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nightwatch

Newsletter of the Pomona Valley Amateur Astronomers

Amateur astronomers just get better looking . . .

As usual, the August General Meeting will begin at 7:30 p.m. in Galileo Hall on the campus of Harvey Mudd College

Volume 25 Number 8 ***nightwatch*** **August 2005**

President's Address

If there is life to be found elsewhere in our solar system, Mars is probably the most likely place to begin searching. It is now known that in the past, Mars possessed abundant water on its surface. One would expect that water to still be there, either locked up in ice or concealed safely underground. Water is essential to all life that we know. On Earth, life has found a way to adapt and exist in environments so harsh that it wouldn't have been believed possible a couple of generations ago. I believe that if life ever initially established a foothold on the Red Planet, then it is probably still there, somewhere waiting to be found.

Two years ago this month, Mars made its closest approach to Earth, perhaps in the history of humankind. PVAA members spent many hours observing this intriguing planet during that historic approach. These observing sessions included many public star parties and two exceptional nights in the dome of the 60-inch telescope up on Mount Wilson.

Mars will again be at opposition in early November of this year. Although this opposition will not be as close (35 million versus 43 million miles) it is still the closest Mars will be to Earth until 2018. And this year Mars will be placed much higher in the sky. In 2003 Mars was at most about 40 degrees above the horizon. This year it will be more than 70 degrees above the horizon. Looking through less of Earth's atmosphere, the planet may actually reveal more detail to the careful observer this opposition than last.

On Friday, November 11, 2005 (Veteran's Day) PVAA will return to Mount Wilson and the 60-inch telescope to observe this (after the Earth) most fascinating and most studied of the planets. Those who want to be there should let me know at the August 19th meeting or contact me by e-mail: <astro.ron@juno.com>.

Ron Hoekwater

July General Meeting

We had one visitor, Mark, at our meeting – who knew of the Club a decade or so ago and reconnected through our web site. We hope he enjoyed himself and will join us again. Ron reminded us of the upcoming field trip to see the Snow Telescope along with some other seldom seen instruments, up at Mount Wilson on Sunday, August 21st at 11am. Interest was high – so join your fellow club members for a fun day on the mountain above LA.

Star Party Sites

(MBC) Mecca Beach Campground
(CS) Cottonwood Springs campground, Joshua Tree Natl. Pk
(CC) Cow Canyon Saddle, near Mount Baldy Village
(MS) Mesquite Springs campground, Death Valley National Pk
(CWP) Claremont Wilderness Park parking lot
(KD) Kelso Dunes
(WM) White Mountains (Grandview)
(CGT) Calico Ghost Towm Campground
(LNDRS) Riverside Astronomical Soc. Landers site
(BSMS) Blue Sky Mtn. Summit (Go to PVAA website)

PVAA Events Calendar

Month	Star Party	Star Party	General Meeting	Board Meeting
August	WM	6	19	11
Sept	BSMS	3	16	8
Oct	CS	1	14	6
Nov	LNDRS	Oct 29	18	10

I shared three Girl Scout Camp star party dates with the Club and asked for assistance sharing the night sky and helping the Scouts earn badges. Thanks to the many of you who offered to assist.

Lee Collins' What's Up for the month covered the area around Sagittarius the archer, commonly known as the teapot for the pattern its bright stars make in the sky.

Club elections are coming up soon and most of the current officers and board members have agreed to run for office again. Larry Pall will step down as board member at large and Sherry Martinez – a librarian at the Ontario City Library – has agreed to run for his position. Our grateful thanks to Larry for his two years of service to the club – and for his agreement to continue to provide fun and educational items for the raffles at our meetings every month.

Alex McConahay, member of the PVAA and Vice President of our sister group, the Riverside Astronomical Society, told us about their group's dark sky site in the desert near Landers – the Goat Mountain Astronomical Research Station (GMARS). We have a joint star party planned with the RAS from Friday, October 28th through Sunday, the 30th so that will be a good opportunity for you to visit and observe through a variety of instruments from both Clubs. Alex also invited our members to come any time to observe. While restrooms and the fenced area of the site is more likely on weekends when RAS Club members are present, we are welcome to use the rest of the site at any time to observe. The club has a very informative web site www.rivastro.org, visit to learn more. We also learned of the RTMC sponsored event, Nightfall, scheduled for Palm Canyon Resort in Borrego Springs from September 30 – October 2. See www.rtmcastronomyexpo.org or call the resort at (800) 242-0044 for details.

