



P.O. Box 162  
Upland, CA 91785  
Address correction requested  
return postage guaranteed

Amateur  
astronomers  
just get better  
looking...

# nightwatch

Newsletter of the Pomona Valley Amateur Astronomers

Janis Seaton

Volume 18 Number 12

nightwatch

December 1998

### President's Message

Our club dinner party is on December 18, 1998, reservations only.

The star party will be at Yesterday Ranch, on the 19th of December.

Come to a mirror grinding class to find out how to make your Dobsonian work more smoothly.

I had a good time in Death Valley, more from Ron Hoekwater.

*Joe Hillberg*

### PVAA General Meeting November 6, 1998

**Business Session:** President Joe Hillberg made the following announcements:

1. Two of the 8-inch reflector telescopes that have been under construction for some time have been finished. These scopes, and the existing 10-inch reflector are available to members on loan to members, subject to a deposit, as follows: 8-inch scopes, \$200; 10-inch scope, \$450. Deposit is to be paid by check, which will be held by the treasurer and returned to the borrower, provided that the scope is returned in good condition.

2. The second annual PVAA Christmas Dinner Meeting will be held December 18th, 7:00 p.m., at Jouni's Restaurant, 922 N. Central Avenue, Upland. The Price is \$7.00 for members and 1st guest; \$14 for second guest or other non-members. Members were asked at November meeting to

make their (paid) reservation. All seats must be reserved in advance; no non-scheduled guests can be accommodated. Dinner choices are: Chicken Cordon Bleu, or Beef Brochette, or Vegetarian.

3. Star Party will be November 21st at Yesterday Ranch or at the alternative site: Mesquite Springs in Death Valley on both November 20 and 21st.

### What's Up?

Alter Ates reminded us of the Meteor, so it should be spectacular. Go to a dark site, get comfortable in a warm, recumbent position, and watch. No magnification needed.

The moon will be at Perigee when full--its point of closest approach to earth. Therefore, it should appear larger than usual. Jupiter will be spectacular, with a large white oval approaching the Great Red Spot. There are minor planets to look for: Ceres will be very close to Aldebaran, Eunomia is near Triangulum. Check [www.minorplanets.com](http://www.minorplanets.com).

**Special Announcement:** Dave Gardner, PVAA VP for Mat-

### PVAA Events Calendar

Month	Star Party	General Meeting	Board Meeting
December	19	18	4
January	16	8	29
February	13	5	26
March	20	5	26

eriel, showed members some of the goods PVAA has for sale: patches, pins, Dave Chandler's small book on using binoculars, and also his small Star Atlas, and of course, his valuable Planisphere. Dave also reminded members of our telescopes to be checked out, and also a pair of binoculars available for loan.

**Featured Presentation:**

Patrick Nicholson presented a review of Astronomers and Astronomical activities from Galileo to Newton's *Principia*, an interval that tends to be neglected, being overshadowed by the accomplishments of the giants of scientific intellect on either end. It turns out that the interval of 77 years includes many worthy accomplishments, of which a few selected examples follow:

Patrick completed his presentation by showing an image of William Herschel's "20-footer" reflecting telescope, pointing out that the success of the reflector and the achromatic "Dolland" refractor permitted the detailed data-gathering that led to the Messier list and the NGC series, created by William Herschel and his son John Herschel.

