Newsletter of the Pomona Valley Amateur Astronomers

Amateur astronomers just get better looking . . .

John Seaton

If you havn't payed your $27 dues then you are overdue.

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President's Column

How much would it be worth to sit in a Mercury space capsule, or to ride in the tank that general Patton rode in to lead his troops to victory? How much would your spirit be enriched to meet face to face a technical wonder of years gone by? You may wonder at this oblique probing of your curiosity, but I assure you that indeed it does lead to a possible event for you, the loyal member of the club.

It has come to the attention of the club that the acquisition of time on the famous 60 inch reflector on Mt. Wilson is currently possible. The writer of this column did indeed participate in a group viewing through the grand old telescope about fifteen years ago. Words really fail to describe the experience in it's totality. I remember walking up and down the steps within the dome, completely sure that an optical illusion had been pulled on me. The walk up to the observing floor seemed alot further off the ground than a quick judgment from outside the dome lead me to believe. Inside the telescope was only a hulking muted shadow in the all surrounding darkness.

Before the first person had stepped up to the eyepiece, a near disaster took place. The leader of our merry group gently placed the ocular in the telescope's eyepiece holder and pushed it into place..... and continued to push it into place. Being only 1.25 inches in diameter, it quite rightly slid through the 2 inch hole provided and then started its journey down the structure of the telescope toward the 60 inch mirror. Let me assure you, there are times when aided only by sound a complete picture of a disaster to come forms unbidden in one's mind. The eyepiece fell silent without the unmistakable sound of impacted glass (thank God !). The night assistant (fortunately we could not see his expression nor hear his thoughts) walked up to the ladder to the inner walkway around the inside of the dome and, once at the bottom of the observatory dome opening, he walked down inside the telescope body. Mind you, he walked all the way down to the mirror and retrieved our traumatized eyepiece with no ill effct to the telescope. Then the eyepiece was replaced in the telescope WITH the properly sized holder.

We went from object to object over the course of the entire evening. M42 wasn't an interesting object; it was breathtaking object overfilling the eyepiece. The brilliance of 3 rd and 4 th magnitude stars was almost blinding. Open clusters were so open that I had a hard time recognizing some of my favorites. I can truly say that I had the time of my life within the presence of that venerable old giant. Dawn found all of us tired but satisfied with many, many new images a swirl in our minds.

In theory there is no problem in ending up with an evening at the 60 inch eyepiece. The kicker is that , as with all things in this world, it will cost a fair amount of money. With enough members of the club joining in this unique opportunity, the cost can be made affordable. If you are interested, please come to the September and October general meetings of the club to hear of our progress on this most unique of opportunities.

PVAA Events Calendar

Month	Star Party	General Meeting	Board Meeting
October	9	22	1
November	6	19	12
December	4	17	10
January	8	21	28

PVAA General Meeting

27 August 1999

Announcements.

Sept Star Party. The Star Party will be at Cottonwood Springs, Joshua Tree National Park.

Next General Meeting. The September meeting will be on September 24th--Please note the change. We adjust to stay close to the full moon. Speaker not yet determined.

Report on Perseid Meteor Shower. Ron Hoekwater went to the White Mountain campground (8300 feet). A good, dark sky with good seeing. Ron found the shower rather sparse, about 45 meteors per hour. However, they did see at least 3 really bright ones streaking across at least 60% of the sky. Because of the sparse meteors, Ron spent a good part of the time, using his great 22-inch scope to good advantage in the dark sky.

Eclipse. Bob Branch showed slide pictures he took of the recent eclipse of the moon (about 38% coverage in our area). Good pictures, although a little small, using the overhead projector. Thanks, Bob!

Near Miss? Recent pictures shown on the net feature a close-passing meteorite (at about 8.5 million Kilometers). The Meteorite is about 3.5 KM in diameter, with predicted impact of 330 ft/sec. Its orbit does not appear to threaten impact over the next century or so, but NASA will be tracking it.

Election. Our annual election of officers took place at the August meeting. The slate was rounded out at the last minute, when Claire Stover agreed to serve as Secretary. There were no nominees from the floor, and no write-ins. Ballots were tallied by two honest folks (Stella Avalos and Bill Bray). Results: 19 votes tallied; 100% of votes cast were in favor of the slate presented by the Board.

What's Up?

Bob Branch reminded members that the summer sky features the Milky Way, still in good viewing position. Members are urged to gaze with unaided eye, binoculars, and/or telescopes. It's a beautiful and fascinating sight, whose composition was utterly unknown until 1609, when Galileo declared it to be made of "an infinite congeries of small stars" in the Starry Messenger. Unfortunately for modern man, the proliferation of modern lighting has made the Milky Way impossible to appreciate, except at distant dark sites. Keep that in mind at Cottonwood Springs and appreciate!

