

PEGASUS

Volume 36, Issue 1

Spring/Summer 2010

Berks County Amateur Astronomical Society

Upcoming Events:

- July 8 **NO MEETING**, see July 16.
- July 15 Shiloh Hills Park Starwatch, 8 pm
- July 16 Friday Night Club/ Museum Program, 6 pm
- July 17 Solar Watch at Blue Marsh Lake Visitor Center
- Aug. 3 Shiloh Hills Park Starwatch, 8 pm
- Aug. 12 BCAAS Picnic 6 pm, Dave Brown's Farm
- Aug. 14 Kaercher Creek Starwatch, 8 pm
- Aug. 28 Hopewell Furnace Solar Watch 9:30 am
- Sep. 9 BCAAS Meeting
- Sep. 26 Berks Co. Heritage Center, Solar Talk and Observing, 2 pm
- Oct 2 Blue Marsh Lake Starwatch, 8 pm

President's Message—Barb Geigle

Summer is almost here, and so is a new issue of Pegasus! Our former editor, Melody Gardner, has left the club due to other obligations. I want to extend our gratitude to Melody for all of her efforts in the past. She will be missed. Lane Davis had volunteered to take over, but unfortunately (fortunately for Lane!) a new job is keeping him too busy. Thanks anyway, Lane. So for now you are stuck with me. If anyone wants to take over as editor, or help me with articles, please let me know.

We have already had several public events this spring, and a busy schedule is lined up for the summer and fall. I want to have some club star watches at the Flying Field as well. Club members are welcome to attend public events, even if you don't have a telescope. Come enjoy the night (or day) sky with us!

Our annual picnic at Dave Brown's farm will be Thursday, August 12 at 6 pm. Bring a covered dish to share, as well as your own beverage, and hopefully we'll have a hayride and get to see some Perseid meteors. Dave has various animals for the kids to see. The picnic is a great way to

chat with and get to know your fellow club members and their families, so I hope you try to attend.

We have a new venue for public star watches this year. The new Shiloh Hills Park in Spring Township is located next to Shiloh Hills Elementary School, near my home. The park is just now being completed, and as it is a relatively rural area, hopefully the skies will be fairly dark. The Parks and Recreation Dept. is advertising this in the Township booklet, as well as the children's daytime programs, so we hope to have a lot of families in attendance (hint—need telescopes!).

Hopefully we will have some clear skies this summer. I look forward to seeing you at the meetings and star watches!

Inside this issue:

President's Message	1
New Magazine discount	1
Winter Star Party	2
For Sale	2
Ancient Supernova Riddle	3
Moon Zoo	4
Hot Line	4

Astronomy Technology Today Magazine Discount—Linda Sensenig

Good news! Astronomy Technology Today is now available to club members at a discount. You can subscribe to this magazine at \$14.00 for a year. In addition to receiving the print edition of the magazine, by purchasing a subscription you also will have unlimited online access to all back issues as long as your subscription remains current. If you are interested, there are two options for how you can subscribe:

1. Members can subscribe directly on their website (<http://www.astronomytechnologytoday.com>) by using the club's discount code. Contact Linda Sensenig or Barb Geigle for the code. You can check out a sample issue on their website.
2. Or, if you prefer, you may pay me and I will forward the money to them on a club check, just like I do for Astronomy and Sky and Telescope.

Winter Star Party—Dave Brown

Like most amateur astronomers, I like to attend organized star watches for not only the fun and knowledge you have, but for the chance to get away from the distractions of home and work and enjoy JUST astronomy.

Having attended most regional star watches over the years from Stellafane in Vermont to Spruce Knob in West Virginia, I have always wanted to go to the Florida Keys for the Winter Star Party. Held in February, the WSP offers steady skies over the ocean and because of the latitude allows views of the southern sky that we Northerners just can't see.

With much needed advice from fellow club member Lane Davis, who has attended WSP several times, I packed up the SUV with scope and gear, and on February 3rd, headed south.

