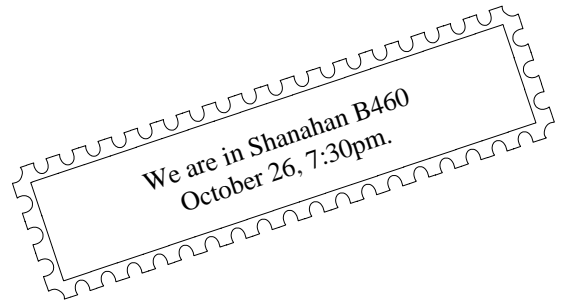




Newsletter of the Pomona Valley Amateur Astronomers

When you test a man's mirror  
you make him unhappy for a day.  
When you teach a man how to test a mirror,  
you make him unhappy for life.  
-Ludd Trozpek



Volume 38 Number 10

*nightwatch*

October 2018

### Teen Read Week 2018

On October 9, 2018 at 6pm, four members of PVAA participated in an Outreach event, called "Teen Read Week 2018." It was held at Biane Library in Rancho Cucamonga during World Space Week and had an Astronomy theme. The question & answer panel was interesting, with great questions from the youngsters in the audience. The panel consisted of two current NASA/JPL Interns from Cal Poly Pomona who are studying Aerospace Engineering and Physics. Two of the panelists are studying Apparel Merchandising/Management, and Business. They are both supported by the NASA CPP Business Start Up projects program. The program focuses on developing new products based on NASA technologies, and creating new

ventures to commercialize these technologies. I was also a panelist as a Solar System Ambassador, answering questions about current missions. The Library purchased four desk top telescopes, and multiple virtual reality headsets that featured Astronomy. The all-star PVAA members also brought their very own impressive telescopes to share, and explained how to operate them. Laura Bahri had her Mead DS2114 Autostar, Laura Jaoui a solar scope, and Gary Thompson had an 8" Dobsonian. We were provided drinks and snacks.

Thank you to all who participated.

*Cori Charles*





**Our Speaker this month** is David Nakamoto. In keeping with the season, he will give a Halloween presentation, "The comet that refused to die." In case you'd like to study up ahead of time, he will be talking about comet Biela.

50 years ago, the Apollo 7 spacecraft was the first US Apollo mission to carry its crew into space. The flight lasted from October 11-22, 1968. In addition to David's lecture, I will be giving a short talk about this historic trip that paved the way for future moon landings.

### Club Events Calendar

**Oct 26** General Meeting– Apollo 7

**Nov 10** Star Party – Mecca Beach, Salton Sea

**Nov 14** Board Meeting

**Nov 30** General Meeting Apollo 8/Jules Verne–Ken Elchert

**Dec 8** PVAA Holiday Party

**Jan 5** Star Party – Afton Canyon Campground

**Jan 9** Board Meeting

**Jan 18** General Meeting

**Feb 2** Star Party – Anza-Borrego Desert State Park

**Feb 13** Board Meeting

**Feb 22** General Meeting

**Mar 2** Star Party – TBD

**Mar 13** Board Meeting

**Mar 22** General Meeting Apollo 9 – TBD

**Apr 6** Star Party – TBD

**Apr 10** Board Meeting

**Apr 19** General Meeting

**May 4** Star Party – TBD

**May 8** Board Meeting

**May 17** General Meeting Apollo 10 – TBD

**Jun 1** Star Party – TBD

**Jun 5** Board Meeting

**Jun 14** General Meeting

**Jul 10** Board Meeting

**Jul 19** General Meeting Apollo 11 – TBD

**Jul 27** Star Party – TBD

**Aug 7** Board Meeting

**Aug 16** General Meeting

**Aug 31** Star Party – TBD

**Sept 4** Board Meeting

**Sept 13** General Meeting

**Sept 28** Star Party – TBD

**Oct 2** Board Meeting

**Oct 11** General Meeting

**Oct 26** Star Party – TBD

**Nov 6** Board Meeting

**Nov 15** General Meeting Apollo 12 – TBD

**Nov 23** Star Party – TBD

### PVAA Gen Meeting 09/21/18

This meeting did not have the usual speaker talking about a space related subject. Instead, several members of the club brought their collections of meteorites. Each member then described their collection.