Prepared by Patrick Nicholson

**Galileo to Newton's *Principia***

Date	Noteworthy Event
1609	Kepler publishes <i>New Astronomy</i> , including his first two laws: 1. Planets move around the sun in elliptical paths; 2. Line from sun to planet sweeps out equal areas in equal times.
1609	Galileo first turns a telescope on the sky; sees rough surface of our moon and discovers Jupiter's moons and phases of Venus. <i>Starry Messenger</i> uses his discoveries to defend Copernicus's heliocentric theory.
1610	Galileo publishes <i>The Starry Messenger</i> , detailing his discoveries, and using the information to support the Copernican heliocentric theory. <i>The Starry Messenger</i> was widely distributed and read.
1610	Kepler designs an improved telescope--the modern astronomical refractor design, with magnifying lens placed in back of the focal point. This design permits greater magnification, and also eyepiece projection.
1611	Christophe Scheiner first observes sunspots, using Kepler scope design.
1619	Kepler publishes his Third Law of Planetary Motion.
1627	Kepler publishes the <i>Prutemic Tables</i> , based on Tycho Brache's data.
1632	Galileo publishes <i>Dialogue of the Two Chief World Systems</i> , his systematic "proof" of the Copernican system. Galileo was promptly under attack by churchmen of all stripes.
1633	Galileo forced to recant, spends the rest of his life under house arrest..
1647	Hevelius, a rich brewer, sets up an exceptional observatory in Gdansk (Danzig), and publishes a detailed map of the moon. He ultimately produced an accurate and very beautiful Star Atlas (1690)
1657	Christian Huyghens, a Dutch mathematician/astronomer, makes scopes of exceptional length--one of 210 feet. In 1657, he was able to explain that the peculiar appearance of Saturn could be explained by the presence of a thin flat ring that did not touch the planet surface.
1666	Giovanni Domenico Cassini observes the polar caps of Mars. in 1669, he is invited to Paris, where he became director of the Paris Observatory in 1671. He observed Saturn's 4 major moons, and discovered the Cassini division in the ring system in 1675
1668	Newton builds the first reflecting telescope--the "Newtonian". and presented it to the Royal Society. Because such reflectors used "specular metal" mirrors, which tarnished readily, the reflector never made its proper mark until polishing and figuring were perfected by W. Herschel.
1671	Foundation of the Paris Observatory
1675	Foundation of the Greenwich Observatory
1676	John Flamsteed appointed Royal Observer in charge of Greenwich observatory. His British Catalog was published in 1725, long after his death, after Halley stole the plates and printed an unauthorized early edition.
1676	Edmond Halley goes to St. Helena to observe the southern stars; the trip had limited success, due to an inappropriate climate. Halley became Astronomer Royal in 1720. Probably his greatest contribution was in negotiating with difficult members of the society--Hooke, Flamsteed, Newton--and finally persuading Newton to write the <i>Principia</i> .
1677	Robert Hooke becomes Secretary of the Royal Society. He suggested various scientific ideas, including the square law of gravitation, making Newton his bitter enemy.
1687	Isaac Newton publishes the <i>Philosophiae Naturalis Principia Mathematica</i> , usually referred to only as "The <i>Principia</i> ", wherein he presents his theory of gravitation. Edmond Halley played a major role in getting Newton to write the <i>Principia</i> --in fact, Halley paid for its publication.
1690	Halley's comet recognized as periodic. This event had a major effect on the acceptance of Newton's <i>Principia</i> .
1725	Flamsteed's <i>British Catalog</i> finally published.
1728	Newton publishes his <i>System of the World</i> , in which he utilizes the principles laid out in the <i>Principia</i> to prove a number of important astronomical concepts, including: (1) Mathematical proof of Kepler's three laws, (2) Mathematical calculations of planetary orbits, based on the law of universal gravitation, (3) mathematical explanation of the behavior of the tides. This publication completes the Newtonian Revolution in science.

November Star Party  
@ Yesterday Ranch  
11/21/98

Passing in front of the front gate at Yesterday Ranch, I observed that the gate was locked, with no sign of anyone at home. Banking on our standing invitation, however, I took the route down the side of the property, and headed for the lake area. Splash! The artesian wells are working overtime, after a rainy winter last year! There were several large puddles extending across the road (vehicle path?). Should I risk it? Owen Robbins had indicated he would be coming up, so maybe I could get help digging out, if need be. But not to worry--my trusty Nissan buzzed right through the puddles, throwing up cascades of water on either side. It wouldn't do to let it stop, however.

The side entrance was "closed" by means of a nylon rope, backed up by a pile of recycled wood assemblies, with rusty nails jutting in all directions. Obviously, the message was: don't come in, unless you're a friendly! I tossed the wood aside, untied the rope and entered the parking area, none the worse. Large parts of the parking area were also inundated--and that surface acts like quicksand when wet--so, a complex maneuver avoided the wet areas and landed me, dry-footed, at the usual parking spot. By the time my scope was out of the truck, Owen pulled up, blithely rolling his 4-wheel-drive truck through the wet areas I had avoided; he had no problem. Owen said he saw Dave Gardener on the way up, but Dave never showed up. Maybe he was deterred by the puddles?

