Newsletter

Sacramento Valley Astronomical Society

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Fred Chapman's Rebuilding Projects

I have had my 8" Meade SCT since 1987. Late last year I decided it was time to do something about the deteriorated optics. The corrector plate coatings were tarnished and the optics did not provide as clear an image as when the scope was new. In addition, the original ac to dc power converter was suddenly putting out 20 volts. The drive was not damaged, but the power meter needle was pinned to the right. I contacted Meade to ask them about recoating the primary and corrector plate and for a meter replacement.

Meade told me that they did not recoat optics, but for a fee they would replace the entire optical package if I sent them my scope. The cost would be about $650.00 and they would replace the primary, secondary, the corrector plate, and would include their new UHTC coatings. The minimum charge for any electrical work was $220.00. I decided to forgo the repair of the meter, but I did ship the instrument for the optical replacement.

The work was completed and the scope was back home in about four weeks. The first thing I noticed was that they had replaced the broken meter without any additional cost! Someone obviously did not want to ship out a defective product. The telescope looked like it was new.

First light (looking at Jupiter) was awesome compared to before I sent it for recondition. I haven't seen the red spot so clear in years with the scope and the spot was distinctly orange in color. Not only do the new UHTC coatings have higher light transmission, the coatings on the primary are much higher reflectivity than the original coatings. The performance enhancement was well worth the expense and certainly cheaper than a new scope. It is once again a pleasure to use this scope.

This year I had another astronomical project. This was an even a bigger project than revamping the 8" Meade.

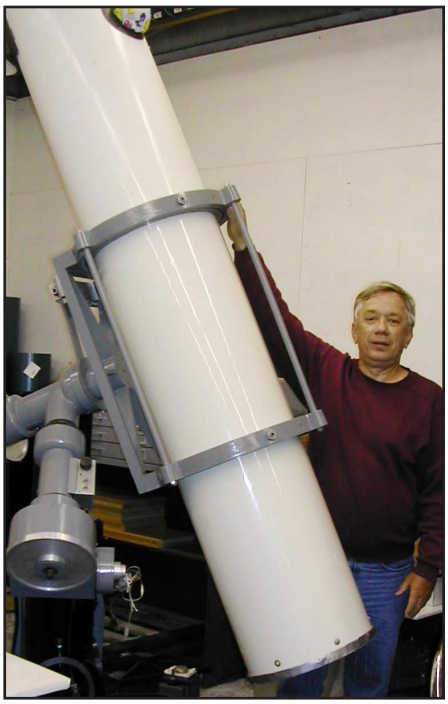
For about 13 years I have had a set of Cave optics stored in my closet. The primary mirror is 12.5" and the secondary is 3.5" x 2.5". The etching on the edge of the mirror indicates it has a focal length of 75.25" (f-6) and that it was made in 1975. The back of the primary mirror has a signature, but I don't know if it is the original owner's or if it is the maker's name. I did view through the telescope before the mirrors were removed and found the optics to provide superb images.

The original Cave Astrola mount did not make it with me when I moved to Sacramento from back east. I had planned to put the optics back into a tube and mount when I retired in 3 years. However, with Mars being spectacular this year, I decided to get it back in operation this year.

I had both mirrors stripped and recoated by QSP Optical Technology in Santa Ana, CA. The primary was coated with enhanced aluminum at 95% reflectivity, and the secondary was coated with their "Endurobright" dielectric coating at 98% reflectivity. The enhanced coating has a "warm" cast to the surface, while the dielectric coating has a distinctly "cold" tint. A view of the July 1 quarter moon with these mirrors did not seem to add any perceivable tint to the view.

I wanted the scope to be on a classic looking Newtonian heavy-duty mount with a drive on each axis, finder scope, and large setting circles. In short, I wanted a beautiful as well as a functional instrument. Finding a reasonable priced Newtonian mount that could handle a 95 lbs tube was not easy!! After much research, I decided to contact Joe Nastasi

REBUILDING PROJECTS, page 4



Forrest Lockhart and the rebuilt Cave telescope

Some Cave History

Several months ago I wrote of the help Tom Cave, of Cave Optical and the Astrola line of astronomical telescopes, had given me when I was a kid making my first telescope mirror. A few weeks ago, my wife and I were in Oregon when we learned of Tom's death. Tom had been influential in making astronomy my lifetime hobby those many years ago, but I had never returned to thank him…. And now he was gone.

While on the road, we made a stop at Hardin Optical in Bandon, Oregon. Hardin now owns Tom's old Astrola brand and I was curious as to how they had obtained the name. On our arrival, I was pleasantly surprised to find a spacious store with

CAVE HISTORY, page 4

President's Perspective

How do you steer your telescope to true alignment with the North Star? Trying to find Polaris seems to be the ultimate goal for all Astronomers. I have asked this question many times myself and I have been asked this question. How do you polar align your scope by the drift method? Well, while digging through old papers about the Schwartz Scope, I found the directions that have eluded me. I am going to share them with you so get out your pencil and paper because here it comes.

