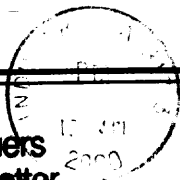




Newsletter of the Pomona Valley Amateur Astronomers

Amateur
astronomers
just get better
looking ...



Claire Stover

Volume 20 Number 6

nightwatch

June 2000

A Few Words With the President: June

The trip to Mt Wilson went rather well considering that we as a group had no experience with the details in arriving and entering the observatory. Most of us got there on time but as the fates always decree, some shall struggle with heavy burdens. Fourteen of the invitees were ushered into the observatory grounds and then into the dome of the 60-inch telescope before your concerned president could make the first real head count. Our genial host, Don Nicholson made four more runs out to the front gate to pick up more members of the club. I'm glad to say that we were only missing one person by the time the last pickup had been made at 9:10 PM. Now the serious business of observing was started in earnest. The reason for the Mt. Wilson selection list very quickly became apparent to your slightly slow president. The objects with low surface brightness could not be seen under the conditions we found on Friday night. M65 and M66 would be a very unrewarding effort simply because the field of view with the 100mm eyepiece and the slow focal length conspired to lower the contrast between the image of the galaxy and the background to nearly unity. Most of you star party observers have noticed that to get a real dark background in the eyepiece, one has to select a higher power eyepiece. In my 13 inch the 6.7 mm eyepiece gives the maximum contrast between a faint galaxy and the sky background that I can expect to get (the only limiter after that point is the basic light grasp of the telescope). The evening went on from object to object with the smoothness that only practice and expertise could bring. The catseye nebula was striking in the great reflector and M57 stood out with it's central star plainly visible. One of our members tried to bring the power of a laptop computer

camera to bear on the colorful double star Alberio with unfortunately no results.

I can truly say that we all had a great time and that we would all sign up again for another chance with the 60 inch.

Our general meeting will feature a closer look at the wonders, both stellar and deep sky, in the constellation of Scorpius. The show will be another of my computer driven shows that hopefully get better with the telling.

I hope to feature a little section of the club meeting to the Solar flares you have all heard about last week. The general reasons why the flares occur and the effect on our dear old planet will be covered.

Please plan to attend.

Roy Schmidt

PVAA General Meeting
19 May 2000

Announcements

Community Star Party. Planned for Saturday, July 8th at the First Baptist Church of Upland.

Astronomical Society of the Pacific Conference will be

PVAA Events Calendar

Month	Star Party	General Meeting	Board Meeting
June	3	16	3
July	1	14	21
August	26	11	18
September	30	15	22

held in Pasadena during July.

Inform the Club if you know of a school or other group that would like an astronomy discussion or a star party. The board will try to find members available to support your request.

Details of our monthly General Meetings have been provided to the Daily Bulletin and were included this month in their City News section.

Member News

We had a visitor to our meeting this month, Larry Totten, a friend of Bob Branch.

A member informed us he had noticed some errors in the **Millennium Star Atlas** - be aware.

What's Up

Roy Schmidt gave a talk on sights to look for in the coming month. On 5/28 was a close conjunction of Jupiter and Saturn which could be seen from our viewpoint at their closest in 18 years, at only 1.1 degree apart. Roy then covered what can be observed in the constellation of Leo. Ancient legends portray Leo and its bright star, Regulus, with terms like king, mighty, or royalty just as do our associations with lions today. Gamma Leonis is a double star, with magnitudes 2.2 and 3.5 and colors of yellow and dark yellow. Other objects to be found in Leo include Wolf 359, M65, M66, NGC 3628, NGC 3384, NGC 3389, M 105, and M95.

