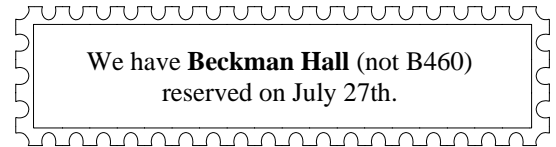




Newsletter of the Pomona Valley Amateur Astronomers

Not all those who wander are lost.
J. R. R. Tolkien



Volume 38 Number 07

nightwatch

July 2018

President's Message

Mars is all the rage right now. The Red Planet will be at opposition on July 27, the same night as our general meeting. I haven't had a close look yet this season, but I plan to soon. I don't know how much is visible, since most of the planet's surface is hidden by a global dust storm that has been raging since June. The storm is expected to continue into September, basically robbing us of seeing most surface detail during the planet's closest approach in years. It's a scientific windfall for NASA and the other space agencies, whose probes and landers on and around Mars are gathering data at a furious pace. Our solar-powered rover Opportunity is not among them - it went to sleep on June 10 and will hopefully wake up when the storm is over. It's been on Mars for 14-and-a-half years and it's weathered other storms before, so hopefully it will come through this one okay.

We have a couple of events coming up that you should know about. The first is the Girl Scouts "Nature at Night" event on the evening of Saturday, August 4. It is in a new location this year, Camp Nawakwa, 4650 Jenks Lake Road, East Angelus Oaks, CA 92305. I believe that overnight accommodations are available. It will be last quarter moon so the sky should be nice and dark. If you are interested in participating, please let me know ASAP so I can pass a list of names onto the coordinators.

Our own club star party will be up at Angeles Oaks the following Saturday, August 11. See the club webpage for details.

Our speaker this month is Dr. Jake Hartman. The title of his talk is, "The Dynamic Sky of Low-Frequency Radio Astronomy". Our July meeting will be in Beckman Hall rather than Shanahan B460. I hope to see you there.

Matt Wedel

Club Events Calendar

July 27 General Meeting

Aug 4 Girl Scout Star Party

Aug 11 Star Party – Angeles Oaks

Aug 15 Board Meeting

Aug 24 General Meeting

Sept 8 Star Party – Anza Borrego

Sept 12 Board Meeting

Sept 21 General Meeting

Oct 6 Star Party - Joshua Tree National Park

Oct 17 Board Meeting

Oct 26 General Meeting

Nov 10 Star Party – Mecca Beach

Nov 14 Board Meeting

Nov 30 General Meeting

Dec 8 PVAA Holiday Party

PVAA Gen Meeting 06/01/18

The June meeting of the Pomona Valley Amateur Astronomers was opened with the announcement that the yearly club dues is now due. Individuals are \$30/year, families are \$40, and students are \$17.50. If you are paying by check, please make it out to: PVAA.

Our guest speaker for the night was Richard “Dick” Olson – Professor Emeritus at Harvey Mudd College. The title of his presentation was “A. D. Bache & American Astronomy: The Coast Survey & Dudley Observatory.” In 1807 John Quincy Adams, (former President of the United States), proposed a coast survey so ships wouldn’t run aground. President Jefferson commissioned the coast survey and congress passed a budget with \$50,000 towards the survey and the instruments needed to get it done. The Office of Coast Survey was set up that year. It is one of the oldest scientific organizations in the U.S. government. [In 1878 it was given the name of Coast and Geodetic Survey (C&GS). In 1970 it became part of the National Oceanic and Atmospheric Administration (NOAA)]

Ferdinand Rudolph Hassler became the superintendent and went to England to collect scientific instrument for the survey. The war of 1812 broke out while he was in England, and he wasn’t allowed to return until the conflict was over. After his return he worked on a survey of New York Harbor. Because of tensions between the military and civilian control of the agency, congress suspended the work.

Years pass, and still the survey is nowhere near completion. In 1832 the coast survey was re-instituted under the control of the U.S. Army. President Andrew Jackson appointed Hassler as superintendent. The army did the topographical surveys while the navy worked on the hydrographic surveys.

Alexander Dallas Bache – great-grandson of Benjamin Franklin, was the second Coast Survey superintendent. Bache established the first magnetic observatory, served as the first president of the National Academy of Sciences, and was a physicist, scientist, and surveyor. Under Bache, Coast Survey quickly applied its resources that became instrumental to the Union forces during the Civil War.



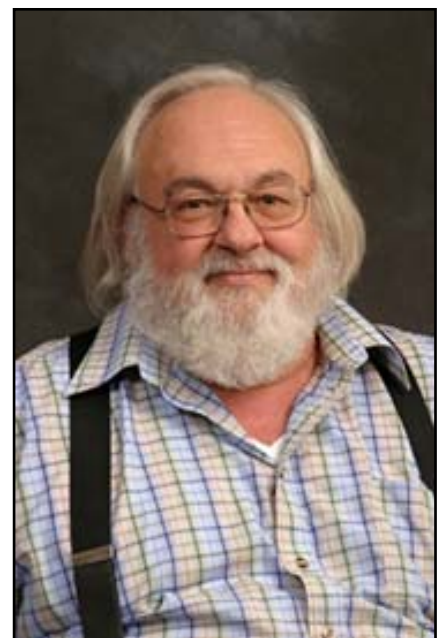
Dudley Observatory <http://dudleyobservatory.org/>

When they were surveying they would put up big signs stating: “Coast Survey at work” (Sort of like the highway signs stating, “Your tax dollars at work.”)