FOR A STAR NEAR .BOTH THE EQUATOR AND THE MERIDIAN:

a) If the star drifts toward the south, your polar axis is too far to the east.
b) If the star drifts toward the north, your polar axis is too far to the west.

FOR A STAR NEAR THE EASTERN HORIZON:

a) If the star drifts toward the south, your polar axis is too low.
b) If the star drifts toward the north, your polar axis is too high.

FOR A STAR NEAR THE WESTERN HORIZON:

a) Reverse the directions given for the eastern horizon.

I am going to tape these instructions to the backside of the Schwartz for easy access.

Speaking of steering, I have formed a steering committee to steer the direction of the SVAS. There has been tremendous progress with the Board Policy document and it became evident that some thought had to be put into the future of the SVAS. I have appointed all the officers and a few directors to this committee, but I lack representation from the membership. I am asking all of you to consider this appointment. I would like to have one or maybe two general members on the steering committee to represent the wants and needs of the membership. We have several great ideas for the society and there will be much planning required in order to carry them out. Please consider this as an opportunity to be a part of the SVAS future and to guide the development of this great organization. Send me an e-mail or come to the next board meeting if you are interested.

I will be announcing several other appointments as we develop our organization chart. One appointment of particular interest is Teresa Mullen. She has joined the board of directors as the replacement for Alysse Roche. Alysse will continue to work on the Board Policy, but she has decided to tour Europe and discover new horizons. We wish her well and sincerely thank her for the many years of service she has given to the society. Alysse will be missed by all and she will remain in our thoughts. Good luck, Alysse! Keith Mullen, Teresa's husband, has been appointed Members Star Party Chairman. Keith has made a promise to everyone and his statement is simple, "HGO is open and the coffee is on." What that means is that HGO will be opened for all star parties and a huge pot of coffee will be brewing. He has arranged to have an observatory member present to open the observatory for everyone to experience the 16" Richie. Come join us for new access to the observatory.

Walt Heiges

S.V.A.S. 692nd General Meeting – July 18, 2003

President Walt Heiges called the 692nd meeting to order at 7:42 PM.

New Members & Guests: Welcome to new members Nathan Baxter, Bob Silva and welcome back to David Stock.

Announcements: Ralph Merletti reminded everyone about the closest approach of Mars on August 28th. The SVAS will be hosting a public event on August 30th at the Yolo Bypass. Walt announced that Keith Mullen is our new member's star party coordinator who will be working with observatory members to ensure that "HGO is open and the Coffee is On" during scheduled star parties. Keith has already taken the first step by starting a new website, www.starsallnight.com to keep members informed about our star parties. Board member Tom McMahon took the initiative to setup and coordinate astronomy classes for beginners. Member Chuck Pullen who just received his masters degree in astronomy and is a member of the AAVSO will be running the classes along with other members who have the knowledge and expertise to help us all keep our telescopes pointed in the right direction. Starting in August there will be three class meetings held one hour before the general meeting in the room across the hall. The classroom work will be followed up with two lab classes at HGO. Interested members should plan to arrive at Mendocino Hall by 6:30 PM on the Friday of the general meeting. No prerequisites required, you don't even have to own a telescope. Parking passes will be available. Tom announced that Susan Strosahl, our past outreach director who recently moved to Arizona, got a job at Lowell Observatory and is now applying for a position on their interferometry team. Congratulations, Susan. Walt announced the appointment last night of a new board member, Teresa Mullen. She will take the place of long-time member and past vice president Alysse Rocha, who resigned from the board. Alysse has some new plans for her life that will prevent her from dedicating her time to the SVAS Board. Thank you, Alysse, for all your hard work and contributions to the board over the past years. Best wishes to you in your new endeavors. Treasurer Kevin Normington is coordinating a holiday party to take the place of our December board and general meetings. The dinner party will be at Lions Gate in McClellan Park on Dec 11th. The cost will be between $40 and $45 per person and there will be a telescope from Celestron as a door prize. Kevin will be mailing all members an RSVP card. Please respond to this RSVP as soon as possible so we can accurately plan for this party. Walt then showed everyone the new adapter he had made for the Schwartz and the refractor he totes around on a trailer behind his truck. These new adapters now allow the use of standard two-inch eyepieces instead of those old World War II eyepieces that were difficult to see through. If anyone has a two-inch eyepiece they want to donate to the Schwartz please call Walt. As part of the structure for our new Policies and Procedures a steering committee is being established. The committee will be made up of several board members and one general member for now. Anyone wanting to be part of the reorganization and to help formulate these changes should volunteer for this committee by contacting Walt or Cary. Greg Bolton, our new member

GENERAL MEETING, page 5

Dead Silence

We had a wonderful community star party last night near Rancho Murrieta, once we got started. The site was an excellent large open field in a desolate location with small rolling hills with lots of oak trees all around us. The western hills blocked most of the glare from the Sacramento area and we had unlimited dark views to the east and south. The northern view wasn't too bad either with the hills blocking the light pollution from the Folsom area.

