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nightwatch

Newsletter of the Pomona Valley Amateur Astronomers

Amateur
astronomers
just get better
looking . . .

**The general meeting will begin at
7:30 P.M. in Galileo Hall**

Volume 24 Number 10

nightwatch

October 2004

President's ADDRESS

About halfway between the autumnal equinox and the winter solstice falls the beginning of Samhain, the Celtic winter season. (Samhain probably means summer's end.) The Celtic calendar divided the year into four quarters: Samhain (winter), Imbolc (spring), Beltane (summer), and Lughnasadh (autumn). Samhain Eve, in Irish, *Oidhche Shamhna*, is one of the principal festivals of the Celtic calendar, and is thought to fall on or around the 31st of October. It represents the year's final harvest. This is the origin of Halloween. Even now, in modern Ireland, the name by which Halloween is known in the Irish language is "Oiche Shamhna".

In the Celtic calendar, the beginning of Samhain was also the beginning of the new year. As best as I am able to understand it, in Celtic astrology, the visible (before sunrise) setting of the Pleiades_, the winter stars_, signaled the supremacy of night over day and the start of the dark half of the year. Although my sources say that the Celtic year was divided into four quarters, there were only two seasons: the light and the dark. As the Celtic day began at night, the new year as well began with the dark season._

In Celtic mythology, during the three days preceding Samhain, the Sun God Lugh_, who was maimed at Lughnassadh_(August 1_), dies by the hand of his *Tánaiste* (counterpart or heir)_. Lugh traverses the boundaries of the worlds on the first day of Samhain. But the counterpart is a miser and, though shining brightly in the winter skies, he gives no warmth and does not temper the breath of the Crone, Cailleach Bheare_, the north wind_. By this story the Celts explained the yearly battle between the light and dark and the cyclic nature of life and of the seasons.

Bonfires were important in the new year's (Samhain) festivities. Even into Christian times, villagers

cast the bones of the slaughtered cattle upon the flames. Cattle held a prominent place in the pre-Christian Gaelic world. Through a folk etymology the English word "bonfire" was derived from these "bone fires." With the bonfire ablaze, the people of a village would extinguish all other fires. Each family then solemnly lit their hearth from the common flame, thus bonding the families of the village together. Even today, bonfires light up the skies in many parts of the British Isles and Ireland at this season, although in many areas of Britain their significance has been co-opted by Guy Fawkes Day, which falls on November 5th, which commemorates an unsuccessful attempt to blow up the English Parliament in

Star Party Sites

(MBC) Mecca Beach Campground (see page 4)
(CS) Cottonwood Springs campgrnd, Josua Tree Ntl. Pk
(CC) Cow Canyon Saddle, Mount Baldy Village
(MS) Mequite Springs campgrnd, Death Valley National Pk
(CWP) Claremont Wilderness Park parking lot
(KD) Kelso Dunes
(WM) White Mountains
(CGT) Calico Ghost Town Campground

PVAA Events Calendar

Month	Star Party	Star Party	General Meeting	Board Meeting
Oct	CS	9	29	21
Nov	MBC	13	19	11
Dec	CWP	11	3	16
Jan		8	22	13

the 17th century. In one Devonshire village, the extraordinary sight of both men and women running through the streets with blazing tar barrels on their backs can still be seen! Whatever the reason, there will probably always be a human need to make fires against the winter's dark.

Samhain was "the day which did not exist" and considered to be the most magical time of the year. During the night the great sheild of Scathach was lowered, allowing the barriers between the worlds to fade and the forces of chaos to invade the realms of order. The world of the living was joined with the world of the dead. At this time the spirits of the dead and those yet to be born walked amongst the living. The dead could return to the places where they had lived and food and entertainment were provided in their honour. In this way the tribes were at one with its past, present and future. This aspect of the festival was never totally eliminated by the rise of Christianity. Samhain became Hallowmas, or All Saints' Day, which commemorates the souls of the blessed dead who had been canonized that year. The night before became popularly known as Halloween.