Since my interests vary, I made plans to take in a NASCAR race on Sat. February 6 at Daytona Raceway, the beginning of Speed Week at the fabled track. My son Dan flew down and met me Friday night in Jacksonville, and I secured tickets for him and me to see the Busch Clash under the lights. The Floridians sitting next to us were complaining that it was too cold; temps were only in the 50's. Dan and I nodded in agreement with them, but felt odd wearing short sleeved shirts when they were wearing coats.

We slept very little that night, because we drove to Titusville after the races to be on

a dock in the Indian River at 4:30 AM to witness the Shuttle launch from Kennedy Space Center. With 8 minutes to go, the launch was scrubbed. Oh well, you can't win them all. Later that day, I took Dan to the Fort Lauderdale airport, where he flew home to Harrisburg and found his car under almost 2 FEET of snow that you had here during that first of 2 snowstorms that blasted Berks County.

I arrived at the WSP campground at 5:30 AM the next morning and found myself the 52nd car in line to get in. The local residents must think that there are some crazy folks out there who line up 150+ cars in the dark behind a 7 foot tall inflatable snowman. Makes some of the other stuff I've done seem rather normal!

Following Lane to a preferred spot, we made camp and I heard the welcome talk by Tippy D'Auria, a well known telescope maker and author of books on collimating Dobs like mine. Tippy announced that the snowball fight for Wednesday was cancelled. Damn, I would have been good at that. Ironically, that Wednesday was the day of the second big storm that pounded Berks with another 2 feet of snow. As I was sitting on the beach in shorts watching the waves, my wife told me by cell phone that she couldn't get to work, and after shoveling her way to the barn to feed the horses, she had to shovel her way back to the house because it had drifted from the high winds.

I just told her how bad I felt about that, then drove 15 minutes into Key West and had some of the best Key Lime pie ever at an outdoor restaurant. Aren't I a stinker?

Of the 5 days spent there, 3 of the nights were clear and showed me a sky I had not known. Where we see Orion and the star Sirius in the southern sky from here, at WSP Orion is 60 degrees UP in the sky, and there is a whole new Milky Way below it that descends right down into the ocean. Seeing the Southern Cross sit right on the water, having globular cluster Omega Centauri more than fill the eye-piece field, and viewing Mars with more detail than I have ever seen thanks to the steady seeing over the ocean, and you begin to see the reasons why 600 people travel to this place every year.

This trip was as memorable as any I have gone on, and I have Lane to thank for helping make it that way. I hope you get to see the photos he took there. Come to our regular meetings and he will show them to you. I only took a simple photo of the Milky Way I never saw before diving down into the ocean.

This trip had one more completion for me. My Starsplitter telescope saw first light at the WSP of 1994, and was shipped to me after the event. After 16 years, I finally returned it to its place of birth.

Home and Observatory for Sale

For Sale - moving to retirement home:

~2,000 square foot custom built (1977) 3 bed 2 bath home on 2 acres with a great view in rural western Chester County. Includes an attached 18' motorized dome observatory containing a fixed, very stable, equatorial motor driven 16" f/6.5 Newtonian reflector. Must be seen to be appreciated; asking \$275,900. If you can't move, the observatory and telescope can be sold independently and can be moved by buyer; asking \$25,000. Call 610-273-2234 for appointment. Serious inquiries only please.



Space Place Partners' Article

Ancient Supernova Riddle, Solved by Dr. Tony Phillips

Australopithecus squinted at the blue African sky. He had never seen a star in broad daylight before, but he could see one today. Was it dangerous? He stared for a long time, puzzled, but nothing happened, and after a while he strode across the savanna unconcerned.

Millions of years later, we know better.

That star was a supernova, one of many that exploded in our corner of the Milky Way around the Pliocene era of pre-humans. *Australopithecus* left no records; we know the explosions happened because their debris is still around. The solar system and everything else within about 300 light-years is surrounded by supernova exhaust—a haze of million-degree gas that permeates all of local space.

Supernovas are dangerous things, and when one appears in the daytime sky, it is cause for alarm. How did Earth survive? Modern astronomers believe the blasts were too far away (albeit not by much) to zap our planet with lethal amounts of radiation. Also, the Sun's magnetic field has done a good job holding the hot gas at bay. In other words, we lucked out.

