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nightwatch

Newsletter of the Pomona Valley Amateur Astronomers

Amateur
astronomers
just get better
looking . . .

Volume 22 Number 10

nightwatch

October 2002

President's ADDRESS

Among of the most thrilling experiences of my PVAA life (or of my life in general for that matter) have been our group trips up to Mount Wilson to spend a night observing through 60-inch telescope. I was afforded views of the planets Jupiter and Saturn that rivaled images from the Hubble space telescope. Revealing 17th magnitude stars with ease and intricate detail, invisible in a lesser instrument, planetary nebulae such as the Ring and the Cat's Eye were nothing short of spectacular. A night with what was once the largest telescope in the world is a unique and unforgettable adventure for any amateur astronomer.

At this time, another PVAA observing run on Mount Wilson is under consideration. We would try to get a date sometime next spring or if that proves impossible then next autumn. The cost would be \$60 for members and \$75 for nonmembers. (We must pay a fee to the Mount Wilson Institute.) This is something we can do with enough support from membership. If you are interested in attending this exciting and educational club activity let me know at the general meeting.

PVAA was present, pushing astronomy at a huge gathering of Boy and Girl Scouts in Glen Helen Reginal Park on Saturday, September 28th. Thanks to Paul and Leah for the great idea of handing out the materials to the scouts to make their own planispheres. And for being in attendance on the big day, helping to teach a couple hundred scouts and a few dozen adults as well, something about astronomy. By the time this newsletter goes out we will also have had our public star party at Cahuilla Park in Claremont. Public outreach is a vital part of what our club does. The public must be informed on issues of science if they are to make intelligent decisions in the voting booth. People need to know that it is important to preserve at least some portions of the visible and radio

spectrums for astronomy. Of course, we also wish to introduce people to the joy and beauty to be found in our hobby.

A topic of great interest to astronomers and the public at large has always been life in the Universe. This is subject of our speaker in October, Gene McDonald of Cal Tech. Thanks to Alper for the great job he continues to do, finding interesting speakers every month.

Lee Collins will again, be presenting the "What's Up" portion of our program. Objects to observe in the Great "summer" Triangle (it's still out) will be the topic. We will all learn more about the triangle formed by the stars Altair, Deneb, and Vega and some of the objects to be found within its boundaries.

This meeting promises to be a good one. I hope that many of you can attend.

Ron Hoekwater

PVAA Events Calendar

Month	Star Party	General Meeting	Board Meeting
October	5	18	4
November	2	15	1
December	7	13	6
January	4	17	9

Club Announcements

We welcomed four new visitors to our meeting on September 20th and hope they will continue to join us as we learn about and observe the night skies.

The club will be holding a Columbus Day public Star Party on Saturday night, October 12th at Cahuilla Park in Claremont. Please bring your friends and relations and join us at dusk to observe or come early and set up your own scope or to check out others' during the daylight.

Our december meeting will again be a holiday dinner this year. Reserve the date — Friday, December 13th and look for more details in this newsletter.

Remember our current membership year runs from September 1st, 2002 to August 31st, 2003. Dues are \$27, please deliver them to Ludd at the meeting or mail to our Post Office Box.

The club planned an information booth and Star Party during the Scout Camporee and Show on September 28th at Glen Helen Regional Park. It is estimated there were around 4000 people at the event. The Star Party was (correctly) called off due to bad weather around 2pm on Saturday after consulting with Bob Akers and the weather information he obtained on the Web. I think I was able to pick out the summer triangle briefly a couple of times during the evening, but the breaks in the clouds were limited and brief. The PVAA booth during the day did quite well, however with almost 2000 do-it-yourself paper planispheres and instructions distributed to interested Scouts and their leaders. I heard more than one say they were pleased with our handouts and hoped to both enjoy the activity at an upcoming meeting and to work on finishing star badge requirements for the kids. Thank you to all who offered to help in the evening and to Ron Hoekwater and new members Leah and Paul Benadum who endured the rather chilly weather to staff the booth and share their sky knowledge with those at the Camporee.

What's Up

Lee Collins began his What's Up speaking career with us by covering the constellation Lyra. Many of us have seen the well-known Ring Nebula and even from an urban location we can see Vega (Vulture in Arabic) which is the 5th brightest star seen from the Northern hemisphere. It's brightness is due in large part to being only 25 light years away. Lee also pointed out the double star which is known as Delta Lyra and the more difficult to resolve Epsilon Lyra which shows up as a double-double (AKA the hamburger star) to the dedicated observer. Thank you for your informative and humorous talk, Lee.