I found several different stories pertaining to the origin of trick or treating. The trick or treater's green faced witch's costume may have come from Calleach. Samhain is the time of year that the Scots believed that the Cailleach, the Hag, arises from stone to walk the Earth. Another explanation is that in Pagan times young people disguised themselves and requested hospitality from all they met. There is speculation that this might have been a way for widows and orphans to procure their winter stores. Some others claim that the disguises were intended to fool the dead spirits that were believed to be walking the earth at Samhain in search of bodies to possess.

All of the above was just a lead into this. In Claremont on the evening of October 31st, PVAA will have its annual Halloween public star party at Cahuilla Park on the southwest corner of Indian Hill Blvd. and Scripps just north of Claremont High School. I hope that many of you can be there.

Ron Hoekwater

September General Meeting

We were reminded again that yearly membership renewals are due. Individual membership is \$30, \$12 for a person under 18, and \$40 for our new family membership category. Three visitors joined us at the meeting that evening, most finding us on the Web through our old site or listing, more on that later. Michael Sanchez and Bob Peltz became members – please make them welcome next time you see a new face at one of our gatherings.

Signup sheets were still available for two events. The

first was for the tour of Mt. Palomar on October 16th at 2pm. The second signup was for interest in a tour of an exhibit on the life and science of Albert Einstein at the Skirball Cultural Center in Los Angeles. If enough members are interested in attending, the Club will arrange a trip. Please let Ron know if you haven't signed up yet and are interested in the exhibit.

Coming up in October are two public events: a lunar eclipse Star Party on Wednesday, October 27th at the Barnes and Noble in Rancho Cucamonga located on the north side of Foothill just east of Haven. The other is a Halloween Star Party on Sunday the 31st at Cahuilla Park at Scripps and Indian Hill in Claremont.

As I mentioned earlier, the Club is now the proud owner of a new and easy to remember Web site: www.pvaa.us. By the time you read this, we will have some content on the site - which will continue to develop along with the webmaster skills of my husband and along with your input. Please visit our

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

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new location and let the board know if you have any ideas to make it easier to use or more helpful to us all. One enhancement we are currently working on is to add maps and directions to the Activities and Star Party pages. Many visitors to our meetings and public events find the Club through our presence on the Web and we hope to also make it easy for members to find out what the Club is up to. We appreciate your ideas and suggestions.

Lee Collins' What's Up discussed Capricornus, the goat, and its neighbors in an area of the sky referred to as the Sea as it contains Aquarius the water bearer, Pisces the fish, and Cetus the whale. For those of you looking for a challenge, Neptune is located near Capricorn as it has been for the last 6 to 7 years. Uranus just moved out of this constellation but is also still nearby. Find a dark sky and see if you can locate these rare objects.

Featured Speaker

Alper Ates, former PVAA president, teacher of Astronomy at Mt Sac, and Staff Astronomer at the Pomona colleges was our speaker for the evening. He shared with us how he spent his very interesting summer, visiting his native land of Turkey.

Alper's photos began with the subject of astronomy as we saw the transit of Venus through his 3" refractor and 3 power Barlow lens, projected on a viewing screen. The second view he had of this infrequent event was at a local college using a Coude refractor with a Zeiss eyepiece purchased by the Turkish government in the 1930s. Both views were very good and the planet compared well in size with the only other transits seen by Alper, and any of the rest of us, that of Mercury.

We were then treated to pictures from around the historical country of Turkey. I know my world history knowledge is lacking but it was wonderful to see and hear the city names and old tales – I didn't realize so many familiar historical places and names were from this country. Istanbul, at 12 million, is Turkey's largest city while Ankara is its capital. Alper visited the ancient city of Troy, where many battles and a famous story involving a Trojan horse took place. Throughout the ages, Troy was destroyed and rebuilt nine times. Within sight of Troy are the Dardanelles, straits which were crucial strategic locations during many conflicts throughout history and site of monumental battles during WW1. Ancient civilizations lived here in Anatolia – the Hittites and the Ottomans. The tomb of King Midas is located in Turkey, as is Mt Ararat - the place where some

believe the remains of Noah's Ark may be found. Their architecture is a mix of the old and the new, from the columns of the Greeks to the arches and domes of the Romans up to the modern buildings of the present. And all this in a country about the size of Texas. Thank you, Alper, for a fascinating view of both Venus and your native country.