Not knowing what to expect I got there early, around 7 pm thinking I would put the solar filter on my scope and show some folks the Sun. That was not the case. The gate to the parking area next to the cattle corral (the designated location) was locked so I backed up the truck and parked off the side of the one lane dirt road under an oak tree and sat in the shade waiting. What a remote area this was. In 45 minutes the only wildlife I saw was one blue-belly lizard and a small swarm of dragonflies and heard absolutely nothing, dead silence. There were no birds, hawks, rabbits, field mice, horses, cows, cattle, coyotes, dogs or snakes, nothing but the lizard sitting on a small pile of wood off the side of the road watching me watch him. I began to envision what space must be like without any sound, and felt what it must have been like sitting in this field two hundred years ago without any noises to be heard. There was absolutely no breeze so the trees were not even making a rustling noise. Twice I could barely hear a jetliner off in the far western sky. I know my hearing is not what it used to be, but this was absolutely amazing not hearing anything in my 45 minute wait. What made this experience more amazing was the fact that it was only three-quarters of a mile on a winding dirt road into a low valley off of the main road. So as the crow flies (or meteor flies) it couldn't have been more than a half-mile away from the traffic on the main road.

By 7:30 I had finished my large ice mocha and began to wonder if this was the right location or someone pulling a fast one on us. By 7:45 Forest & Sandi Lockhart arrived and I could hear again. By 8 pm the rest of the volunteers arrived, Ray & Joyce Hunter, Bill & Michael Storm, George Foxworth and David Scharlach. We were all parked on the side of the road in the shaded area waiting and studying the countryside. By 8:15 we were beginning to decide how long we would wait for star partiers to arrive and were thinking about heading up to HGO and evading that star party. Around 8:20 Lora, our host from the Nature Conservancy arrived with the key to the gate. However the key was for the chain around the hinged side of the gate that needed considerable repairs. With volunteer help and lots of muscle we were able to left the gate from the bottom hinge on the wooden barbed wire fence post without destroying the post or fence. A little push with my truck would have solved the problem also, but Lora didn't think it was a good idea. By 8:40 we were in place and setting up our scopes. By 9 pm the guest and public were arriving. Oh yea, I did spot a field mouse running across the road as I started to drive through the gate.

The night sky was dark enough to treat everyone to several nebulas, clusters and the Andromeda galaxy. With seven scopes we were able to show off many different objects to our host and their guest. At 11:05 I noticed Mars above the oak trees off to west. We all focused our scopes on Mars and treated the half dozen guests who were still there to some wonderful views of Mars. Being low in the horizon didn't provide for any great images but with a moon filter and enough magnification one could make out the ice cap, but no dark surface features.

It was a little after midnight when David and I managed to get the gate in a position to securely lock the chain around the gate and post and headed home. It was a wonderful star party and everyone had an enjoyable evening. Truly a memorable star party, one I won't forget for sometime, 45 minutes of dead silence.

Bud Bafia

August Meeting

Digital Sky Surveys Are Changing Astronomy. Are Amateur Telescopes Obsolete?

New photo-realistic planetarium programs using high resolution CCD images mimic exploring the sky with a telescope. This new software transforms the desktop computer into a virtual observatory. Sky exploration is now possible without a telescope.

At the August general meeting Tom McMahon will demonstrate the new Desktop Universe and how it links with telescope control software. It is based on a mosaic of 20,000 CCD images mapped into a mosaic of the northern and southern skies. With more than 10 million stars, clusters, nebulae, and galaxies plotted into an accurate database, this project is one of the most ambitious ever undertaken for amateur astronomers.

Tom will describe how to use the new Sloan Digital Sky Survey (SDSS), which recently began publishing swaths of the sky on the internet. Other new projects underway throughout the world are:

- National Virtual Observatory – writing standards for publishing baseline astronomical data collections for use by the worldwide astronomical community.
- The McDonald Observatory's project, "Decoding Starlight" – how astronomers use spectroscopy to study the universe and particle physics.
- SkyView Virtual Observatory – generates images at various wavelengths from radio frequencies to gamma rays.

All one needs to use these revolutionary resources is a high performance computer and a fast internet connection! Tom's talk promises to be a "mind stretching" experience!

Congratulations to SVAS member Don Macholtz for the article in the September issue of *Sky and Telescope*!