September Featured Speaker

Our speaker for the evening was Greg Lyzenga, Physicist and teacher at Harvey Mudd College. His topic was inner planet geology, concentrating on the effect that impact craters have had on the formation and current composition of our solar system.

For Dr. Lyzenga, this idea was first introduced to him in Geology 101, which was taught by Eugene Shoemaker. At the time, this was quite a revolutionary idea as processes such as volcanism and plate tectonics were considered much more important than the effect of a stray rock here and there impacting on one of the planets. Of course, this was before the discovery of the huge impact at Chixilub of 65 million years ago which is thought to have wiped out the dinosaurs, and before the comet named after Shoemaker himself crashed into Jupiter, leaving such impressive impacts.

Gene Shoemaker did much of his investigative work at Meteor Crater in Arizona. This crater is also known as Berringer Crater, after the man who purchased the land containing it in 1902.

..PVAA 24 HR. Hotline.

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

Visit or website at

<http://www.cyberg8t.com/patrick/PVAA.htm>

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He had high hopes of getting rich by finding the iron meteor at the bottom, but this didn't come to pass — it is believed that the meteor largely vaporized upon impact. The crater was formed 50,000 years ago with the impact of a 150-foot, 60,000-ton meteor and is almost a mile across and 550 feet deep. The largest piece found to date is the Holsinger Meteor - a mere 1,440 pound rock. This website contains information about the meteor and about the museum near the crater.

<http://www.meteorcrater.com/Meteorpress.htm>.

A leading theory on the creation of the Moon is that it was formed 3 1/2 billion years ago when the Earth was hit by an object the size of Mars, blowing into orbit the matter which eventually coalesced to form our moon. It is felt the early solar system went through a long period of heavy and frequent bombardment like this, which may have resulted in the odd orbit of Uranus, our very cratered moon, and perhaps the existence of breathable air on Earth today. Our early atmosphere was extremely dense and hot (up to 1,500 degrees kelvin). These early impacts blew off much of this atmosphere so eventually the extreme greenhouse slowed, and livable conditions of pressure and temperature remained, allowing for the development of life. All in all quite an impressive "impact" from a few space rocks!

Claire Stover

Two Treasures in Cygnus

After arriving at Cottonwood Springs and with the help of my brother Chris, setting up my telescope, I began casting about for something to look at. I noticed that the constellation Cygnus (the Swan) was especially well placed (near the Zenith) for observing. Two of my favorite deep sky objects are located in Cygnus, NGC 7000 and NGC6992-6995.

The first is commonly known as the North America Nebula and is an excellent object for binoculars or a small

telescope. Soon my 20x80 Celestron binoculars were trained on this New World look-alike. Several years ago I purchased from Celestron a pair of adapters, which allow the binoculars to accept .956 inch nebula filters. These filters make the North America Nebula much easier to see. (In my telescope either an O III or UHC filter helps increase the contrast and bring out detail.) In a really dark sky it is a stunning sight. On this occasion the nebula was not at its best but I could clearly see Mexico running off to the south and the Gulf of Mexico to the southwest. In the eyepiece the continent was laying face down. The Atlantic seaboard was at the bottom of the field. IC 5067 / 5070, the Pelican Nebula (why isn't it the Atlantis Nebula) was visible out in the Atlantic Ocean. According to several sources including a fellow amateur astronomer named Bob who we met at the star party, in a truly dark and transparent sky the North America Nebula is a naked eye object. That might be a challenge for the eagle-eyed observer to strive for.

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The second of my pet objects in Cygnus is NGC 6992-6995, the Veil Nebula. Under a dark sky the Veil reveals a myriad of intricate details in the 22-inch Starsplitter. (In all but the very darkest of dark skies I must use an O III filter to see the Veil well.) At its very best it has a delightful lacy appearance. Three years ago up at Grandview on White Mountain, with excellent seeing, the Veil was a delicate gossamer apparition in the eyepiece that I shall never forget. The velvety black and transparent sky made it seem that I had been magically transported into space, a privileged witness to every diaphanous and mystical thread of a marvelous

6th ANNUAL PVAA HOLIDAY DINNER PARTY

The 6th Annual Holiday Dinner Party will be held on **December 13, 2002**, at 7:00 P.M. The location is **Jouni's Cafe**, 922 N. Central Avenue, Upland.

Again, this year our financial situation will not permit us to subsidize the dinner cost of \$15.00 per person.