Meteorites have been classified into groups by origin. Did the meteorite come from the moon, Mars, an asteroid, a comet or someplace else? This is determined by isotopic and mineralogical properties of the meteorite. Isotopes are variations of a chemical element. They are the same element as they have the same number of protons as the base element and occupy the same place on the periodic table, but they have a different number of neutrons. Because the isotope has a different number of neutrons, it has a different mass. Hydrogen has 3 common variations. The first is with just one proton in its nucleus. The second, known as Deuterium, has one proton and one neutron in its nucleus. The third, Tritium, has one proton and two neutrons, but they are all hydrogen. Deuterium and Tritium are just 'heavier' hydrogen atoms.

By mineralogical properties we mean the chemical and physical properties of the minerals in the meteorite. The chemical composition or crystal structure of the meteorite can be measured and compared to other meteorites and minerals native to Earth.

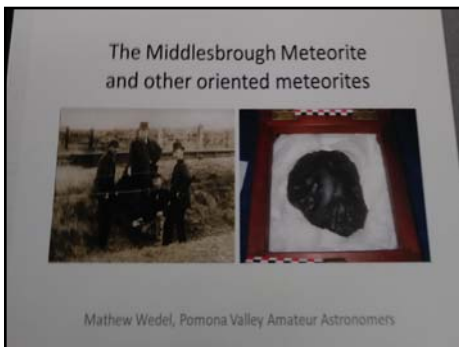
There are four main types of meteorites: Chondrite, Achondrite, Iron and Stony-Iron. By examining the isotopes of the meteorite, you can determine where it originated. Laura Jaoui brought in a meteorite from the moon, and one from Mars!

As a side note, a 12 pound lunar meteorite just sold for \$612,500 at an auction in Boston on Friday, 10/19/18 - so sometimes being a meteorite collector pays off!

*Gary Thompson*



A lunar meteorite comprised of six fragments that fit together, puzzle-like, to form a mass weighing slightly over 12 pounds. (RR Auction Photo) - Sold for \$612,500!