NEW ASTRO 101

SVAS will begin a new five-part course for members and their guests this month. The course is designed for newcomers to astronomy. There is no charge for attending the sessions.

Chuck Pullen and a group of astronomers will offer one-hour classes before each of the next general meetings. The first class, "What's Up tonight," will be held on 15 August, 6:30 pm, at CSUS. The second class will teach participants how refractor and reflector telescopes work , and all about eyepieces. The basics of the solar system will also be described. The third class will feature how stars are born, mature, and die; finding galaxies; comets and asteroids.

The course also includes two "how to" observational sessions at HGO. Experienced astronomers will help novices set up their telescopes and find objects in the night sky.

NEW ASTRO 101, page 5

Rebuilding

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at Parallax Instruments in Montgomery Center, VT. Joe had recently installed a large Parallax telescope at the US Naval Academy. The observatory people had written a letter on the web with praise for both the instrument and the help provided by Mr. Nastasi.

Since Parallax makes complete scopes as well as mounts, I was able to make an agreement to purchase a mount and to have Joe construct an optical tube for my mirrors. I was going to purchase the basic HD 200 mount. Since he was to do the entire scope (minus my mirrors, mirror cells, spider, and lens mount), Joe made me a great offer on the HD 150C computerized mount. It is equipped with an Asto-Physics drive and is of a more precise and heavier construction than the basic model HD 150. It has the same 9" Byers gears on both axes as the basic HD 200. He modified the HD 150C with heavier motors, a 2" shaft vs. the standard 1.5" shaft, and extra counterweights. The scope took several months to be completed since it was custom ordered. Joe kept in contact with me during construction to keep me informed on the progress of the project. He made sure he discussed with me any unexpected problem, modification, or time delay. His personal attention demonstrated his pride in his work and his real care for customer satisfaction.

I received the completed scope and mount in mid July. I must say, it is a real beauty!! All 350 pounds of it!!! The mount is black enamel and the optical assembly has a cream-colored aluminum tube with black mounting rings. The telescope is rather unique for a GOTO telescope in that it has rotating mounting rings on the optical assembly. Normally, GOTO telescopes have fixed tube rings and are either refractors on equatorial mounts (with rotating eyepiece), or are on fork mounts. Anyone who has used a large reflector on an equatorial mount knows the necessity of rotating rings. The use of the rotating tube may result in some GOTO error throughout the observing session, but the tracking will still be excellent once it has an object centered.

My wife's first reaction on seeing the assembled scope was, "How are we going to transport this thing?!!!!" I'm still working on that.

Fred Chapman

Cave History

CONTINUED FROM PAGE 1

over 20 telescopes on the showroom floor, eyepieces, binoculars, a bookcase and reading area, a separate room filled with educational items, and several old Astrola reflectors. While my wife went off in search of antique book stores, I made my purchases, hung around and talked telescopes with Drew, a salesman there.

I found that the owner had, in his teens, worked for Tom Cave in the 60's. In 1999, Tom agreed to transfer ownership of the Astrola name to Hardin, who now sells a line of Astrola eyepieces.

I told Drew of my experiences with Tom and how SVAS had auctioned off a nice 8" Astrola last year. I mentioned that the photos taken by Evered Kreimer for the book, The Messier Album (Mallas and Kreimer, 1975) were made with a 12.5" Astrola reflector and a homemade cold-camera of his own design. I stated that I had wanted to visit Dr. Kreimer and his Astrola if I had ever passed through Prescott, Arizona, but with Dr. Kreimer long gone, the opportunity to see the scope was lost forever. Drew smiled, said, "Not necessarily", and lead me to a private work area. There, gleaming under the lights, stood the 12.5" F-7 Astrola observatory reflector, custom built by Tom Cave and used by Mr. Kreimer for over 30 years! On a nearby shelf was the original cold camera used for illustrating the book. Mr. Hardin had recently acquired the scope and accessories from the Kreimer family and was now restoring it!

As we drove out of town, I relived memories of Tom and his generosity to a young kid. Somehow, standing by that veteran Astrola scope, I felt a unique sense of closure.

So long, Tom, and thanks.

Forrest Lockhart

Ed note: Hardin Optical Co, has been a major supporter of the SVAS by donating telescopes for the annual raffle at Star-B-Q.

Inspiration Point

Our reputation for volunteers certainly has not faltered; we have a lot to be proud of. Thanks to our MANY members who have lent themselves to our projects. As the new volunteer coordinator I want to get to know as many members as possible so I can find out what YOU like to do. It is my goal to match each volunteering member with jobs and events that they will enjoy. What do you like to do? Are you a go-getter with a lot of energy and great ideas? Maybe you could be a driving force (or a helping hand) on one of our committees? Do you just like to get out of the house and share your joy of astronomy? (After all, who doesn't smile when they hear "WOW!" from someone's first look through a telescope?) Do you have ideas on how you would like to lend your flavor to the SVAS banana split? Call me, email me, write me a letter!