Venus is at its brightest in the morning sky. Being close to earth, it's moving fast, and its crescent is changing size every day. On September 9th, there is a minor meteor shower scheduled for Sept 9th--the delta aurigides series of meteors. You will probably see a good many meteors at the star party.

Venus will be visible in the daytime sky, and far enough from the sun for safe observing--IF you observe caution and common sense. Make sure you use an adequate solar filter if there's a chance of looking at the sun. Best bet is to use computer guidance or setting circles to find Venus. If not, you have to do a search pattern, but you must plan your pattern to stay clear of the sun, and be careful.

Planets up for Observing: Uranus and Neptune will be position on opposite boundaries of Capricornus. A good chance to see these fairly elusive planets. Jupiter and Saturn will be in the morning sky. Get up early for rewarding views of these two giants.

Speaker of the Evening.

Our own Bob Branch presented a talk on Wolf-Rayet stars. Bob ducked responsibility for the accuracy of the information provided, pointing out that President Roy Schmidt prepared the view graphs, but handed them off to Bob, when he realized he

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Get the latest news on the star party, club meetings, special events and astronomy happenings.call 909/985-1684

Visit or website at:
http://www.cyberg8t.com/patrick/PVAA.htm

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would not be able to make the meeting. No disclaimer necessary, Bob, you did a fine job!

There were three astronomers named Wolf in the 1800's; our concern is with the French Wolf, who worked with student Rayet, learning to use the primitive spectroscopes available before 1850. These Spectroscopes used prisms, because the fine gratings now universally used had not yet been invented. Gratings spread out the spectrum farther and more evenly, making it easier to interpret. Not only were there no gratings--photography had not developed enough to be usable spectroscopy. So these folks were making manual drawings of what they saw.

Even so, in 1866, they found certain stars to be very different from other "O-Class" stars (the hottest group). Their spectra show bright, broad emission lines, whereas most stars show dark absorption lines that are thin and sharp. Even today, there are fewer than 200 such stars known in the sky.

The emission lines come from excited ions of Helium, Carbon, Nitrogen and Oxygen--no Hydrogen. It appears that such a stars have lost its outer envelope, either due to strong stellar winds or loss to a companion star. The wide lines would imply a rapid rotation, or strong stellar winds with resultant doppler effect. A look at the data will show why these stars are rare:

Temperature: 25,000 to 50,000 degrees K. effective temperature (what our instruments see, which is near the surface).

Size 8.6X to 35X radius of our sun (These are enormous stars)

Mass 7X to 50X mass of our sun

Mass Loss 0.8 to 8.0 x 10^{-5} Solar Mass per year. This is equivalent to approximately 3 solar masses in 1 Million years--a very high rate.

Wind Velocity 1100 to 3500 Km/Second

Initial Mass 30X to 50X times mass of our sun

Types: WN indicates Nitrogen lines predominate--also Helium. This stage implies a star in last stages of the Hydrogen burning phase. WC indicates Oxygen, Carbon, Helium lines predominate. This implies the star is actually into the Helium-burning phase (Hydrogen is used up); the star is at the end of its life.

For Internet surfers: The Astronomy Picture of the Day page for January 3, 1997, shows a Wolf-Rayet star. This is the easy way to get a look at one. The actual picture features a Planetary Nebula--but the Wolf-Rayet star appears to be the source. Evidently, the outer material it blew off to become a Wolf-Rayet star is what we see as a Planetary Nebula. (But not all planetaries have Wolf-Rayet stars at their core).

For ardent Astronomers: look for Gamma Valorium, a Mag 2.2 star in the southern sky. It is a spectroscopic binary. With a good star map, you can find it during the Star Party.

Patrick Nicholson

SEPTEMBER STAR PARTY

For the September 11th PVAA star party, Cottonwood Springs was, as usual, beautiful.
When Lee Collins and I arrived at 7:30 PM the sky was clear, and the temperature had dropped, from about 90 degrees during the day, to a comfortable level. There was some lightning on the horizon, but it was distant, and didn't hamper viewing.

When we arrived Joe Hillberg and Ray and Irene Magdziarz were already setup. John Jacobs and Tom Desy drove in later. Ray and Irene came out Friday and did some sightseeing, including a visit to the George S. Patton Museum at Chiriaco summit.

As it became dark I set up the Starsplitter and started to observe. I rarely have an observing program, usually looking at whatever strikes my fancy that night. Soon a Japanese, couple living in Los Angeles, showed up with a 12 inch Dobsonian. I spent the rest of the night showing them sights they couldn't see in Los Angeles or with a 12 inch scope.

We started with the Veil Nebula, NGC 6992/6995, in Cygnus. Our new friends loaned me a 30 mm Russian eyepiece with a 90 degree apparent field of view to try. A wide field is needed with the Veil.