Presentation of the Evening

Our speaker for the evening was Jim Des Lauriers, Biology professor at Chaffey College. Jim led us in a discussion inspired by a quote from Freeman Dyson, "Did life originate by ordinary chemical processes we can discover or was it a most improbable fluke?" We quickly discovered that a crucial point, and one we found hard to answer, was what seemed the simple question "What is Life?" While we came up with a list of some characteristics we expected of what we would call Life, a comprehensive definition eluded us. Some criteria we felt applied were: ability to reproduce, capacity to respond to changes in the environment, utilization of a genetic mechanism - like RNA or DNA, potential to mutate, and ability to conduct a traffic in energy or to have a metabolism. Our next topic dealt with what we felt was needed for life. Was liquid water, at least at some point, a requirement? Life on Earth has survived the extremes of being frozen and dehydrated but perhaps liquid is necessary at some point. We also wondered if water or just a liquid

was essential. Perhaps water was just the best medium, given the temperature range found on the early Earth. An important requirement may be that conditions must be constant for a long enough period for random interactions to form a more complex substance, which could then slowly change over time and be what we would call life. A source of energy - without being so energetic as to be destructive - would also be needed.

Jim also made a point about SETI - the Search for Extra Terrestrial Intelligence begun by Frank Drake and Carl Sagan in 1960. A basic problem with this project is what conclusions we should draw if SETI finds no "signs of life." Not hearing anything we perceive as intelligent signals does not mean that life does not exist. It could mean we aren't looking for the right thing or we aren't observing at the right time; as we could only observe a certain phase of a technological society that had developed along similar lines to our own. No one would deny the intelligence of ancient cave painters or Native American Indians, but they would hardly be detectable from outside our own solar system.

..PVAA 24 HR. Hotline.

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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We discussed the recent claim by scientists studying a meteor from Mars that they had found evidence of life. Their claim that the type of magnetite crystals found were only found in living things was disputed by others who said they could have been formed by other means as they had been synthetically made in Earth laboratories. Using current technology, these samples from other planets in our solar system are the only other-Earthly items available for study, except for those obtained and studied from our moon which have yielded no clues that life ever existed there. Other direct evidence will have to wait until manned missions to other bodies in our solar system or the completion of a successful sample return mission. In a few years, Stardust is scheduled to do this with comet dust and while few expect to find evidence of life here, clues to early conditions in our universe could be found.

We also wondered at the most likely conditions under which life would have its best shot at forming. We felt a G type star with a planet within a habitable zone would be required. The presence of giant planets further out from the star, like our Jupiter and Saturn, would be important to act as magnets, with their huge gravitational fields, for impact objects which could cause huge disruptions to the smaller habitable planets were they to occur very often. Our primary planetary inhabitants of 65 million years ago, the dinosaurs, were thought to have been wiped out due to the suspected impact of a 10-Km asteroid. What could we observe from Earth that might indicate life existed on a distant star system that met these criteria? Some indicators could be the presence of oxygen, methane, or nitrous oxide.

While such discoveries, whether of radio signals detected by SETI or of the presence of life generating chemicals on bodies outside our Earth, would be tremendously exciting, I suspect we will be plagued by doubts and alternate explanations until the moment we hold an actual extra-terrestrial flower in our human hands, or are offered a "hand" to shake from another world.

Mt Wilson

The PVAA group assembled on Mt Wilson at 5700 feet on the relatively balmy night of Friday, June 2nd. With only one scheduled attendee missing, we enjoyed a wonderful evening of history, stargazing and companionship. The 60-inch telescope at Mt Wilson was the largest in the world from 1909 to 1917 and its companion 100-inch was one of the top 3 (behind the 200-inch at Mt Palomar and the 120-inch Lick Observatory on Mt Hamilton) until after World War II. Don Nicholson and telescope operators Sean and Jim hosted a very enjoyable and informative evening. Don ran a laptop slide show with pictures taken during the construction of the scope. Materials were brought up a dirt road, often by mule. The contrast with photos of the 1999

delivery of the completed domes of Chara using a giant cargo helicopter was amazing. How times have changed !! Some of the sights we enjoyed were globulars M3, M53, M5, M13, and M56. R Canes Venatici showed its gold color clearly. We also saw the Cat's Eye planetary nebula, whose blue color was definitely visible and the Ring Nebula, M57, was quite dramatic. While the nebula contains 3 stars visible under ideal conditions, most observers felt successful to have spied one that night. I think the evening was enjoyed by all who attended.