The deadline for payment, along with your choice of dinner, **MUST** arrive at the PVAA mail box by November 30, 2002, or be given to Ludd Trozpek before that date.

Please fill out your name on the reverse side of this page with your choice of dinner and mail it or give it to Ludd Trozpek with your payment of \$15:00 per person.

latticework web spun by some giant cosmic spider.

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NGC 6992-6995 (also known as the Cygnus Loop when one includes NGC 6960) belongs in reality to that class of nebulae called the supernova remnant. These fascinating objects (of which M 1, the Crab Nebula, was the first discovered and is still the best known) are the debris left behind when a star several times the mass of our sun blows itself to bits. In these supernovae are created and dispersed the very elements necessary to form a planet like Earth with its indigenous life forms. All of the elements apart from Hydrogen, Helium, and Lithium were originally synthesized in the interior of stars.

The Cygnus Loop is listed as 11th magnitude and is best seen either in photographs or with a large aperture. The bigger the better, although in a very dark sky it can be seen in 7x50 binoculars. (An O III filter helps greatly.) A quick check of some of the available resources gave ages varying from 5000 + years up to 30,000 years or more. Since it is rapidly dissipating its age can not be great or it would no longer be visible. It stretches over 3.5° of sky and estimates place it at a distance of between 1440 and 2600 light years. At a distance of 1440 light years it must be 88 light years in diameter. If it is 2600 light years away then it measures 160 light years across.

Both of these nebulae are very easy to find. The North America Nebula is 2½° east of the bright star Deneb. The western segment of the Cygnus Loop passes right through the 4th magnitude star 52 Cygni. The Veil nebula makes up the eastern segment of the loop and is 3° east of 52 Cygni. Take a look at these two treasures of the early autumn sky at our next star party.

Ron Hoekwater

September Star Party

I arrived at the campground well after dark and was surprised at how many telescopes and campers were at Cottonwood. The fullness of the campground forced a couple of embarrassing passes around loop B, likely destroying the night vision of those already viewing. I finally unpacked at about the only obviously unoccupied campsite...the one next to the restrooms.

Later brothers, Ron and Chris Hoekwater arrived and set up the 22" Starspitter in the darkness, with all the precision of a drill team.

Excellent skies, especially compared to last month's, coupled with dozens of skywatchers and their equipment, reminded me of the general atmosphere at RTMC. In fact, one of the campsites were referred to as "the refractor area", it was said that representatives of Televue were showcasing some of their scopes. Word of a really cool guy named "Al" was also at that campsite, made me wonder if they were referring to Al Nagler, the designer of the highly sought eyepieces?

Capitalizing on the dark skies and figured socializing could come later, I immediately launched into my viewing agenda. I soon noted that again, and likely for the last time, Comet Hoenig had hoed a path to a point below my horizon. Realizing I wouldn't likely be visiting the southern hemisphere, I remorsefully moved on to my next object.

I found that although quite faint, the 8.9 magnitude asteroid Pallas was easily located using 11x80 binoculars and software generated charts. Again with detailed charts, we were able to spot both Neptune and Uranus with binoculars. We later studied them with high power using my 12.5" Dobsonian. After viewing Saturn and Jupiter, which appeared later, Chris made

DINNER MENU

The choices are:

	Member	Guest
1) New York Pepper Steak topped with Mushrooms	<input type="checkbox"/>	<input type="checkbox"/>
2) Broiled Chicken Breast with Lemon & Mushroom Herbs	<input type="checkbox"/>	<input type="checkbox"/>
3) Baked Salmon with Dill Hollandaise Sauce	<input type="checkbox"/>	<input type="checkbox"/>

The dinners will be served with salad, bread and butter, with cheesecake for desert. The table will have Vegetables with dip and Sautéed Mushrooms.

Member name

the observation that in one evening he had seen all of the gas giants. We mused that this seemed appropriate...considering my choice of campsites.

A man going by the name Mike, requested the Planetary NGC 1535, positioned in the constellation Eridanus. This fabulous object, also known as, Cleopatra's Eye, is compact but amazing bright and sports a 11.6 mag central star. Upping the power in Ron's scope, we were able to see the inner and outer ring structure easily.

Next stop, positioned 3900 light years away, Saturn Nebula (NGC 7009), with it's familiar bulging "ears". Ron hopped to M1 "Crab Nebula", while we reminisced about it going supernova back in 1054AD. We recalled that it was visible during the day, for the following 23 days.