My scope was sadly out of collimation, but Owen's laser--and Owen's help--took care of that problem in short order. By the time Jupiter became visible, we were ready to observe. Jupiter was showing all four of the Galilean moons, but the Great Red Spot was not to be seen. Inspired by Ron Hoekwater's recent success, I decided to come back to Jupiter several times in the course of the evening, to try to catch a glimpse of it. By this time, Saturn was in good position. It showed up clear and sharp, with Titan and one other moon using? The Hydrogen Beta filter effectively shuts out the direct star light. I don't kvisile. Even at 175 power, the Cassini division remained hidden, however. Conditions were favorable: only the lightest of breezes, with a few traces of cloud near the horizon. In general, a very clear sky, although there was quite a bit of atmospheric perturbation.

Owen has set up for astrophotography, using his computer-controlled Schmidt-Cassegrain scope, and SBIG ST7 digital CCD camera, controlled by a laptop computer. A quick entry on the control paddle, a whine of the positioning motors, a 60-second exposure, and there was M74 on the laptop's screen. Ain't technology wonderful!! I decided to see what M74 would look like in my scope--since I know I've seen it before. Sure enough, after several false starts, due to my inability to see most of the dim guide stars in Pisces and

Aup and went to bed. Ooh, that warm sleeping bag felt gories, I finally had it. What I saw was a dim gray blob with no detail. Owen was struggling to increase the contrast between the background and the spiral arms of the galaxy. As for me, I was happy to have concluded that it was--**probably!**--a face-on spiral!

Perseus was in good position, so it seemed logical to look at some of the nice open clusters. The Double Cluster showed up bright and sharp, diamonds on black velvet, same as always. But M34 eluded me for quite some time. My copy of John Sanford's book, Observing the Constellations, made it difficult to estimate how far from Algol I had to look. Finally, Harv Pennington's fine Messier Marathon charts came to my rescue. I spotted it first with the Celestron 10 X 50 binoculars I borrowed from the club. After that, it was easy to swing my scope over and admire. A fine, bright cluster.

Owen is trying for the Horsehead, and the most immediate problem is: how do you focus the camera, when you can't see through the filter you're now how Owen solved that problem, but he did show me the Horsehead on his laptop. Even there, I found it hard to see.

But Jupiter continued to hold my interest. As it passed the meridian and side! Sstarted to sink towards the west, one of the moons disappeared. Then, two more started to approach the planet. Could we have a triple occultation? It seemed like that would be an exciting event! It didn't happen--but somewhere around 11 o'clock, there was a unique sight: The occulted moon had reappeared, showing as a dot just outside Jupiter's disk. But at the same time, the other two moons had reached the edge of Jupiter's disk on the opposite o there it was, Jupiter with three moons, looking like they were about to collide with the disk. An unusual and fascinating sight. But I never saw the red spot.

Perhaps the clear air had something to do with it. By 10:30 p.m., both Owen and I had on all the layers we had available, and it still felt cold. My new "fingerless" gloves over silk glove liners helped preserve dexterity for handling eyepieces and focusing, but the cold sure penetrated! What little breeze there was seemed to be concentrating on the gap between the top of my jacket and the bottom of my cap. Temperatures were probably in the low forties, but it felt much, much colder. By midnight, we gave od!

Sunday morning, the first light of dawn set the mudhens to squabbling, backed up by massive flights of crows. No question of sleeping in! Owen and I were both getting things organized and put away by the time the sun poked over the horizon. One last check all around, re-close the rope and makeshift barricade, and it was off to Quiggler's for a wonderful breakfast and good companionship. What could be better? Just more members with us!