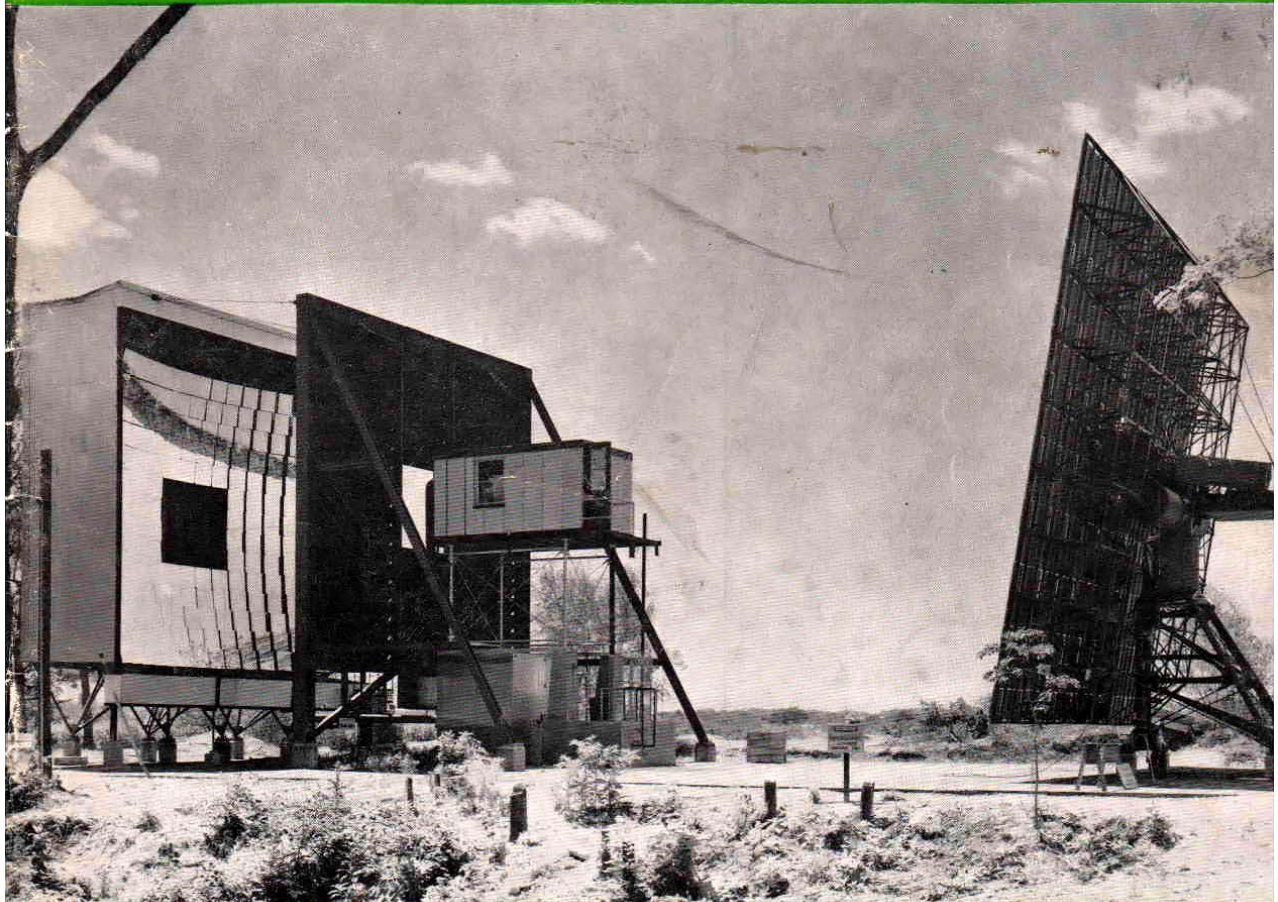


PVAA President Mathew Wedel created a book about the Middlesbrough Meteorite.



I recently came into a lot (**I mean, 'A LOT'**) of old Sky and Telescope magazines--more than 50 years worth going back to the 40s

I pulled out the November 1958 issue, now just 60 years old. This is one of the numbers I would've received when my parents got me a subscription after Sputnik, but those issues that came to me then are long gone.



U. S. Army solar furnace

***In This Issue:***

★  
Vol. XVIII, No. 1  
NOVEMBER, 1958  
50 cents

The Largest American  
Solar Furnace  
World's Astronomers  
Meet in Moscow  
Boston's Planetarium Opens

The Chemical Composition  
and Ages of Stars  
The New IAU Nomenclature  
for Mars  
Among Southern Galaxies — X





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## Observe the Moon

This year's International Observe the Moon Night is on Oct. 20. Look for astronomy clubs and science centers in your area inviting you to view the Moon at their star parties that evening!

On Oct. 20, the 11-day-old waxing gibbous Moon will rise in the late afternoon and set before dawn. Sunlight will reveal most of the lunar surface and the Moon will be visible all night long. You can observe the Moon's features whether you're observing with the unaided eye, through binoculars or through a telescope.

Here are a few of the Moon's features you might spot on the evening of October 20:

Sinus Iridum—Latin for “Bay of Rainbows”—is the little half circle visible on the western side of the Moon near the lunar terminator—the line between light and dark. Another feature, the Jura Mountains, ring the Moon's western edge. You can see them catch the morning Sun.

Just south of the Sinus Iridum you can see a large, flat plain called the Mare Imbrium. This feature is called a mare—Latin for “sea”—because early astronomers mistook it for a sea on Moon's surface. Because the Moon will be approaching full, the large craters Copernicus and Tycho will also take center stage.