Note: We are now recruiting kilt wearing members for our Dark Skye Regiment volunteering team. Call for information.

Dawn Baird-Chleborad
916-457-9115

General Meeting

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services coordinator, has put together a welcome package that he will send to new members. The meeting ended with a happy birthday song to vice president Cary Chleborad and a delicious birthday cake supplied by his wife, Dawn. Happy birthday, Cary.

Guest Speaker: Tinka Ross received a B.A. in astronomy from Wellesley College in 1961 and was an astronomy educator at the College of Marin until she retired last year. In addition to her work with the Hands On Universe program, she is active with the Morrison Planetarium of the California Academy of Science and is also involved with two volunteer programs designed to promote astronomy, SPICA and Project Astro. Tinka presented a wonderful historical insight about women in astronomy with her lecture, "Astronomy is Women's Work". Her research included a long list of women in Astronomy dating all the way back to 2354 BC. She presented a condensed version of the list, some 20 of the more famous women who, despite unfavorable societal pressures and lack of opportunities, made remarkable discoveries and contributions in the field of astronomy. Until recently, women still did not have a recognizable place in astronomy. She attributes this to lack of access to education and jobs and the social conditioning of our society. But times are changing and more women are becoming more involved in astronomy and science.

Bud Bafia, Secretary

Classifieds

FOR SALE – Meade 12" LX200 with tripod & 616XT autoguider/imager & colorwheel filter. $3000.00 Fiberglass 10ft. Prodome with electric shutter & dome drive. $4000.00. Purchased 1999 used approx 20 hrs. 530-796-2252

Please let us know monthly if you want to renew your classified ad. E-mail chulbe@attbi.com.

New Astro 101

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Those who do not have telescopes are welcome to attend to see how to use binoculars and telescopes. The sessions will help those who want to buy binoculars or a telescope, decide how to solve the equation of the five "P"s of Performance, Purpose, Portability, Light Pollution, and Price.

Tom McMahon

Mars Is Coming!

During the last weekend of August, Mars will be closer to the Earth than it has been in 50,000 years or more! SVAS has scheduled three special observations for this once in a lifetime event.

Join Walt Heiges at the Elk Grove Community Park on Friday, 29 August. Celebrate with Ralph Merletti at the Yolo Bypass Wildlife Area on Saturday, 30 August.

Watch for Mars with Don Machholz at the Auburn Dam Overlook on Sunday, 31 August, between 8:30-10 PM. Don would appreciate help from members of SVAS who have scopes. For details call Lynda Hall (717-1170).

Mars - B - Q

(Continued from last month.)

I returned to my own instrument, rested some more, and then enjoyed my best views of Mars through my refractor -- in bright twilight! A glare-free view of its gibbous disk, polar cap, and markings (yet to be identified by specific longitude visible at that time). I was even able to follow Mars into the daylight sky -- for almost an hour after sunrise! By then, it seemed as if a very light blue filter was in use. So much better views are yet to be experienced in the coming weeks! The main SVAS public viewing party for Mars will be on Saturday night, August 30th, at the Yolo Wildlife Refuge -- the same site that attracted an estimated 600+ people to the lunar eclipse viewing, last May 15th.

Ralph Merletti

Outreach Star Parties

Please let Lynda Hall know if you can volunteer with your telescope. Contact her at 717-1170 or lyndahall@surewest.net. See www.svas.org for updates.

August

29 Outreach Star Party for the Elk Grove Parks & Rec.
30 Mars Watch at the Yolo Bypass Wildlife Area,
31 Mars Watch at Auburn Dam

Detecting Extra Solar Planets

It is increasingly possible for amateur astronomers to detect extrasolar planets! American Astronomical Society (AAS) Division of Planetary Science (DPS) is having a conference in Monterey, CA from Tuesday September 2 through Saturday, September 6. The conference web site is http://dps03.arc.nasa.gov/

On the day before the conference, Monday afternoon (September 1, 2003), there will be an additional half-day workshop on detecting extrasolar planets, to which amateur astronomers are especially welcome. The title of the workshop is Transit Searches for Extrasolar Planets - from HD 209458 b to Earths, pursuing the next decimal places of photometric precision.

The description of the workshop is as follows. The growth of interest in the photometric method for detecting extrasolar planets that has occurred since the 1999 discovery of the transit of the star HD 209458 by a short period jovian mass planetary companion has been extraordinary. Dozens of groups are pursuing transits of giant planets using ground-based telescopes both large and small. Space missions designed to seek the much smaller transits of terrestrial planets are being developed in the United States and Europe. Hundreds of planet discoveries are anticipated.