Likely overhearing our banter, we were joined in the darkness, by a fellow stargazer also named Bob. Bob reviewed the last couple objects we were looking, plus adding a few of his own, using a motorized drive teamed to his 25" Starsplitter. In addition to granting fabulous telescopic views, Bob himself was quite entertaining. Stating that at one time he had gone 3 hours, trading joke for joke, with a noted bartender- I believed it!

M2, M15, the asteroid: Iris (now in Aquarius)- were all viewed. I included a stationary satellite, Goes10, in homage to those great NOAA weather pictures we all enjoy (also in Aquarius). Couldn't find Baxendall's Nebula near M2, but maybe next time. M71, M27- Dumbbell neb. were observed.

Another stargazer placed a request for NGC 253. This is a must see, nearly edge-on galaxy. Located in Sculptor, this large bright galaxy was first discovered by sister, Caroline Herschel. It's brightness lends well to it's nickname: Silver Coin Galaxy.

Currently enjoying the media spotlight, I concentrated on yet another asteroid. This one wasn't the newly discovered 800 mi. Quaoar, but instead the 579 mi. Ceres. We speculated on what a Real Estate agent might say while walking on Ceres...excellent views of Jupiter!

Early in the morning I spotted 7.6 mag. Vesta with binoculars. I tried to imagine what it would be like to visit this highly unusual 326 mi. chunk of basaltic rock, complete with ancient lava flows? "25 inch Bob" treated us to a fine view of Thor's Helmet (NGC 2359) and then followed up with his comical commentary on Germanic Mythology- which may have been correct!

Amongst the many amateurs, there may have been some of our club members, but we did find them before heading out to our early morning retreat- TA truckstop. The breakfast buffet was enjoyed by all. Certainly this star-gazing outing could be counted as one of the great ones.

Bob Akers

Martians, Canals, and Our Misleading Senses

It is astounding how profoundly fallible our senses can be. This humbling lesson and especially its impact on planetary observation (from the period beginning with the invention of the telescope up until the advent of the space age and the ability to place instruments on or in the vicinity of our neighbors in the solar system) is the focus of William Sheehan's book, *Planets & Perception*. Sheehan explains how the size, design, and quality of telescope employed, Earth's atmosphere, the observer's training and expectations, nomenclature, eyesight, and even the wiring of our nervous systems all influence what we see when we peer into the eyepiece.

While the book also covers early observations of the Moon, its seas, craters, and mountains; Mercury and Venus and the effort to determine the length of their days; Jupiter and its cloud bands; Saturn and the early attempts to ascertain the nature of its ring system; most of the book deals with Mars and the canal controversy of the 19th and 20th centuries. From the time in 1877 when Schiaparelli first detected and described the Martian surface feature that he called *canali* the debate raged. Some skilled observers saw them while others, equally competent, did not. *Planets & Perception* covers the predominant figures involved in the controversy and the principal points of dispute in all necessary detail.

The book establishes that the most powerful influences on our perceptions are often very subtle. Sheehan makes evident how Schiaparelli's training and Lowell's personality and temperament may have affected what they saw and how it was represented in their drawings of Mars. And how aspects of Lowell's nature inspired his theories, which in turn impacted upon and prejudiced his observations. It explains that the eye is far from perfect as an objective interpreter of reality, but that it actually does quite well most of the time. However, under some circumstances it can be completely fooled. The book contains one optical illusion that demonstrates this fact remarkably well.

Since the flyby of the Mariner 4 spacecraft in 1965, we know that the canals of Mars do not exist. But the question has remained; what did Schiaparelli, Lowell, and the others see? I believe that *Planets & Perception* finally and definitively answers that lingering question.

William Sheehan is a psychiatrist and amateur astronomer in St. Paul, Minnesota. He is also the author of *The Planet Mars: A History of Observation and Discovery* and *Worlds in the Sky*. All three books are published by the University of Arizona Press.

The question of what were the Martian canals is one that had puzzled me for years. It is pleasing to feel that I finally have the answer. I am extremely grateful to Bob Branch for recommending this book and to Ludd Trozpek for finding a copy of it at an affordable price.

Ron Hoekwater

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Ron Hoekwater

Holiday Dinner

Your Astronomy Club would like to invite one and all to our annual Holiday Dinner on December 13th at **Jouni's Cafe** on Central Avenue in Upland, near Foothill Blvd. Please feel free to bring a guest - and you can assure them this PVAA event will be warm, dry and well lit (unlike some of the other events we invite them to join us). We plan a pleasant evening of getting to know one another and of sharing some night sky news and holiday cheer. Hope to see many of you there.

Claire Stover