Claire Stover

June Star Party

Because of the Mount Wilson 60-inch trip of June 2nd, PVAA's June 3rd star party at Cottonwood Springs campground in Joshua Tree National Park was lightly attended. John and Diana Jacobs and Tom Desy were there and set up by the time my brother Chris and I arrived after sunset and just before dark. We immediately started setting up the Starspitter. John had his new 8-inch Meade Schmidt-Cassegrain and 3 lmm Nagler eyepiece. Tom had his 8-inch Coulter Dobsonian.

The first objects out to observe were the crescent moon and nearby Mercury, about as far in the sky from the Sun as it ever gets. Soon Arcturus, Procyon, Vega, Castor and Pollux popped out. When it was dark enough we started looking at deep sky objects. Among the first candidates were M104 (the Sombrero Galaxy), M51 (the Whirlpool Galaxy), and NGC4361 (a planetary nebula in Corvus).

I decided to concentrate on objects we had seen the previous night through William Hale's gift to his son Ellery on Mount Wilson. We observed the globular cluster M13 and it was spectacular in either scope. The 60-incher may have brought out some of the fainter stars that were beyond the capability of a 22-inch telescope. The Starspitter however was easier for both Chris and I to bring to a crisp, sharp focus. Overall I thought the views were fairly comparable on the brighter "showcase globulars."

We also compared the views of the double star Albireo in both scopes and if there was a difference it was only slight. The blue and gold companions were a beautiful sight in both instruments.

Small, high surface brightness planetary nebulas were the objects on which the 60-inch telescope was undeniably superior. NGC6826 (the Blinking Nebula) did not appear to blink in the 60-inch. It was quite obvious in direct or averted vision. M57 (the Ring Nebula) is also a treat in either scope, but somewhat better in the 60-inch. The faint stars inside the ring are difficult, but more readily observable in the larger instrument.

The object on which the 60-inch most impressed me and on which it truly proved its value was NGC6543 (the Cat's Eye Nebula). The central star was just a little difficult, but visible in the 22-inch. The nebula was oval shaped, but I could not detect details of structure. In the 60-inch the central star was readily apparent and the double ring structure while not glaringly obvious was clearly visible to an experienced observer. This one object alone would have made the Mount Wilson trip worthwhile for me.

On low surface brightness objects the Starsplitter **under a dark sky** was clearly superior. M27, (the Dumbbell Nebula) is a real delight in the 22-inch with hints of structure and variation in brightness apparent to anyone. In fact, in the Starsplitter, M27 does not live up to its nickname. Because the fainter parts of the nebula stand out so plainly, it is more the shape of a football. In the 60-inch scope 10 miles from the Los Angeles metropolitan area it is a pale shadow of itself; a faint, slightly brighter than background patch of sky, which first time observers would have some difficulty seeing at all. It was, however, decidedly "dumbbell" shaped.

Having the club star party the night after the Mount Wilson trip was, for me, a valuable exercise as it gave me the opportunity to compare the two instruments while memories of the objects observed in the venerable old professional scope were still fresh in my mind.

Ron Hoekwater

RTMC 2000

The 32nd annual Riverside Telescope Makers Conference was held Friday through Sunday on Memorial Day weekend and is one of the highlights of the astronomical year. It was my 7th year to attend, and the conference just keeps getting better and better.

RTMC is a great place to try out and buy astronomical equipment. (This year I bought a Speers Waler 7mm eyepiece.) If you have all the equipment you need (that's hard to imagine) there are books, back issues of magazines, tee shirts, meteorites, fossils, astro-photos, paintings, jewelry, chess sets, and anything might turn up at the swap meet on Saturday morning.