Copernicus is 58 miles (93 kilometers) across. Although its impact crater rays—seen as lines leading out from the crater—will be much more visible at Full Moon, you will still be able to see them on October 20. Tycho, on the other hand, lies in a field of craters near the southern edge of the visible surface of the Moon. At 53 miles (85 kilometers) across, it's a little smaller than Copernicus. However, its massive ray system spans more than 932 miles (1500 kilometers)!

And if you're very observant on the 20<sup>th</sup>, you'll be able to check off all six of the Apollo lunar landing site locations, too!

In addition to the Moon, we'll be able to observe two meteor showers this month: the Orionids and the Southern Taurids. Although both will have low rates of meteors, they'll be visible in the same part of the sky.

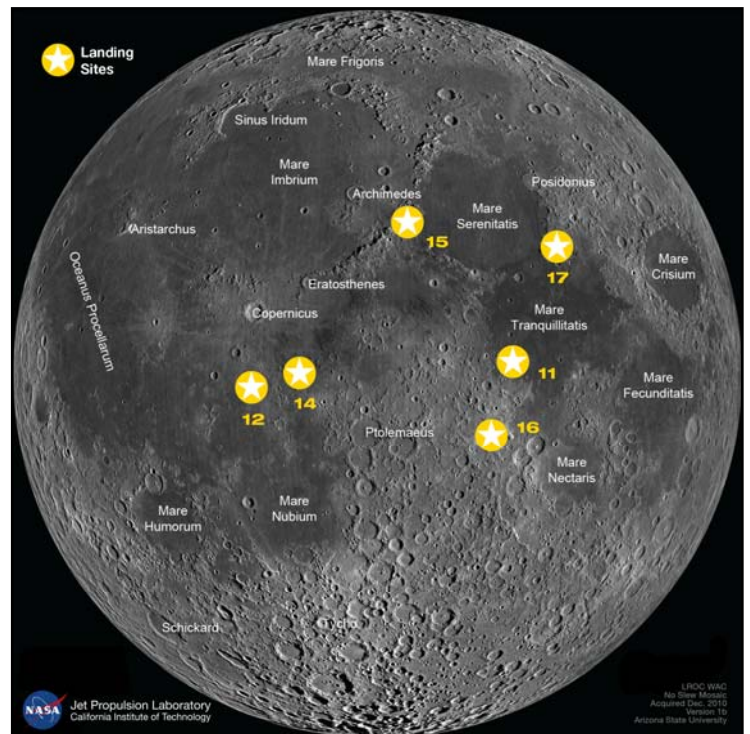
The Orionids peak on Oct. 21, but they are active from Oct.

16 to Oct. 30. Start looking at about 10 p.m. and you can continue to look until 5 a.m. With the bright moonlight you may see only five to 10 swift and faint Orionids per hour.

If you see a slow, bright meteor, that's from the Taurid meteor shower. The Taurids radiate from the nearby constellation Taurus, the Bull. Taurids are active from Sept. 10 through Nov. 20, so you may see both a slow Taurid and a fast Orionid piercing your sky this month. You'll be lucky to see five Taurids per hour on the peak night of Oct. 10.

You can also still catch the great lineup of bright planets in October, with Jupiter, Saturn and Mars lining up with the Moon again this month. And early birds can even catch Venus just before dawn!

*By Jane Houston Jones and Jessica Stoller-Conrad*



You can find out more about International Observe the Moon Night at <https://moon.nasa.gov/observe>.

*Caption: This image shows some of the features you might see if you closely observe the Moon.*

*The stars represent the six Apollo landing sites on the Moon.*

*Credit: NASA/GSFC/Arizona State University  
(modified by NASA/JPL-Caltech)*

## Amazing Facts



*The Earth is constantly being bombarded from space by dust and rocks. The vast majority of these are consumed by the heat caused by friction when they shootthrough Earth's atmosphere. While an asteroid the size of a car sounds impressively large, a rock would have to be bigger than about 82 feet across to survive the fall to Earth. Only asteroids half a mile wide or larger would pose a threat to people, and these are extremely rare.*

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