Featured Speaker

Club member Professor Dave Kerry of Citrus College in Glendora was our speaker – with a very appropriate topic for 2005 – Albert Einstein. It was 100 years ago this year that the Berne, Switzerland Patent Clerk 3rd Class Albert Einstein wrote the first of the many papers for which is so well known. One of these papers earned him the Nobel Prize in 1921 – a paper on the Photoelectric effect. His other efforts included two reports on Brownian Motion, two on Special Relativity, and one entitled "A New Determination of Molecular Dimensions." An increase in fame and fortune wasn't entirely delayed until the Nobel Prize in 1921 – Einstein was soon promoted to Patent Clerk, 2nd class – although the increase in job responsibilities weren't quite enough to keep him in the Berne patent office for long.

As you can tell from the topics of Einstein's papers, he and other scientists of the time were striving for a better understanding of atomic structure as well as stretching for an understanding of physics beyond the narrow range of conditions found on Earth. Prior to the 1900s, physics was the science of common sense – measuring and explaining the observations of motion, thermodynamics, and magnetism. Matter was made up of particles and light of waves. Equations covering the rules of motion, electricity, and heat helped fuel the industrial revolution as engines, looms, manufacturing machines, and printing presses hummed along – following the rules determined by those who carefully observed and measured the world and then predicted the behavior of machines not yet built.

With Einstein and his contemporaries came

PVAA 24 HR. Hotline.
Get the latest news on the star party, club meetings, special events and astronomy happenings.call **909/596-7274**

Visit our website at ***www.pvaa.us***

PVAA Officers and Board

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Vice President...Joe Hillberg.....909/985-5617
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Speaker.....Walter Brown.....909/989-6535

investigations into the very small as it was learned that atomic components didn't behave like discrete and predictable objects but as electrons, protons, and neutrons which have only a likelihood of being in a particular place and which may be made up themselves of even smaller parts such as quarks and muons. Light and matter have properties of both waves and particles. The Copenhagen Interpretation of Bohr and Heisenberg said that on small scales, matter is not solid but a probability function. You can't know where it is until it is observed.

Next came the even harder to understand explanations for the very fast as Einstein's Special Theory of Relativity began with two assumptions – that the laws of physics are the same for all observers, moving or not, and that the speed of light is the same for all observers. The mathematics behind these two assumptions lead to the odd behavior we associate with Einstein's theories: the closer to the speed of light an object travels, relative to you, the smaller and heavier it appears and the slower time goes for the object. Of course, you also appear to the observer to have these same odd characteristics as you are traveling at the speed of light relative to them. There is no such thing as an absolute measure of time, mass, or of distance. In a more believable example from what we can observe on Earth – relativity applied to the properties of moving electric charges will predict the magnetic field.

The famous equation, $E=mc^2$ helped predict the observations of the energy production seen in stars as well as that produced in both nuclear energy plants and in atomic bombs.

The Theory of General Relativity was formulated in 1915 and Einstein included acceleration and gravity for the first time. Gravity was treated as equivalent to acceleration and both form a curve in space and time. In addition, massive bodies cause a dent in the fabric of space – like the rubber sheet at the Skirball Einstein exhibit – pulled down at the location of a massive object. Now the predictions showed that near a large mass time will run slower and we should see a red shift in the light due to the gravitational pull of these massive objects. Gravitational lensing – or the bending of light as it passes by massive objects, is now commonly seen with our modern and sensitive observing equipment. Our commonplace GPS systems must also take Einstein's equations into account – due to the satellites rapid speed and different force of gravity affecting them in their orbits far above Earth. If these factors aren't considered, within days our GPS systems would go from being accurate to a distance of a few meters to being off by kilometers. Growing errors would soon render them useless.