Every year RTMC has legions of interesting speakers and presentations to hear and see and this year was no exception. This year's theme was solar observing and the keynote speaker was Steve Edburg of the Riverside Astronomical Society. There was also a very informative presentation on eyepieces on Sunday.

But, what we all love to do is look at the sky and RTMC is one giant star party. In fact if it isn't the biggest in the world it must be very close. There are hundreds of telescopes and

binoculars out on Friday and Saturday nights. This year I looked through a pair of 13-inch binoculars someone had constructed. During the day there were solar telescopes set up, with H-Alpha filters.

Last year the moon was full for Memorial Day weekend, but this year it was a third quarter moon and didn't rise until after 2:00 AM. The Camp Oakes site is not as dark as some we visit, but it is a surprisingly good dark sky site. Testing out the Speers Waler eyepiece I purchased, Joe Hillberg and I were finding numerous faint galaxies in the regions around M13 and far around M5 1 that I had never seen before. We found one group of 4 faint galaxies that fit neatly in the field of the 7mm eyepiece.

Another great thing about RTMC is getting to visit during the day and observe the heavens at night with old and new friends. Each of the last several years up at Camp Oakes I have met up and camped with Joe Hillberg, Bob Acres, and Ludd Trozpek. I had the chance to catch up with some people I hadn't seen for a year and some I had seen only a few weeks ago.

I would strongly encourage anyone with any interest in astronomy to attend the Riverside Telescope Makers Conference next year. It truly is a wonderfiil experience!

Ron Hoekwater

Attempting to Observe the Close Conjunction of Jupiter and Venus

At 10:21 UT on May 17, 2000 the planets Jupiter and Venus were separated by only 6 minutes of arc in the sky. (The two planets were not quite that close in southern California's sky because they had not risen yet at 10:21 UT and when they did rise a few hours later they had akeady separated some.) The last time these two planets were closer than this was January 3, 1818, when Venus actually passed between Earth and Jupiter. The next time will be November 22, 2065 when the two planets will pass within 15 arc seconds of each other.

The night before the conjunction the sky was overcast. With typical weather in this area being what it is (May and early June "Gloom") it did not look promising. Still I decided to give it a try and set my alarm for 4:20 AM. When I awoke and looked outside I was very pleasantly surprised. The sky was almost entirely clear. I might see something after all.

I attempted to make my observation from Condit Elementary School in Claremont. Another site would have been preferable, but wouldn't have allowed enough travel time to reach work after after observing. To see the conjunction, a flat, clear north eastern horizon would be essential. I knew the horizon at Condit did not fill the bill, but hoped that by going up on the roof of one of the buildings I'd be able to see over or between the trees and houses.

Venus rose at 5:31 AM our time. Jupiter came up seconds later and the Sun rose at 5:49 AM. This allowed a very narrow window of opportunity to make the observation. I chose to use my 20x80 Celestron binoculars on a tripod to see the conjunction. At 5:15 AM I took the binoculars up on the roof and started searching for a gap in the trees. From every building it seemed there was a tree right on the part on the horizon where the planets would rise. I finally settled on the spot which I believed afforded the best chance to see something. Unfortunately there were clouds along the horizon in the north and east the entire remainder of the sky being clear.