The purpose of this workshop is to gather a broad spectrum of participants in these transit searches to present and discuss insights in the areas of scientific results expected from transit measurements. The discussion topics include the merits of various observing strategies, CCD instrumental effects, characterization and minimization of noise sources, advances in data reduction techniques, follow-up observation techniques, opportunities for amateur astronomers and schools, and future directions

From 8-10 presentations of 20 minutes duration each are anticipated. Posters may be accommodated if demand requires. Workshop attendees who desire to make a presentation are encouraged to submit abstracts by email to Tim Castellano by August 8. Location: see http://dps03.arc.nasa.gov/ Workshop organizers are William Borucki - Kepler Project, NASA Ames Research Center, Tim Castellano - Transitsearch.org, NASA Ames, and Greg Laughlin - Transitsearch.org, UCSC. See http://transitsearch.org

If you plan to attend, or for further information contact Tim Castellao, tcastellano@mail.arc.nasa.gov (650) 604-4716

Skywatcher's Diary: Aug. 2003

Tuesday, August 12
Have you tried observing Mars with a telescope, yet? Look for the white south polar cap (at the top of the image in most telescopes) and subtle dark markings across the disk. Intense Martian dust storms at times can obscure surface features. Tonight after moonrise, say 2 hours after sunset, notice that the Moon sits to the upper right of the planet. Tomorrow morning shortly before sunrise the Moon and Mars appear 2 1/2 degrees (5 moon diameters) apart in the southwestern sky, with Luna to the lower right. The Perseid meteor shower reaches its maximum tomorrow morning, too. Unfortunately, bright moonlight will spoil the show this year.

Wednesday, August 13
Here's the current planet lineup. Mercury is barely visible just after sunset low in the west. Mars rises an hour and fifteen minutes after sunset in the east-southeast and remains visible the rest of the night. Saturn rises more than 3 hours before the sun. Look for it north of east, about 20 degrees (2 fists) up an hour before sunrise. Jupiter and Venus are too close to the sun's direction to be seen. Uranus and Neptune are in the evening sky not far to the west (right) of Mars. Pluto is in the constellation Ophiuchus (south at nightfall, above Scorpius).

Thursday, August 14
Mercury reaches greatest elongation today -- it's farthest angular distance from the sun during the current evening apparition. For northern latitude observers the show is poor because the planet's orbit makes a shallow angle relative to the horizon. The scenario improves as you travel south. Near 20 degrees south latitude the planet's orbit aligns perpendicular to the horizon, affording an outstanding view. Sounds like an excuse for a trip to Australia, don't you think?

Friday, August 15
Look toward the north some evening near the end of twilight. The Big Dipper sits approximately half way up in the northwestern sky, while Cassiopeia resides at the same altitude in the northeast. If you are not familiar with Cassiopeia, look for a "W" shape extending about half the length of the Big Dipper. Its stars are similar in brightness to the Big Dipper, as well. Once you recognize the shape it will become as familiar to you as the more famous dipper. The constellation of Cassiopeia represents the queen of ancient Ethiopia.

Saturday, August 16
Arcturus, the brightest star in the sky's northern hemisphere, hangs about half way up in the west during evening twilight. This beauty sometimes goes by the nickname of "Job's Star," referring to its mention in the biblical Book of Job. The name's use, there, is a takeoff of the Greek "arktos," meaning "bear," rather than referencing the star. Arcturus is 37 light years distant, so the light that we see tonight left the star almost 4 decades earlier.

Sunday, August 17
Altair is the southern most star of the Summer Triangle. Look for it in the southeast slightly more than half way up. The name derives from ancient Arabic for "the eagle," which is also the animal designation for the constellation in which it resides. Altair is a relatively nearby star, only 17 light years away. The star is intrinsically 12 times brighter than our sun, so if the sun were placed where Altair is, it would appear almost 3 magnitudes fainter than Altair.

Monday, August 18
Venus reaches superior conjunction today, meaning the planet passes invisibly behind the sun. Venus next shows up as an evening "star," but not until October. The planet slowly emerges out of evening twilight. For mid northern latitudes, Venus sets 30 minutes after the sun in early October, which lengthens to an hour by early November. The appearance of Venus occurs sooner for southern observers. As an extreme example, in Sydney, Australia, Venus sets 30 minutes after sunset before mid September.

Tuesday, August 19
The Moon reaches Last Quarter at 8:48 p.m. EDT tonight. It rises around midnight. Once the Moon gains some elevation, you may be able to recognize the Pleiades star cluster sitting 5 degrees (10 moon diameters) to its upper left. Eleven degrees to the lower left is the star Aldebaran, eye of Taurus. By dawn the group has moved high in the southeast. The next morning, Thursday, Luna appears to the upper left of Aldebaran.

