7:30 pm. **649th General Meeting** at CSUS Mendocino Hall, Room 1015. Speaker: Joe Riddle - Star hopping under cloudy sky

January

- 8 — **Star Party**, Latrobe (open only to members and their guests).
- 20 — 7:00 pm. **Board Meeting**, Denny's at Watt & Auburn.
- 21 — 7:30 pm. **650th General Meeting** at CSUS Mendocino Hall, Room 1015. Speaker: TBA

February

- 5 — **Star Party**, Latrobe (open only to members and their guests).
- 17 — 7:00 pm. **Board Meeting**, Denny's at Watt & Auburn.
- 18 — 7:30 pm. **651st General Meeting** at CSUS Mendocino Hall, Room 1015. Speaker: TBA

General Meetings are held on the 3rd Friday of the month at CSUS Mendocino Hall (next to bookstore) Room 1015

Star parties are held on the closest Saturday to the new moon at the Henry Grieb Observatory (HGO) or at Miller's Hill Scholl (Latrobe) and are open only to SVAS members and their guests.