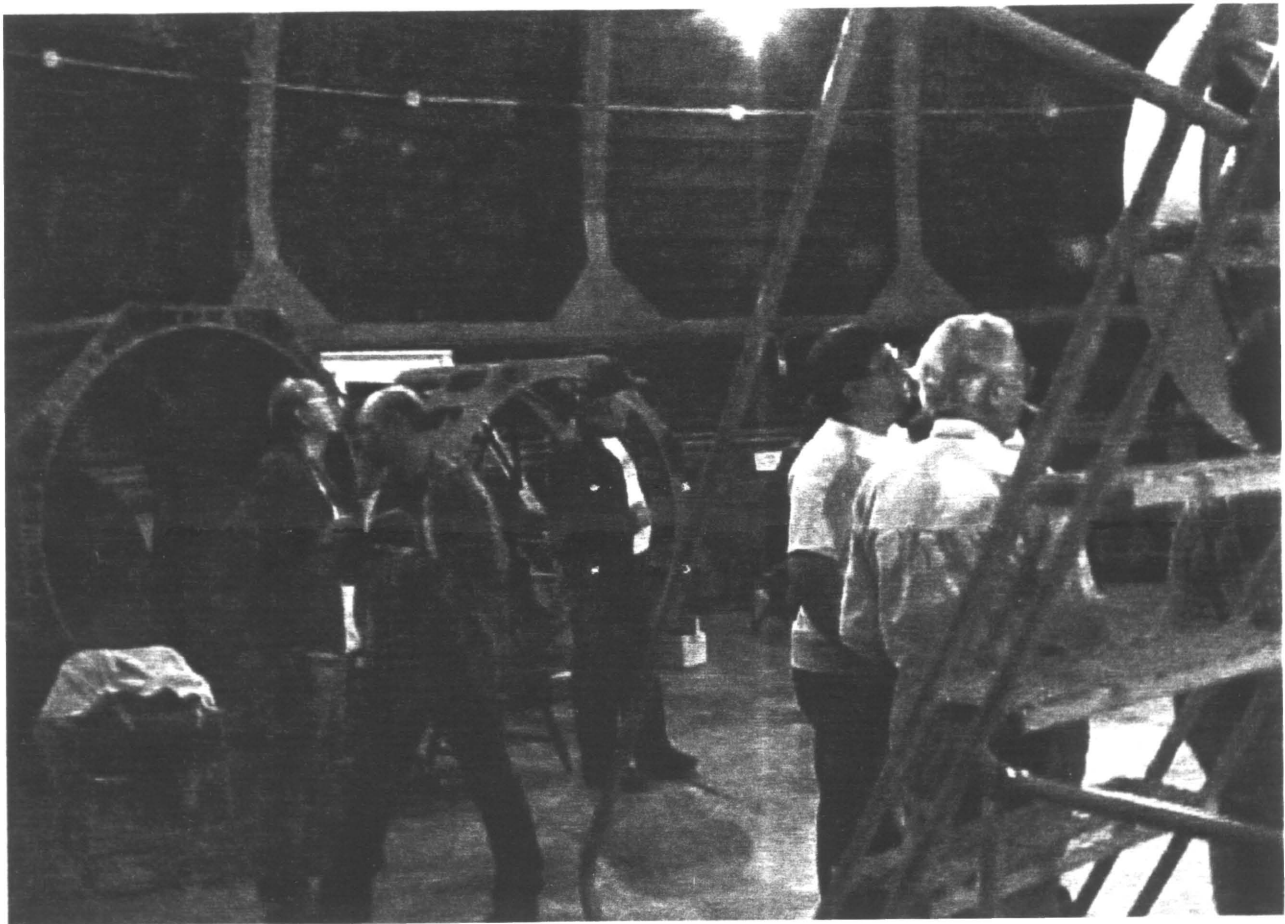
I searched for nearly an hour both with the binoculars and with my unaided eyes to no avail. The planets I sought must have been behind clouds. As the sun came up I continued to search **carefully**. I only made up and down sweeps with the binoculars to avoid accidentally sweeping across the nearby

Sun. Finally I decided the chances of success were too poor and the risk of eye injury too great to warrant any further search and abandoned the effort.

It is a stretch to call what I do science. I observe mostly for personal pleasure and to expand my own knowledge of the universe. At most one might claim I was attempting to confirm once more well confirmed theories of how the solar system functions. Although I was unable to make the desired observation I did learn some things about how to make future observations under similar circumstances. I also learned something about the importance of safety when observing objects close to the Sun.

It is still science even if the observation is not what was expected or if no observation can be made due to a flaw in method or circumstances beyond the control of the observer. Something is still learned every time out.

Ron Hoekwater



Some of the PVAA members at the Mount Wilson 60 inch reflector