The debris from those old explosions has the compelling power of a train wreck; astronomers have trouble tearing their eyes away. Over the years, they've thoroughly surveyed the wreckage and therein found a mystery—clouds of hydrogen and helium apparently too fragile to have survived the blasts. One of them, whimsically called "the Local Fluff," is on the doorstep of the solar system.

"The observed temperature and density of the Fluff do not provide enough pressure to resist the crushing action of the hot supernova gas around it," says astronomer Merav Opher of George Mason University. "It makes us wonder, how can such a cloud exist?"

NASA's Voyager spacecraft may have found the answer. NASA's two Voyager probes have been racing out of the solar system for more than 30 years. They are now beyond the orbit of Pluto and on the verge of entering interstellar space. "The Voyagers are not actually inside the Local Fluff," explains Opher. "But they are getting close and can sense what the cloud is like as they approach it."

And the answer is ...

"Magnetism," says Opher. "Voyager data show that the Fluff is strongly magnetized with a field strength between 4 and 5 microgauss. This magnetic field can provide the pressure required

to resist destruction."

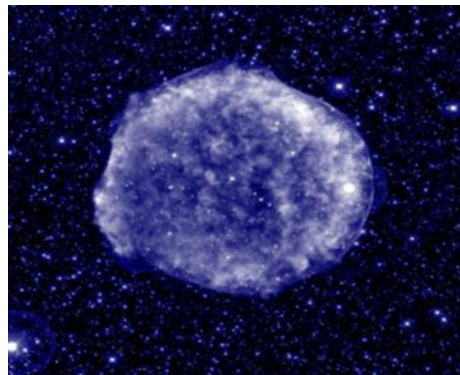
If fluffy clouds of hydrogen can survive a supernova blast, maybe it's not so surprising that we did, too. "Indeed, this is helping us understand how supernovas interact with their environment—and how destructive the blasts actually are," says Opher.

Maybe *Australopithecus* was on to something after all.

Opher's original research describing Voyager's discovery of the magnetic field in the Local Fluff may be found in *Nature*, **462**, 1036-1038 (24 December 2009).

The Space Place has a new Amazing Fact page about the Voyagers' Golden Records, with sample images and sounds of Earth. Just in case one of the Voyager's ever meets up with ET, we will want to introduce ourselves. Visit <http://spaceplace.nasa.gov/en/kids/voyager>.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Left-over cloud from the Tycho supernova, witnessed by Tycho Brahe and other astronomers over 400 years ago. This image combines infrared light captured by the Spitzer Space Telescope with x-rays captured by the Chandra X-ray Observatory, plus visible light from the Calar Alto Observatory in Spain.



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See our website: www.berksastronomy.org

Moon Zoo ([this information is from the Moon Zoo website](#))

Moon Zoo is the latest Citizen Science project. The aim of Moon Zoo is to provide detailed crater counts for as much of the Moon's surface as possible. Unlike here on Earth where weather quickly erodes any signs of all but the most recent impacts, craters on the lunar surface stay almost until eternity. That means that the number of craters on a particular piece of the surface tells us how old it is. This technique is used all over the Solar System, but the Moon is particularly important because we have ground truth—samples brought back by the Apollo missions—which allow us to calibrate our estimates. Planetary scientists have always carried out this kind of analysis on large scales, but with your help and the fabulous LRO images then we should be able to uncover the finer details of the Moon's history.

Craters can tell us more than just the history of the lunar surface though. In particular, you're asked in Moon Zoo to look for craters with boulders around the rim. Boulders are a sign that the impact was powerful enough that it excavated rock from beneath the regolith (the lunar 'soil') and so by keeping an eye out for these we can begin to map the depth of the regolith across the surface of the Moon.

Of course, in exploring the lunar surface who knows what else you might find. We very much hope that Moon Zoo will lead to the discovery of many unusual features—so please dive in and enjoy a view of the Moon that even Apollo astronauts would enjoy.

Go to <http://www.moonzoo.org> for details

Hot Line closed

Please note that we no longer have our telephone hot-line. If you need to contact us, call Barb Geigle at 610-75-8925, or Linda Sensenig at 610-375-9062.