*Patrick Nicholson*

### Death Valley Star Party

The alternate star party site for November was Mesquite Spring Campground near Scotty's Castle, at the north end of Death Valley. Every winter, Joe Hillberg organizes a few star parties at this, the darkest sky site that PVAA has ever found. It's a long drive, about 250 miles by the shortest route, but well worth it. Lee Collins offered to ride up with me, which made the trip more pleasant.

We arrived Saturday afternoon and went about setting up the telescope. Everyone else came up on a Friday. Dennis Lumbert had a flat tire on the way which delayed him by several hours, but he and his wife, Susie, finally arrived Saturday morning, tired but safe and sound. Rick Dean, who is building an 8-inch Dobsonian in the PVAA mirror grinding/telescope class, was there with his family. Lee and I shared Joe Hillberg's camp site and split the fee.

At dusk one of the park rangers gave us a talk on bats. As it became dark we observed Jupiter and Saturn and some of the M objects. The seeing was not as steady as we had hoped for and the sky, though cloudless, was not perfectly transparent. Later we looked at NGC 7331 and its companion galaxies and Stephen's Quintet are separated by about 1/2 degree and it is possible to see both in one field of view. We looked at some objects from a book put out by the Audubon Society that Lee brought. The camp host came by and did some observing.

As the night went on we realized we were seeing more meteors than one would normally expect. Most were faint but they were numerous. I thought perhaps it was due to the very dark skies but it turned out the the peak of the Alpha Monocerotids coincided with the star party. About 12:30 everybody decided it was time for some sleep.

Sunday morning Joe and Dennis went off to explore Titus Canyon and Lee and I went to Scotty's Castle. Unfortunately we didn't bring enough cash and after paying the admission for the park, we didn't have enough left over to take the tour off the castle. They don't take credit cards, so we walked around the grounds visiting Scotty's grave that overlooks the estate from the top of the a tall hill. Sunday afternoon we made the long drive home.

It was 540 miles round trip, but this is a wonderful star party site with much to offer for daytime sightseeing as well. Joe has planned Death Valley star parties for January and February. Hope to see you there.

Ron Hoekwater

### Mountain Skies Astronomical Society Science Center

The Mountain Skies Astronomical Society is erecting a permanent observatory and science center on 3 acres of the World High School, 2001 Observatory Way, Lake Arrowhead. The facility will contain a planetarium, library, work shop, instructional space, offices and a planetarium when finished. The group serves visitors and schools in San Bernadino, Los Angeles Riverside, and San Diego Counties. This organization, with 2000 members, already had a lot of equipment but

had no place to house it under one roof. A major fund-raising effort produced \$1.8 million for the new facility. Congratulations to our fellow amateur astronomers for this achievement.

Ron Hoekwater

### The Leonid Meteor Shower

Several members of PVAA neglected their sleep on work/school nights to observe the Leonid Meteor shower the 16th, 17th, and 18th of November. PVAA members were out observing at Cow Canyon Saddle, near Mr. Baldy Village, on Monday night/Tuesday morning and Tuesday night/Wednesday morning and at Cottonwood Springs in Joshua Tree National Park on Monday night/Tuesday morning.

Monday evening the weather conditions didn't look promising in the Pomona Valley for meteor observing. Fortunately Cow Canyon Saddle was above most of the clouds and the low cloud deck blocked some of the city lights, making the skies darker than they would have been. Joe Hillberg chose this site well for both convenience and seeing. At Cottonwood Springs it was mostly clear with some clouds and haze. Temperatures were chilly at Cow Canyon and comfortable at Cottonwood Springs.

Cow Canyon was packed with people (not all of them amateur astronomers). Parking space in the turn out was scarce and many cars parked along the road. Headlights of the cars coming and going were a problem until about 2:00 am when things calmed down some. Prudently, Ludd Trozpek and Bob Acres arrived early.

Alper Ates and his wife, Aysun, represented PVAA at Cottonwood Springs where the skies are always dark and almost clear. When they arrived at 11:00 pm, there were many excited meteor observers in the campgrounds. But happily, a few spaces were still available. Immediately after leaving the car, Alper saw a very bright meteor of magnitude -8 or -10 and he thought he heard it whistle. He reports seeing 3 meteors per minute, most of which were bright. Some were breaking-up as they hit the atmosphere. Some displayed bright colors and some had persistent trains. "It was like a fireworks show," he said.

