

Pegasus—The BCAAS Newsletter

President's Message

Fall is here, but it still feels like summer. If you haven't already done so, get out and enjoy the Milky Way sights that are directly overhead right now. From Sagittarius in the south to Cygnus high above, there are many clusters and nebulas to see with any optical aid, bino's and telescopes.

If you would like more than just observing, maybe an organized event would be what you want. Nearby, in Bucks County, is the Stella-Della Valley star watch, held Sept 30—Oct 2.

Or, you also have the chance to hear and meet a famous astronomer, David Levy, who will be at the Lehigh Valley Amateur Astronomical Society's 50th anniversary banquet on October 13th. LVAAS has a rich and storied history that you would learn about, and it would be exciting meet Mr. Levy. **(Editor's Note—Contact Melody at 610-844-6931 for details or tickets.)**

Finally, come out to the new Planetarium shows here at the Museum. The upgrades made recently gives planetarium shows a whole new meaning. You might even see a BCAAS member running the show, as 5 of us are "in training" to present shows when regular staff members can't.

Be sure to say hello, and don't forget to ask us some tough questions after the show!



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- Dave Brown—President
- Bret Cadmus—Vice President
- Barb Geigle—Secretary
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WoodHenge Submitted by Gary Shugar

Woodhenge, Cahokia, Another Ancient Observatory: What makes them think that?

In the Native American mound city of Cahokia, in current Illinois near St. Louis, there is a 410 foot diameter circle of 48 post holes. Two of the posts are on a north-south line and two on an east-west line. This obviously was a circle of posts used for ceremonial purposes. It has also been claimed that this was a solar observatory. What would make scientists think that?

A 49th post was located 5 feet to the east of the center. Why is the post off center? It turns out that, as a result of this displacement, if one stands by the displaced pole the sun rises immediately behind the 4th pole to the right of the east pole on the winter solstice. The sun rises behind the 4th pole to the left of the east pole on the summer solstice.

By my calculations, the angle of these poles is off by only 0.09 degrees. Of course the east pole would mark the equinoxes. It is hard to believe that this offset could have any other purpose, so here we have another ancient American astronomical observatory.

Why would the center pole of WoodHenge be displaced? Find out in this article!



Quality Time Submitted by Dave Brown

As you grow older and your children grow to adulthood, life's busy schedules makes it harder to spend time with them. Special events do come along though, and one such was a Total Eclipse of the Moon in the early morning hours of August 28, 2007.

My son Dan and I went to the flying field that morning, arriving there at 4:45 am. With camera and binoculars, we watched the shadow slowly envelope the Moon in the west, and saw the Orion nebula through the bino's in the east. Dan attempted a series of eclipse photos, capturing the sequence from bright Moon to the ruddy red totality. Some of these photos will hopefully make our website.

Having observed from the flying field many times in the evening, this morning experience was unique. First, there were **NO** fireworks! Seems every time I'm up there, someone is shooting them off. Instead, by 5:15, we had a chorus of what we called "dueling chickens". From at least 3 different directions, roosters were proclaiming dawn, although dawn was still an hour away.

The Moon from our vantage point was just over the roof of the "Barnstormers" pavilion, and by the time totality came at 5:52 am, the glow of the rising sun quickly made it vanish from view, leaving a beautiful valley spread before us, with fog covered ridges and trees. Dan photographed a panorama of the valley, preserving a lasting image of that morning for us to remember.

Minus the chickens.

Berks Mineralogical Society Announcement Submitted by Bret Cadmus

On Tuesday November 13, the Berks Mineralogical Society and the Mengel Natural History Society will be sponsoring a joint meeting to be held in the museum's auditorium (7:30 PM). The speaker will be Dr. Stan Mertzman from F&M College. The topic is somewhat familiar to those of us in astronomy, but the other clubs don't have BCAAS' knowledge of Mars. Below is a write-up of his talk.

From: Stan Mertzman

Re: Details for talk November 13, 2007

Over the past decade much new information concerning the surface features and topography of Mars has become available from very successful missions that inserted orbiting satellites around the "red planet". Tantalizingly, a wealth of circumstantial evidence was found amongst the surficial features on Mars that supported the presence of an aqueous fluid phase on the Martian surface at some time in the past. What could compositional and mineralogical data concerning the rocks on the surface of Mars tell us about the origin of Mars?