While in the early 1900s, the physics of Einstein and his peers was far outside our normal experience, and therefore farfetched and unbelievable – we are just now seeing the evidence for ourselves that his theories were correct as we look at Hubble photos of gravitational lensing and use our GPS enabled cell phones and handheld devices to ensure we don't get lost on hikes in the local mountains. Who knows – maybe some day the ideas of time dilation, gravity waves, Schrodenger's cat, and expanding space will become just as real and intuitive to us as well as we learn to observe for ourselves and make commercial use of Einstein's other theories of the physical world. Perhaps a Grand Unification Theory will one day unite electromagnetic and weak forces with gravitational and strong forces to help make sense of it all. We're all hoping Professor Kary will come back and explain String Theory, the Inflationary Model, and other new ideas about the physical world – so we'll at least be able to get a grasp of what it is we don't yet understand!

By the way, for those of you whose last Physics class was also over 20 years ago – I was interested to learn that the strong force is no longer considered to be the force which overcomes the electric repulsion between protons to hold the atomic nucleus together but is instead is the interaction between the quarks and gluons which make up the protons. There is an excellent overview of the current state of knowledge in this field, as well as a multitude of others – on www.wikipedia.org. Before our next Physics or Relativity lecture I suggest all of us who have been out of school for awhile do a little catching up on the subject – there have been quite a few updates to the simple hydrogen atom we learned about in Physics 101!

Claire Stover

The perseid Meteor Shower

This year the Perseid meteor shower happened between August 11 and August 13. I stepped outside into the back yard to observe them after midnight, August 12. The sky was clear, and i could see second and third magnitude stars. So I waited and looked for about 20 minutes. Then I realized that I would only see Perseids that were brighter than third magnitude, so I went back into the house.

I remember way back in the 1950's, when I was driving my Studebaker car in Chicago, going West on Armitage Avenue, around 10 PM, when I looked at the sky it looked like a hail storm, but nothing fell to the ground. This was before I was interested in astronomy, I realize now that what I saw was the Perseids all over the sky at the same time. The street lights were incandescent then, so the sky was darker than now. I will never forget that night.

If any of you members have an interesting story to tell send it to my Email. **mugjug@excite.com,** and I'll put it in the **nightwatch.** ***Ray Magdziarz***

COW CANYON SADDLE STAR PARTY

A group of faithful, die-hard PVAA members attended our July 30th star party at close and convenient Cow Canyon Saddle. On this small patch of private land "forest parking passes" aren't needed. Just up the hill from Mt. Baldy Village, we can all view a sky as dark as any in L.A. County.

Ron Hoekwater was there with his handy binoculars as well as a 10 inch Dobsonian built by the late Harv Pennington. I observed several deep sky objects through this fine telescope which Mrs. Pennington has donated to PVAA.

Also present were Frank Basutil, his wife Barbara and a brand new Meade 8 inch LX200GPS. Frank also has a new compact sun telescope which he used on the setting sun. Mike Walker and his wife Cindy brought their 8 inch Celestron to view the summer stars.

It didn't cool off as quickly as we all hoped it would, but across San Gabriel
Canyon toward Mt. Wilson there glowed a splendid russet red sunset. There I glimpsed a host of hungry bats hunting amid the bright beacons of Venus and Jupiter. We are lucky to have this reasonably dark location so nearby.

Lee Collins

A TENTH PLANET, OR NOT?

I was surprised when the popular press, which usually ignores astronomical discoveries, recently heralded the finding of a "tenth planet". "Get out your pens. Start rewriting textbooks today...we've discovered a planet larger than Pluto," said California Institute of Technology astronomer Michael Brown. Brown working with Palomar's Oschin Telescope, and Chad Trujillo of the Gemini Observatory on Mauna Kea, reason that if Pluto (1,438 miles in diameter) is a ninth planet then anything larger must be a tenth planet. There seems to be a lot of deep frozen little worlds (-400 degrees) out beyond Neptune in that far flung Kuiper Belt. Brown and his associates have already discovered several objects smaller than Pluto (which is a double planet with its companion Charon). These previously unearthed rock and ice balls (about 1000 mi. in dia.) have been named Sedna (for an Eskimo ice goddess) and Quaoar (a San Gabriel Indian god). But if this is the first one larger than Pluto, will it need a godlike Roman name like the other nine planets?