Our second presentation from NASA on the Voyager and Cassini missions, by Bob Akers, suffered from some technical difficulties in the sound department. We will try again at a future date.

Claire Stover

Mount Palomar Tour

On Saturday, October 16 I had the pleasure of joining other members of the PVAA at the Palomar Observatory for an hour-long tour inside the 200-inch telescope's observatory dome. Our tour guide was Scott Kardel who does public relations for the observatory. Mr. Kardel was personable and knowledgeable. He explained that the Palomar Observatory's Hale Telescope is one of four large telescopes built through the efforts of George Ellery Hale. The preparations for the observatory's construction were begun in 1928 and in 1948, after Hale's death, the telescope was formally named and dedicated. It was decided to name it "The Hale Telescope" in honor of the man whose great vision and persistence transformed it from a dream into a reality. (The other three telescopes were named for the donors of the funds for construction.) The Palomar observatory was finally in full operation by 1949.

Caltech owns the Palomar Observatory and shares its usage with JPL and Cornell University. The telescope's steel beam supports are welded, riveted, and sunk into bedrock. The dome is a separate structure and its vibration or movement does not effect the telescope. The telescope weighs 530 tons including the 20-ton mirror and mirror cell. The mirror was much discussed during our tour. Mr. Kardel shared an interesting story about how the mirror was so covered with oil from human fingers after final polishing that it would not accept aluminizing. A respected mirror expert, John Strong suggested that the mirror be coated with Wildroot Cream Oil. The hair tonic was applied and then baked off. This unorthodox "cleaning" method worked and the mirror was then ready to accept the aluminum coating.

The observatory still maintains the original telescope console controls for moving the telescope but usually depends upon computer controls. Astronomers are not permitted to manipulate the telescope. There is always a "night assistant" who operates the telescope and an on-call supervisor for emergencies.

The observatory still has darkrooms but CCD, digital imaging is now used. Photographic cameras are no longer employed. Adaptive optics are also now being installed and tested on the 200-inch. The adaptive optics can adjust 2000 times per second.

There are 6 telescopes (or groups of telescopes) operating on Mount Palomar under Caltech's egis. The 18" telescope was used by Shoemaker-Levy to discover the comet(s), which collided with Jupiter. This telescope is not being used at this time. The 48-inch Oschin Telescope recently discovered the new world of Sedna, beyond Pluto.

Our group had the pleasure of seeing both the dome and the telescope operated. There were no discernable vibrations. We rode around the outside of the dome as it turned and enjoyed the 360-degree tour of the beautiful surrounding landscape.

If you have never visited the Palomar Observatory, I urge you to do so. It is very impressive to look at and the work being done there is universally important. A family visit and/or a group tour is appropriate for small children. The tour seems pretty accessible to groups since some cub scouts were to be given a tour after us. There is a viewing room with a large window and interesting displays for all visitors inside the dome and a small but interesting museum and gift store near the parking lot. The nearby campground has cement pads in place for the amateur astronomer's telescope. During our visit, within sight of the 200-inch dome, a group of amateur astronomers were setting up their instruments in preparation for the night's observing. I look forward to another visit in the future.