Mars exploration rovers Spirit and Opportunity successfully landed on opposite sides of Mars relatively near the equatorial plane during January 2004. Each had on board an alpha particle x-ray spectrometer (APXS), a Mössbauer spectrometer, and an infrared spectrometer, the former instrument to measure the abundances of chemical elements and the latter two instruments to identify the mineral constituents of Martian rocks and soils. Unaltered igneous rocks investigated on Mars, mainly by the rover Spirit, are dominated by the silicate minerals pyroxene, plagioclase feldspar, and olivine, quite similar to the mineralogy of the most common rock found on Earth: basalt. However, Opportunity at Meridiani Planum encountered layered sedimentary rock sequences at Eagle and Endurance craters that consist of two dominant fractions, one derived from a basaltic parent material and a second from in situ precipitation of briny fluid. Minerals crystallizing from this solution include jarosite, an Fe-rich hydrated sulfate mineral that has an alkali metal cation site occupied by K and Na, one or more magnesium sulfate minerals, which may or may not be hydrated, and hematite (Fe_2O_3). The implication is the liquid water must have been abundant at this Meridiani Planum site at some point in time in the history of Mars. The presence of jarosite is also very important from a chronological point of view as well. Since jarosite contains some amount of potassium, the stage is set for the determination of a $^{40}\text{K} > ^{40}\text{Ar}$ age date that ought to confirm the time of formation of jarosite near the Martian surface. This age date will make firm the time in Martian history when water was at the very least locally abundant. Presently evidence suggests this wet period was several billions of years ago.

“...liquid water must have been abundant...in the history of Mars.”

Black Forest Star Party Report Submitted by Dave Brown

The Black Forest star party, held each September at Pennsylvania's official Dark Sky park, Cherry Springs in Potter County, has become one of the premier events that an amateur astronomer can attend. Nearly 500 people attend, mostly to experience what is arguably the darkest skies on the East coast.

My trip up there this year included my son Dan, who had not yet visited Cherry Springs. He is no stranger to pristine skies, having been to Vermont and West Virginia on occasion, so he knows what to look for. I was just glad we both could spend the weekend together, and was hopeful that the weather would be good.

My fears were unfounded, as Thursday night was perfect. Mild temperatures, transparent seeing, and no dew on grass or instruments! Dan and I stood together and soaked up that beautiful Milky Way for a long time before we even looked through the scopes. Globular clusters are one of my favorite objects, and I bagged over a dozen I hadn't seen before, in addition to the usual favorites. Dan was busy snapping away pics with his new digital Rebel camera mounted to our old 6 inch Celestron, and stealing views from all the other BCAAS and LVAAS members camped around us.

Friday night brought HEAVY rain, but by Saturday afternoon, clear skies were coming. Clouds early broke by 9 pm in time for new targets to capture. Around 11 pm, a fellow 30 feet down from us called out, "I have the Pleadies coming through the trees in my scope, come take a look". I had just come down from the ladder looking at M72, so I walked over to see a fluorite refractor pointed at the tree tops. Peering into it, I saw just part of the cluster above the trees, with the rest poking through them.

"Well, that is more than just stars, that's ART", I exclaimed. "Exactly!" he said, "observing is seeing the art work of nature". It was only then did I realize that I was looking through the telescope of Al Nagler, master optician from Tele Vue, which produces legendary eyepieces bearing his name.

Out of courtesy, I asked him if he would like to see M72 in my Dob, which he cheerfully accepted. After seeing that globular in my scope, he said, "This deserves an Ethos!" He hurried off to his eyepiece case, and returned with his latest 13mm lens that offers a stunning 100 degree field of view! Inserting in into the focuser, he was pleased with the results. "The telescope just falls away, not interfering at all with you enjoying the view". After seeing it myself, I couldn't agree more. It was more like looking out a window on the Shuttle than looking in a telescope!

Then I was asked by him who made the optics in my Dob. Replying that they were Galaxy optics, he made a surprising statement. "You have a fine telescope here, excellent view." Coming from someone like Mr. Nagler, that is quite a compliment.

Each time I travel up there, I come away with another memorable experience like that. Dan now wants to take his fiancé there, so I know that he enjoyed it as much as I did. You owe it to yourself to go there at least once to see the sky as it should be seen. Make it a point to go, you won't be sorry!