The question is are any of these back of beyond objects, which orbit at weird 45 degree angles to the ecliptic plane traveled by the rest of the solar system, fit to be called planets at all? They're in orbits over a 100 times farther from the sun than the Earth. Orbital years tend to be around 500 Earth years. Also they're small, this new Planet X (now called UB313) would only be about the size of our own Moon (2,100 mi. in dia.). Several solar system moons (Ganymede, Titan, Callisto, etc.) would probably be larger.

So there will be a spirited debate, as when the first asteroids were called "planets", as to whether these new oddballs can truly belong to the big boys country club. Meanwhile, two new Kuiper Belt "planetoids" have been discovered, one with its own little moon. What's amazing is that this new telescope technology can see anything that far away at all. Some 1000 Kuiper Belt objects have now been uncovered beyond Neptune. Percival Lowell, who pioneered the search for a remote Planet X, would be jealous.

Lee Collins

Mars Mount Wilson Trip

PVAA has reserved the 60-inch telescope on Mount Wilson for the night of Friday, November 11, 2005. For some this will be a holiday, Veteran's Day. November 11th is 12 days past Mars's closest approach to Earth and 4 days past opposition. It is 4 days before the full moon.

For PVAA members the cost of a night observing with the 60-inch telescope is $60.00. For non-members it $75.00. No one can make any guarantees as to the weather on either Earth or Mars. Mount Wilson is known for its great seeing, but it varies from night to night. Mars sometimes suffers dust storms that completely blot out any surface detail. There will be no refunds. If clouds or wind prevent observing we will be assigned another night with the telescope.

Those who wish to attend should signup at the August 19th meeting or e-mail: <astro.ron@juno.com>. Don't be left out. Signup soon as the absolute maximum permitted to be in the dome is 25.

Ron Hoekwater

Just a Reminder

We have had a few suggestions for the "Favorite Songs" cd, but we are still short of the 15 to 20 songs needed to complete the cd. Soooo, if you find yourself humming a song that you have thought of while reading this reminder, just email it to teampall@yahoo.com. Please include the name of the song, the artist, and your name. Your participation will be greatly appreciated and enjoyed by all. ***Larry Pall***

ELECTION OF PVAA OFFICERS

Once again it's election time for the Pomona Valley Amateur Astronomers**.** The board asks that you mark your ballot in the prescribed manner so that it might be counted. Your ballot is important as it will help decide the next slate of officers. Select the nominee of your choice by marking an "**X**" in the appropriate box, and on unapposed nominees mark each office with an "**X**" in the yes box to elect the nominee or a n "**X**" in the no box to reject the nominee. Remember every ballot carries the same weight in this election.