Laura Jaoui

October Speaker

Our speaker for the October 29th meeting will be Mike Simmons. He will speak about observing during his recent trip to Iran. Mike Simmons first traveled to Iran for a total solar eclipse in 1999 and has had a close relationship with Iran's very enthusiastic amateur astronomers and science educators ever since. He has written articles on amateur astronomy in Iran for Sky and Telescope Magazine and Mercury Magazine. He also wrote reports for Astronomy.com (Astronomy Magazine's online edition) from Iran during his 2002 travels throughout the country. Mike led a group of Americans and Europeans to Iran in May and June 2004 to observe the rare transit of Venus and interact with Iranian amateur astronomers. Mike is a past president of the Los Angeles Astronomical Society and is the current vice president of the Mount Wilson Observatory Association.

October Star Party

Cottonwood Spring in Joshua Tree National Park was the site of the October star party. When I arrived at the campground, I was mildly surprised to see quite a number of scopes around (but no familiar faces). This situation was soon rectified by the arrival of Frank and Barbara Busutil. Craig Matthews and family drove in a little later. As it turned out the San Bernardino group were having their monthly gathering at Cottonwood as well. Generally speaking, the more amateur astronomers around the more enjoyable the star party and that was the case here. Our PVAA assemblage set about getting our equipment up and ready for action. Fortunately Craig, Frank, and I were all able to get adjacent campsites.

As the sky darkened conditions appeared promising. My plan was to attempt to see my first supernova. Laura Jaoui had mentioned hearing of a new supernova discovery. Before leaving home I looked up the information on the Internet. Two supernovas were listed which seemed like they could be within reach of the Starsplitter. One was in NGC 6928 in the constellation Delphinus. As Delphinus was high in the sky, this was the supernova to look for first. After a little searching I located NGC 6928, a 13th magnitude, SB type galaxy, about 2 arc minutes by .6 arc minutes. After looking at the galaxy for some time I drew it hoping to find an image of it and identify the supernova.

By the time I had finished looking at NGC 6928 the sky was starting to cloud up. Even with the deteriorating conditions, Frank was able to get a fine image of the Ring Nebula. We were able to see the central star and could make out a second star in the nebula. Frank's image was even showing a little of the nebula's color. I also enjoyed a couple of peeks through Craig's SCT.

Because of the clouds I did not look for the second supernova, which is in NGC 6946 (constellation Cepheus). Instead I decided to go to bed. About midnight it cleared again and was beautiful the rest of the night. But once I lay down I rarely get back up before morning.

When I arrived home I looked up the supernova in NGC 6928. My drawing did not have the supernova, but that does not mean that I didn't see it. The supernova was a bit outside the glow of the galaxy. In the area of the supernova I had drawn only a few reference stars to help me orient my drawing. It is quite possible that the supernova was one of a number of stars that I saw, but did not draw. So maybe I saw it and maybe I didn't. However, because of this experience, I will keep looking. I am sure that I will see my first (for sure) supernova sometime soon.

Ron Hoekwater

More on CCD Imaging

The CCD chip is so small that the field of sky that is covered is quite small. The horizontal dimension of the chip is 6.14 mm. When the camera is mounted to the telescope, and focussed, the focal length of the telescope is no longer 2540mm because of the magnifying effect of the secondary mirror. My f10, 10 inch Schmidt-Cassegrain focal length becomes 3407mm, and the focal ratio is f13.4. The horizontal field on the CCD is 6' 12". Rather narrow and difficult to center objects on the CCD.

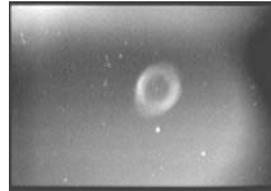
With a focal reducer things improve a bit. The focal length is 2349mm, the focal ratio is f 9.25 and the horizontal field is 8'. Not much better.

To get a wider field I need a shorter focal length. I considered telephoto lenses from 35mm cameras, but their rear lens element was too close to the CCD chip, and they were expensive. So I measured one of my focal reducer's focal length. it was approximately 9 inches.