Wednesday, August 20
Earth approaches close to Mars every 25 to 27 months. In 7 days we will once again pass the Red Planet. If the paths of both planets were perfectly circular, the minimum distance would be the same each time we pass. The orbits, however, are oval. Mars' track is significantly elongated, in fact. As a result, the minimum distance at each Earth-Mars encounter varies. This time a record, of sorts, is reached. The two planets will pass closer than they have in about 60,000 years.

Thursday, August 21
The upcoming record-breaking approach of Earth and Mars is a matter of perspective. While it is the nearest pass in tens of thousands of years, there have been ones almost as close much more recently. Every 15 to 17 years an especially close encounter occurs. In 1988 we came within 2 million miles of this year's distance -- a difference of about 5 percent. Every 79 years an even closer pass happens. In 1924 Earth and Mars were only 12,000 miles (0.03 percent) farther apart than this time.

Friday, August 22
Jupiter is in conjunction with the sun today. It passes a degree north of Sol. Jupiter actually sits 499 million miles behind the sun and 593 million miles from Earth. So Earth, sun, and Jupiter line up. Mars passes Uranus today, too, but from the perspective of the sun -- known as "heliocentric" to astronomers. That is, sun, Mars, and Uranus are in line. In 2 days Earth and Uranus align, and in 6 days it's Earth and Mars' turn. Another way to imagine the scenario is first Mars passes Uranus, then the Earth passes Uranus, and finally Earth overtakes Mars.

Saturday, August 23
This morning before sunrise you might have caught the crescent Moon 4 degrees (8 moon diameters) to the upper left of Saturn. An hour before sunup the duo perched a third of the way up in the east. Tomorrow morning the Moon slips 12 degrees to the lower left of the Ringed Planet. The bright Gemini twin stars, Pollux and Castor, appear 4 degrees to the left of the Moon. Pollux is the lower of the two. Watch the crescent Moon dissolve into a hairline arc over the following two mornings (25th and 26th) as it sinks toward the east-northeast horizon. The Moon turns New at 1:26 p.m. on the 27th.

Sunday, August 24
Uranus reaches opposition today, so it is now visible all night long. The distant giant is also brightest, although it only shines at magnitude 5.7. That's bright enough to see without optical aid, if you have a clear night and a good finder chart. You can find such a chart on the web at http://www.pa.msu.edu/abrams/august.pdf. There are two Uranus finder charts on that document, one in the upper right corner and one at lower left. For reference, both also show the position of Mars.

Monday, August 25
With Mars now so near to Earth, viewing the Red Planet through a telescope doesn't get any better. The truth is, however, that for those who aren't experienced Mars observers, the sight may not be impressive. At best, the features on Mars are indistinct (witness that whole Martian canals fiasco in the early 1900's). Furthermore, if the Earth's atmosphere is less than steady, any details will be smeared. Don't let the pitfalls discourage you from observing, however. Simply adjust your expectations and join in this historic event.

Tuesday, August 26
To get the most out of a telescopic view of the Red Planet, you should do some preparation. Study a map of Mars designed for observing the planet through a telescope, not one meant to be hung on a wall. A good example of the kind of map to use can be found at http://www.lpl.arizona.edu/~rhill/alpo/marstuff/B&WMarsmap.jpg. To know what to look for, you'll need to determine the side of Mars facing Earth at the time you observe. A site that calculates that for you is http://skyandtelescope.com/observing/objects/planets/article_929_3.asp.

Wednesday, August 27
After months of anticipation, the day of Mars' closest approach has arrived. For those who need to know details, at 5:52 a.m. EDT we pass within 34,646,000 miles of the Red Planet. Mars also reaches its greatest brilliance, magnitude -2.9, and apparent size, 25.1 arc seconds in diameter. For comparison, Mars is now as bright as Jupiter ever gets. Jupiter can appear as large as 46 arc seconds, however. It will be the year 2287 before Mars comes closer than this (and then only by 43,000 miles).

Thursday, August 28
Today Mars reaches opposition (opposite the sun as seen from Earth). At first glance it might seem that opposition and closest approach should occur at the same time. Remember that the planets' orbits are ellipses rather than circles, so the curvatures of the paths must be taken into account. Both Mars and Earth are presently arcing toward the sun, but Earth at a greater rate.

Friday, August 29
Two days ago the Moon was at New phase. Tonight the young crescent will be visible in the west shortly after sunset. The Moon sets more than an hour after sunset, so it should not prove difficult to find for anyone who has a clear view to the west. Timing will be important, however. Begin watching about 30 minutes after sundown. At that time the Moon lies 8 degrees (almost a fist) to the south of due west and 8 degrees above the horizon. As the sky darkens and the Moon descends, it may well get easier to see. Determine when the crescent appears most visible to you.