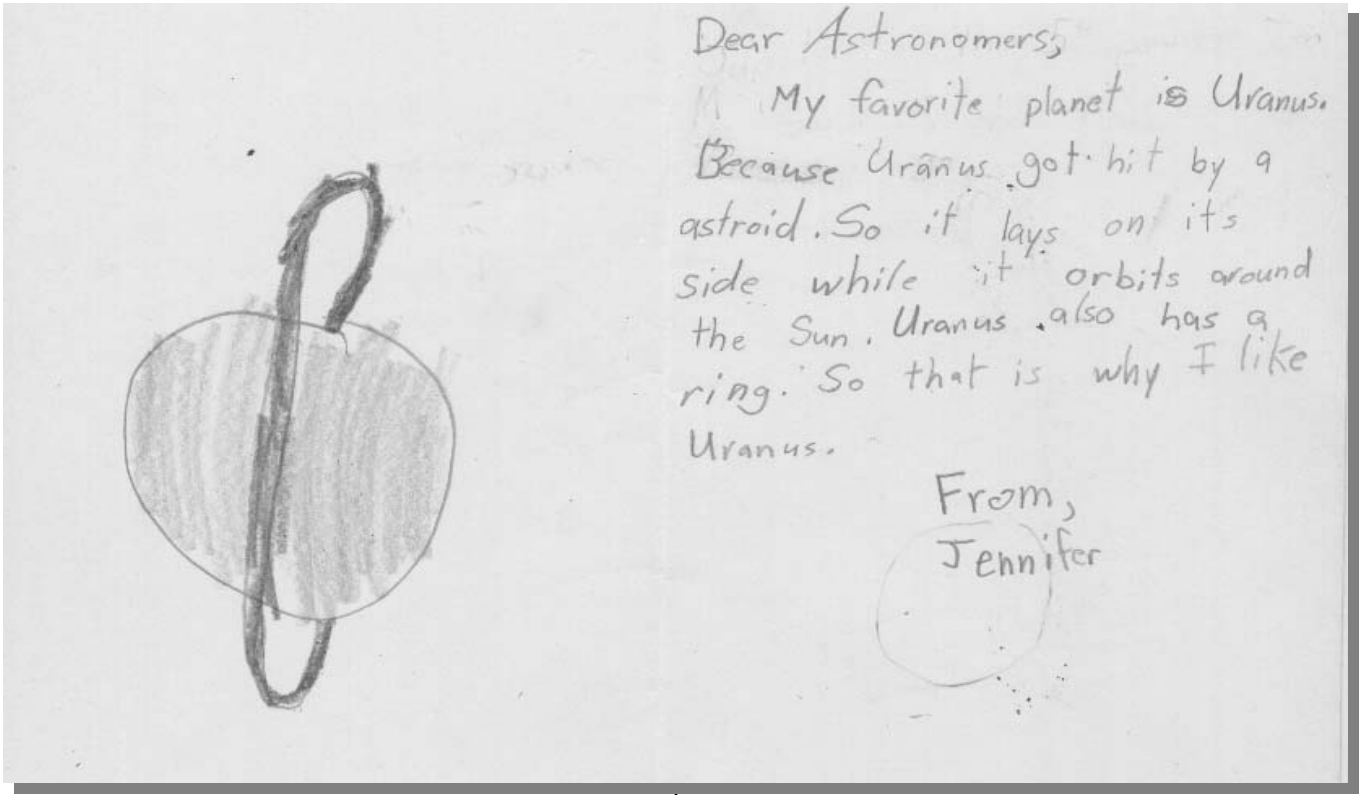
Rules for voting

Please follow the rules accordingly so that your ballot is validated and counted in the election. Ballots will be distributed in the August newsletter to the membership eligible to vote (according to paid dues). Additional ballots can be obtained at the general meeting of August 19th. In the event that a member submits more than one ballot, the last ballot received by the treasurer prior to "closing of the polls" will be counted with all previous ballots being destroyed. Any ballots submitted at the August 19th meeting will supercede any mailed ballots with the mailed ballots being destroyed prior to counting.

Each ballot must be returned to the treasurer of the P.V.A.A. either by mail (as described below) or by personal delivery at the August 19th meeting. Nothing is to be written on the ballot other than selection markings. Do not sign the ballot or add any additional notes or comments or the ballot will be declared invalid.

Ballots returned by mail must be sent to: P.V.A.A.
Attention treasurer
P.O. Box 162
Upland Ca 91785

From a student at Roynon Elementary school



Official ballot of the Pomona Valley Amateur Astronomers for the term of officers 2005-2006

	YES	NO
President		
Shall Ron Hoekwater be elected President of the P.V.A.A.——-	☐	☐
Vice President		
Shall Joe Hillberg be elected Vice President of the P.V.A.A——	☐	☐
Secretary		
Shall Claire Stover be elected Secretary of the P.V.A.A.———	☐	☐
Treasurer		
Shall Ludd Trozpek be elected Treasurer of the P.V.A.A.——-	☐	☐
V P Facilities		
Shall Bob Akers be elected V P of Facilities————————	☐	☐
Board members at large serving a two year term		
Shall Sherry Martinez be elected as a board member at large ——	☐	☐
Shall Spencer Crump be elected as a board member at large ——	☐	☐