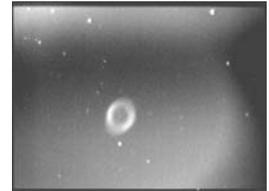
I made an adapter to fit on the CCD camera and a threaded tube that would focus on the CCD and hold the focal reducer lens. It worked. The focal length was 236mm, at f5.9 with a

horizontal field of 1.5 degrees. It worked so well that I decided to use 2 focal reducers as the objective lens. It took a shorter focusing tube but now I had a focal length of 107mm, at f2.65. The horizontal field was 3.3 degrees.

I imaged M57 with all of these combinations and they are shown below. These are raw images, no



10 inch Meade at prime



1 focal reducer on the ten inch Meade SCT



1 focal reducer objective

M57



2 focal reducer objective

To the PVAA membership: Perhaps you did not read the survey shown below. It's intent is to tailor the club activities to the interests of the members. Please fill out the survey and bring it to the general meeting, or mail it to PVAA, P.O. Box 162, Upland, Ca 91785

A Survey of PVAA Membership

In order to better serve the PVAA membership, the Board of Officers would like to know what are the interests of the members.

For instance here is a partial list of astronomical activities, just to name a few.

- Planetary observing**
- Deep Space**
- Asteroids**
- Meteor showers**
- Planetary nebula**
- Radio astronomy**
- Telescopes**
- Astronomical math**
- Telescope operation**

- Solar observing**
- Messier objects**
- Comets**
- Galaxies**
- Variable stars**
- Astronomy history**
- Eyepieces**
- Equipment**
- Getting around in the sky**

On the other side of this page please fill out the form and return it at the general meeting or mail it to
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PVAA VISITS PALOMAR'S GIANT EYE

Everytime I drive up to Mt. Palomar's 200 inch Hale Observatory dome I realize it looks like a classic White Temple to the Sky God. It's an observatory that had an art designer. When it opened 56 years ago, it was the largest in the world and the California Institute of Technology wanted it to look very classy. As you go up wide temple steps through its big doors there's a bronze bust of high sky priest George Ellery Hale waiting for offerings from the devoted.

However, PVAA members went to the servant's entrance, where they were met by a tour guide. First, he explained the odd 20 ton cement disk that was dumped out back years ago. It's was the exact weight stand-in for the mirror when the telescope was being built.

It was in 1928 that Caltech astronomer George Ellery Hale (hail to thee, great money raiser), the man behind the 100 inch Mt. Wilson Telescope, got a grant from the Rockefeller Foundation to build a 200 inch. The rounded summit of Mt. Palomar (where the doves are) was chosen as the site.

In 1934, Corning Glass sent its 200 inch Pyrex glass disk (after 8 months for cooling) to Pasadena for grinding and polishing. Construction of the observatory proceeded slowly during the Depression, until 1941 -- when it stopped for WWII.

Finally in 1948, with much post-war publicity, the then late Halelargest telescope ever built was dedicated to the then late Hale.

Today, new electronic devices are used that are 100 times more sensitive than the photographic plates of 50 years ago. Our tour guide told of an astronomer who patiently exposed a glass plate for 4 days, then dropped it. Also we saw the old photographic Dark Rooms, as well as the Pool Room (where astronomers played pool). But I think the high point of the tour is when they rotate the outer 1,000 ton dome section. Standing on the dome section, you could swear that the over 550 ton telescope is rotating and not you. An impressive illusion. Then we all got to ride around on the outside balcony and see the other nearby telescope domes.

There's the 48 inch wide-field Oschin Telescope that does Near Earth Asteroid Tracking, a 60 inch Cassegrain, an 18 inch Schmidt (where Jupiter-crashing Comet Shoemaker-Levy was discovered) as well as an Interferometer.

Today, with new infrared sensors, an ongoing search for extrasolar planets, and a high speed computer system to correct images, astronomers hardly have time to play pool anymore.

Lee Collins

What Can The PVAA Do To Make Astronomy More Interesting To You

NAME

PRIMARY INTEREST

SECONDARY INTEREST

YOUR EQUIPMENT

HOW CAN THE CLUB IMPROVE YOUR ENJOYMENT OF ASTRONOMY?