Ornsby McKnight Mitchel starts lecturing about astronomy in Cincinnati at Cincinnati College in 1841. He starts getting 3,000 people showing up for his lectures. Because of the interest shown, Cincinnati actually has the first major observatory in the United States, beating out Harvard by a year. The glass for the observatory was bought in Germany. Mitchel then travels to Britain for training as an astronomical observer.

James Paul argued that the US needs a national observatory. Congress specifically denies the request. He meets with the people in Cincinnati and they come up with funding for the Dudley Observatory. The general public bought “shares” of the observatory, and they would be able to use it. The observatory was set up in Albany, New York. (Quite a distance from Cincinnati.) Gould became the director of the observatory. It was remodeled and he kicked the public out & demanded an annual operating budget of \$10,000/year. Gould ignores the trustee’s demand that the public be allowed on observatory grounds 7am-7pm. The Trustees fire Gould. The Scientific Council says that the Trustees can’t fire Gould, only they can. The Trustees then fire the Scientific Council. Gould was driven out by “hoodlums” and ended up founding Argentina’s National Observatory. The Dudley Observatory was moved to Schenectady NY, as the vibrations of nearby trains made the Albany, NY site unworkable.

Gary Thompson



Professor Olsen



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A Close-Up View of Mars

In July 2018, skywatchers can get an up close view of Mars—even without a telescope! In fact, on July 31, Mars will be closer to Earth than it has been in 15 years.

Why is that?

Like all the planets in our solar system, Earth and Mars orbit the Sun. Earth is closer to the Sun, and therefore it races along its orbit more quickly. Earth makes two trips around the Sun in about the same amount of time that Mars takes to make one trip.

Sometimes the two planets are on opposite sides of the Sun and are very far apart. Other times, Earth catches up with its neighbor and passes relatively close to it. This is called Mars's closest approach to Earth, and it's happening this year on July 31. The Moon will be near Mars on that night, too!

Keep in mind that even during its closest approach, Mars is still more than 35 million miles away from Earth. That's really far. So, Mars won't appear as big as the Moon in the sky, but it will appear bigger than it usually does.

July and August will be a great time to check out Mars. Through a telescope, you should normally be able to make out some of the light and dark features of the Red Planet— and sometimes even polar ice. However, a huge Martian dust storm is obscuring these features right now, so less planetary detail is visible.

There is another important Mars date in July: Mars opposition. Mars opposition is when Mars, Earth and the Sun all

line up, with Earth directly in the middle. This event is happening on July 27 this year.

Although you may see news focusing on one of these two dates, Mars will be visible for many months. For about three weeks before and three weeks after opposition and closest approach, the planet will appear the same size to a skywatcher.

From July 7 through September 7 Mars will be the third brightest object in the sky (after the Moon and Venus), shining even brighter than Jupiter. The best time to view Mars during this time is several hours after sunset, when Mars will appear higher in the sky. Mars will still be visible after July and August, but each month it will shrink in size as it travels farther from Earth in its orbit around the Sun.

In other sky news, there will be a partial solar eclipse on July 13, but it will only be visible from Northern Antarctica and southern Australia. On July 27 (beginning at 20:21 UTC), a total lunar eclipse will be visible in Australia, Asia, Africa, Europe and South America. For those viewers, Mars will be right next to the eclipsing Moon!

If you're wanting to look ahead to next month, prepare for August's summer Perseid meteor shower. It's not too early to plan a dark sky getaway for the most popular meteor shower of the year!

By Jane Houston Jones and Jessica Stoller-Conrad

Caption: In 2018, Mars will appear brightest from July 27 to July 30. Its closest approach to Earth is July 31. That is the point in Mars' orbit when it comes closest to Earth. Mars will be at a distance of 35.8 million miles (57.6 million kilometers). Credit: NASA/JPL-Caltech



You can catch up on NASA's missions to Mars and all of NASA's missions at www.nasa.gov

We have **Beckman Hall** (not B460) reserved on July 27th.

Our speaker for Friday is Dr. Jake Hartman. The title of his talk is: "The Dynamic Sky of Low-Frequency Radio Astronomy"

Dr. Hartman writes, "My background: I did a PhD in astrophysics at MIT, with a thesis on X-ray pulsars; then I did a couple postdocs in low-frequency radio astronomy, mostly working in instrumentation; and I now work for Google, where I'm a software engineer and privacy advocate for Google Drive."

Amazing Facts



While living in microgravity, astronauts may grow in height by around 3%, which can add up to almost 2 inches. This gain appears to be due to their spine relaxing and expanding slightly without gravity to weight it down. When the astronauts return to Earth they also return to their normal height.

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