At Cow Canyon Saddle, the rate was probably 100 meteors per hour with 80-90% of them bright. Some appeared to skip across the top of the atmosphere, traversing perhaps 120 degrees of the sky. One was described as "cobalt blue," the color possibly due to the oxidation of iron. Some meteors observed in the "Head of the Lion" were nearly head on. One was quite bright and distinctly green, but traveled only 1/2 degree. Two bright meteors around 5:00 am produced trains that persisted between 5 and 10 minutes.

The peak of the meteor shower arrived 14 hours earlier than predicted and was observed in Europe instead of Asia. Observers reported seeing as many as 1-, 2- or 3000 meteors per hour with many fireballs. Much information about the shower is available on the Internet.

Club members Rick Dean and Chris Hoekwater missed Tuesday morning's show but made the trek up to Cow Canyon Tuesday night. But the rate had dropped greatly; perhaps 30 or 40 meteors were observed all night. There were still some bright ones, but not nearly as many as the night before.

This was a wonderful meteor shower, well worth the loss of sleep to those who were able to go observe it. Now what will the Leonids deliver in 1999?

*Ron Hoekwater*

**The following items are available for loan to PVAA members**

10" telescope ( includes two eyepices )

8" telescope ( includes one eyepice )

10X50 binoculars

Slide Sets (in Carousel tray)

- Beyondd the Solar System
- The Celestial Planets
- The Outer Solar System
- Eclipses
- Formation of the Moon
- The Earth

Books

- Mars and the Mind of Man, 1973
- Birth and Death of the Sun, Geo Gamow, 1959
- Manual of Spherical and Practical Astronomy, Chauvenet, 1960
- Evolution of Radio Astronomy, FJ.S. Hey, 1975
- The Stars: Their Structure and Evolution, R.J. Taylor, 1970
- The Ephemeris of the Moon 1800 to 2000 inclusive, Mac Craig, 1951
- The 200 Year Ephemeris, MacCraig, 1949
- A Guide to the Planets, Patrick Bradbury et al, 1973
- Stellar Evolution, A.J. Meadows, 1967
- The Sun, The Solar System, Vol 1, G.P. Kuiper, 1953
- One Two Three...Infinity: Facts and Speculations of Science, Geo. Gamow, 1947
- Creation of the Universe, Geo. Gamow, 1947
- When the Stars Come Out, Robt. H. Baker, 1954
- Will Black Holes Devour the Universe? Melanie Melton, 1994
- How to Build Your Own Obervatory (Telescope Making Magazine Publication), 1990
- 12 each The Griffith Observer (publication), 1959
- P/M2.2 Enhancements Manual for the KayPro

Messier Marathon handbooks

Video cassettes

- Telescope Building with John Dobson
- The Man Who Colors Stars

Foucault tester

**Items For Sale**

Plastic Eyepiece Case	\$5.00
Book - Exploring the Night Sky With Binoculars	\$4.00
Plastic Planisphere ( Large )	\$7.00
Plastic Planisphere ( Small )	\$4.00
Paper Planisphere	\$4.00
PVAA Cloth Patch	\$2.50

**NOTICE**

Astronomy Magazine subscription price to club members is going up to \$29.

Ray Magdziarz has been appointed to fill out the Board term of Bob Mavros, who has resigned from the post.

**PVAA Officers and Board**

**Officers**

President.....	Joe Hillberg.....	909/985-5617
Vice President.....		
Secretary.....	Patrick Nicholson.....	909/626-1528
Treasurer.....	Jack Gardner.....	909/626-2665
VP Facilities.....	Dave Gardner.....	909/980-2994

**Board**

Ron Hoekwater.....	909/391/1943
Ray Magdziarz.....	909/626/8303
Joe Vlietstra.....	909/982-4584
Bob Branch.....	909/982-8015

**Directors**

Nightwatch.....	Ray Magdziarz.....	909/626-8303
Membership.....	Jack Gardner.....	909/626-2665

*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>*