Night Sky Network Update Submitted by Barb Geigle

The newest Night Sky Network Toolkit, "Exploring the Solar System" has arrived!

Introduction: Exploring the Solar System

Amateur astronomers often provide a child with his or her first look through a telescope. Some of our favorite telescope targets to share with the public are the planets of our Solar System. The view of Saturn through the eyepiece can be a life altering experience. This Toolkit is designed to provide tools to show the structure of our Solar System, including models for sizes and distances, to connect what is seen in the sky with where the planets are in relation to Earth. The many NASA missions that explore our Solar System serve as an inspiration to children and adults. This Toolkit provides an introduction to the many ways we can explore, learn, and discover: fly-bys, orbiters, landers, probes, sample returns.

Summary of activities and resources:

1. Exploring Strange New Worlds: A team exercise that provides insight into how NASA scientists explore our Solar System. Your visitors become teams of scientists living on a planet orbiting a distant star. They are on the threshold of exploring their own planetary system for the first time. Your club members get to create the planets!

2. Solar System Models: Sizes and Distances

- a) "Pocket Solar System": a simple activity to give you an easy way to demonstrate an overview of the approximate distances between the orbits of the planets, the Asteroid Belt, and the Kuiper Belt.
- b) "Worlds of the Solar System": Scale models of the planets, the asteroid Ceres, the Kuiper Belt object Pluto, and Earth's Moon. Scaled to a one-meter diameter Sun.

3. Exploring Our Solar System: A banner of our Solar System with accurately scaled orbits of the naked-eye planets helps dispel the common perceptions that the planets are all in a line, that they all move together, and that it is easy to quickly communicate with spacecraft exploring other planets. Includes handouts and star maps to connect the location of the planets with what we see in the sky.

4. PowerPoint: Explorers' Guide to the Solar System: A non-technical introduction to exploring the Solar System - Why we explore, how we explore, and how scientists piece together clues to better understand the worlds of our Solar System.

There are activities in this Toolkit appropriate for ages 7 to adult.

Please contact me if you are interested in learning more, or want a copy of the manual (in PDF form) or training DVD.

**The newest
Night Sky
Network
Toolkit,
"Exploring the
Solar System"
has arrived!**

Berks County Amateur Astronomical Society

c/o Linda Sensenig
345 Douglass Street
Wyomissing, PA 19610

Get the most up-to-date information on events
and starparties in Berks County.
Call our hotline at: 610-921-0173

Mailing Address Line 1
Mailing Address Line 2
Mailing Address Line 3
Mailing Address Line 4
Mailing Address Line 5

Check out our website at
[www.berksastronomy.org!](http://www.berksastronomy.org)

Upcoming Events

Thursday September 20 - 7:30pm, Monthly Club meeting at the Reading Museum auditorium. Tonight's talk will be presented by Dr. David S. Graff. Dr. Graff studied Astrophysics and Cosmology at the University of Michigan, and then worked as an Astrophysicist in Paris, Ohio State University, and the American Museum of Natural History. He will speak to us about the nebular theory of the formation of the Solar System. This theory was independently discovered by Laplace and by Immanuel Kant, who correctly applied the same theory to infer that the Milky Way is a disk, and is still today the leading theory of star formation. It was the first cosmological theory which invoked the past history of the universe to explain its present condition. The impact of this discovery had profound and different implications on its two discoverers, and hence on the intellectual development of Western thought.



Thursday October 11 - 7:30pm, Monthly Club meeting at the Reading Museum auditorium. Tonight's program will be presented by Dr. Ruth Daly Professor of Physics at Penn State University, Berks Campus.

Thursday November 8 - 7:30pm, Monthly Club meeting at the Reading Museum auditorium. Tonight's program will be announced. Nominations for new Board members is open for discussion.

Thursday, December 13 - 7:30pm, Club Holiday Party at the Reading Museum. Elections for new board members and a short business meeting will be held, followed by food and drink that everyone has brought to share! Help to kick the holiday season off right and come to the BCAAS Holiday Party!



"There is no adequate defense, except stupidity, against the impact of a new idea."
Percy Williams Bridgman (1882-1961) U. S. physicist, Nobel Prize, 1946.