Later we observed NGC 7331, said to be very similar to the Milky Way, and it's companion galaxies, (NGC 7335, NGC 7336, NGC 7337, and NGC 7340). NGC 7337 is listed as magnitude 15.7, by Skiff and Luginbuhl, which makes it the faintest galaxy I've seen. While in the area, we took in Stephan's Quintet, which will fit in the same field.

Still later, "long time no see", PVAA member Selma Bartfay arrived. She joined in 1993 to take the John Dobson telescope building class. She remembered Joe Hillberg and the Seatons, John and Janice, from the class.

The temperature stayed comfortable and we looked in on Jupiter and Saturn. Saturn's rings are at a more prominent angle than a few years ago.

We observed M33 and NGC 604, a huge star forming nebula in that galaxy, similar to the Orion Nebula. Speaking of the Orion Nebula, we finished up the night with M42 and gave the Japanese couple their first ever view of the Horsehead Nebula. It was a great night of observing and a good time was had by all.

Next month's star party is October 9th at Yesterday Ranch, north of Barstow. This is one of our closest dark sky sites, kindly made available to us by the Crosses. I hope many of you can attend.

Ron Hoekwater

PRELIMINARY ANNOUNCEMENT

The PVAA will have it's third annual Christmas dinner party at **JOUNI'S** restaurant , 922 N. Central Ave. in Upland, on December 17, 1999. The club will subsidize part of the dinner cost for each member and one guest. You may bring more guests but you will need to pay the full price.The unsubsidized part of the dinner cost will be $8.00 per person. Full price is $15.00. We need to have you sign up by December 1, 1999. Jack Gardner is in charge of the list. Next month's Nightwatch will have a form to order your dinner.

Dinner begins at 7:00 pm. It will consist of one of the choices listed below.

1. Chicken Cordon Bleu. Chicken breast stuffed with ham and swiss cheese.
2. Top sirloin.
3. Vegetarian dinner.

The price includes tax, dessert, and tip.

This is by reservation only, there will be no unexpected guests admitted at the door. There will be no refunds since the restaurant will prepare the scheduled meals

A SOLAR FILTER FOR ALl

I have been observing sunspots since 1947. I started by placing a 3" offset diaphram at the front of my 6" Newtonian using a welders filter in front of the eyepiece. The filter would get very hot. With this setup I observed the great sunspot group of 1947. There have been none larger since then. Today you are told not to observe the sun the way I did because it is not safe. I will tell you not to do it because it is NOT SAFE.

At later times I have used a projection screen, a Herschel Wedge with an eyepiece filter (I still have 2 of them, one made by Alvin Clark) and objective filters.

Objective filters are the best method because all of the heat remains outside of the telescope tube. The two types of objective filters used, by whatever trade name, are aluminized Mylar and metal coated glass. A very few of the metal coated glass filters are of very high quality optical glass having plane-parallel surfaces flat to 1/10 wave of light. Zeiss and Baader Planetarium produced them but the cost was high. When I ordered my Zeiss refractor I wanted one, but I didn't have the 435 beans at the time. I should have gotten the money from the bank since Zeiss stopped making small telescopes a short time later. All other glass solar filers are made from plate glass and have poor or extremely poor optical figures~about 2 waves. Aluminized Mylar is somewhat better but still not good and gives a blue image. Both have degraded contrast.

This is now all water under the bridge. Baader Planetarium in Germany has a new solar filter material that has excellent optical quality allowing high resolution solar observing. The material is called Baader Astro Solar (T M) and is being imported into the U.S. by Astro-Physics as sole importer and is being sold by them and Adirondack Vido.

The material is sold in A4 sheet size or 1/2 meter size. It comes density 5 for direct visual use or density 3.8 for photographic use (SAFETY-do not use for visual). It is not sold mounted in a cell, you need to make your own, but the material comes with instructions about how to construct the cell.

I placed my order by telephone with Adirondack on Sept. 7th. They mailed it from Glens Falls, New York on Sept. 10th, and it reached me on Sept. 13th. I put together a cell the afternoon of Sept. 14th and with just 20 minutes time before the Sun got too low to observe, I used it for the first time.

My opinion of the material? Any filter you have except a Zeiss or Baader optical filter is **JUNK**. If you are going to buy a filter don't waste your money on any Mylar or plate glass filter. Get the Astro Solar (TM) material and make your own cell. What you will get is an optically excellent filter that will allow you to observe the fine solar surface detail with good contrast and a dark background field up to the solar limb. It's a new world.

Now for the cost of this. It has been a long time since I got my money's worth. This time it was in aces. The A4 size is $20.00 postpaid. I spent $3 more for double sided tape and poster board. With this I can make two filters for my telescope because you do not need your full aperture in a large telescope. Build an off-axis filter of not more than 5 inch diameter. Now is the time to produce your filter and enjoy the day to day changes on the surface of our star - the Sun as we move toward the sunspot maximum.

Bob Branch
PepperDale Observatory
September 19, 1999