Saturday, August 30
Tonight the 3-day-old crescent Moon sits 5 degrees (10 moon diameters) to the upper right of Spica, the brightest star in the constellation of Virgo. An hour after sunset Luna hangs 7 1/2 degrees above the west-southwest horizon. Mars reaches perihelion today, the closest point to the sun in its orbit. The fact that perihelion arrives only 2 days after Mars' spectacular opposition is no coincidence. In fact, these closer-than-average approaches of Earth and Mars that occur every 15 to 17 years are known as perihelic oppositions.

Sunday, August 31
The magnificent summer star Vega passes near overhead at the end of evening twilight. At 39 degrees north latitude (more precisely 38 degrees 47 minutes), the star will cross through the zenith point. If you are north of that latitude, Vega travels south of overhead by the number of degrees that your location and 38¡47' differ. Similarly, locations south of 38¡47' observe Vega pass north of the zenith. Most people have a difficult time telling exactly where the overhead point is, unless they carefully measure it. So for observers throughout the entire continental U.S., Vega will seem to mark the apex of the sky.

The Skywatcher's Diary was prepared by David Batch. Each month, the Department of Physics and Astronomy at Michigan State University makes the Skywatcher's Diary available over the Internet. Please subscribe to their monthly Sky Calendar http://www.pa.msu.edu/abrams/SkyCalendar/Index.html.

WHOM TO CALL

(916) SVAS-111

SVAS Web Page: http://www.svas.org

2003 SVAS OFFICERS:

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Volunteer Coordinator
Dawn Baird-Chleborad 457-9115

Outreach Director
Larry Harrison 835-1672

Resource Officer
Dar Pinson 991-5033

Astronomical Events Coord.
Ralph Merletti 456-9385

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.**

Subscribe to the SVAS email list by going to the Yahoo group at http://groups.yahoo.com/group/svas-members and sending a request to join the group.

Articles—Manuscripts and letters are welcome preferably via email or 3.5" diskette, in Word or text format. Items may be e-mailed to *Chris Hulbe* at *chulbe@comcast.net* or to *Dave Buchla* at *dbuchla@sbcglobal.net*. **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 Chris Hulbe at 967-3794 for information.

Classified advertising is free to members of SVAS. Submit ads to Chris Hulbe at 967-3794, *chulbe@comcast.net*.

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 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, $35** — 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 by the terms and conditions* governing the use of the SVAS Special Use Permit. Violation of these rules can result in revocation of use privileges and SVAS membership.

Signed _____ Date_____

*A copy of the SVAS Rules of Operation and Regulations can be found on the SVAS website and is available by contacting the SVAS Secretary.

Note: The term of annual membership is March-to-February. Dues for new members joining from October 1st to December 31st will be $15.00. New members joining in January or February will be advanced to March. NL Rev-8/18/2000.

Enclose payment and mail to:

Sacramento Valley Astronomical Society
P. O. Box 15274
Sacramento, CA 95851-0274

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Sacramento, CA 95851-0274

Postage Stamp Here

SVAS Calendar of Events

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

August

9 — **"Full Moon" Telescope Workshop.**

14 — 7:30 pm. **Board Meeting**

15 — 7:30 pm. **General Meeting,** (693rd), at Mendocino Hall, Room 1015, CSUS. Tom McMahon speaking on "Star Gazing without a Telescope"

29 — **Mars Watch** at Elk Grove

30 — **Monthly Star Party** at HGO.

Mars Watch at the Yolo Bypass Wildlife Area

31 — **Mars Watch** at the Auburn dam Overlook

September

5 — **Sac City College Open House and Mars Watch** – 8:45 pm

13 — **"Full Moon" Telescope Workshop.** Presented by Cary Chleborad, 4 p.m., 1115 58th Street, 916-457-9115.

18 — 7:30 pm. **Board Meeting**

19 — 7:30 pm. **General Meeting,** (694th), at Mendocino Hall, Room 1015, CSUS. Bob Crowl will speak on "My 8" Travel Scope and the Kuiper Observ.".

27 — **Monthly Star Party** at HGO.

28 — **Sunday Fun Day** at Rusch Park in Citrus Heights, 12 to 5:00 p.m.

October

11— **"Full Moon" Telescope Workshop.** Presented by Cary Chleborad, 4 p.m., 1115 58th Street, 916-457-9115.

16 — 7:30 pm. **Board Meeting**, at a location to be determined.

17 — 7:30 pm. **General Meeting,** (695th), at Mendocino Hall, Room 1015, CSUS. Don Goldman will speak on "Imaging in the City (with my 11" Celestron and processed CCD images)"".

25 — **Monthly Star Party** at HGO.

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 the Rescue Community Center and are open only to SVAS members and their guests.

New Astro 101

Chuck Pullen will give a series of lessons in observational astronomy, the hour before General Meetings.