The Blue Moon Observer

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Door Peninsula Astronomical Society

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www.doorastronomy.org

In This Issue

The February general meeting of DPAS will occur at 7PM on Tuesday, February 6, at the Ray & Ruthie Stonecipher Astronomy Center. "Fundamental Cosmological Building Blocks", a video program, will be shown and discussed as the main program. "Learning the night sky and constellations" is the monthly series for 2018.

Notes from the Banquet, January 9.

We had 24 members seated for the dinner which was enjoyed by all! As part of the pomp, Jim Maki brought the newly printed banner for the NCRAL convention, which was displayed to applause from the crowd, and captured by Barb Henkelmann in this photo: This will be hung over the entrance

to The Lodge at Leathem Smith during the convention. It appeared that the fillet mignon with gorgonzola was the most popular choice from the menu. Several take-home boxes were evident and few partook of the dessert choices. Our president, Gary Henkelmann, said a few words looking forward to various planned projects for 2018 in addition the the NCRAL convention. We were reminded of viewing night scheduled for the following Saturday, weather permitting. Several board members were out of town so the turnout was quite gratifying in terms of non-board-member participation. Gary reminded us that in order for NCRAL to be the success which we anticipate that it will be, members are asked to volunteer to help with last minute details.

The overall theme of the banquet, judging by the conversation, seemed to be:

HAPPY NEW YEAR!

Who We Are

DPAS is a local club and chapter of the Astronomical League. We are also a club member of the International Dark-Sky Association and the Night Sky Network, teaching arm of the Astronomical Society of the Pacific. We meet on the first Tuesday of every month, with rare exception. Meetings are held at the Ray & Ruthie Stonecipher Astronomy Center unless otherwise announced. We operate and maintain the Leif Everson Observatory which houses a 14" Celestron Schmidt-Cassegrain telescope on a sophisticated tracking mount controlled by computer, and a weather station housed in the observatory. Current weather readings are shown on our web site: www.doorastronomy.org

The StarGarden near the observatory is used for viewing the sky with unaided vision, binoculars and members' telescopes. There are also binocular mounts set in concrete which allow viewers of different heights to view the same object through the same binocular.

The Ray & Ruthie Stonecipher Astronomy Center provides for storage, projects, meetings, warm-up and toilet facilities. It also houses a StarLab, an inflatable planetarium with a sophisticated projection system. The planetarium is used for group presentations.

An Analemmatic Sundial was dedicated on October 20, 2012.

The "astronomy campus" as described here is reached by taking Utah Street east to the stop sign and turning left through the gate onto Stargazer Way. Or you can set your GPS to 2200 Utah.

Women in Astronomy

Modern day amateur and professional astronomers appreciate that much of our knowledge today we owe to the contributions of many women to the field of astronomy. Many of those women were under-recognized in their day. Fortunately women in science enjoy the same accolades and recognition as do their male counterparts. At Door Peninsula Astronomical Society we have often presented programs reminding us of the legacy of those women pioneers. These are just a few that stand out:

Maria Mitchell (August 1, 1818 – June 28, 1889) was the first American woman professional astronomer. Her interest was piqued by and her fame resulted from her discovery of a comet in 1847, for which she was awarded a medal by the King of Denmark. She taught astronomy until shortly before her death. At age 12 she helped her father locate their farm by using calculations related to a lunar eclipse, and by age 14 her navigational computations were used by sailors of whaling ships. "We especially need imagination in science. It is not all mathematics, nor all logic, but it is somewhat beauty and poetry." –Maria Mitchell

Annie Jump Cannon (December 11, 1863 – April 13, 1941) began her astronomy career at 50 cents per hour as one several women who worked at Harvard Observatory under E. C. Pickering to document stars. She went much further. Cannon cataloged several hundred thousand stars and discovered 300 variable stars. She developed a universal classification system for stars which remains in use today. She was the first woman to receive an honorary doctorate from the University of Oxford in 1925, and received numerous awards. So if you read of a "b star" or a "k star", think of Annie Jump Cannon.

Henrietta Swan Leavitt (July 4, 1868 – December 12, 1921) was one of many women in astronomy who got

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DPAS BOARD

Gary Henkelmann, President
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Thomas Minahan, Vice President, Outreach Coordinator, and Board Secretary

Susan Basten, Secretary, Treasurer , ALCOR, and Membership Chairperson
treasurer@doorastronomy.org

John J. Beck, Past President and Editor
editor@doorastronomy.org

Jim Maki, Academic Coordinator

John W. Beck, Webmaster

Mike Egan, David Lenius, Jacque Axland, and Steve Ransom-Jones, Members at Large

Ray Stonecipher, in spirit

In addition, Barbara Henkelmann serves as the DPAS Archivist.

The business of the DPAS is largely conducted at the Board meetings to leave the general meetings open for programs. The Board meetings are held at the Astronomy Center at 7 PM on Monday, 8 days prior to the following general meeting. Members of DPAS are invited to attend Board meetings.

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her start as a "computer" when calculations had to be laboriously carried out by hand. She worked under Harlow Shapley on an interesting type of variable stars called Cepheid variables. What she observed was a mathematical relationship between the period of variation in brightness and the luminosity (brightness) of that type of star. As a result, if Cepheid variables could be found in distant galaxies, their true brightness could be determined by timing the variation in observed brightness and thus the distance to those stars. Thus one of the most useful tools of measuring the universe was discovered.

Caroline S. Shoemaker, (born June 24, 1929), has held the record for the largest number of comets discovered by any one individual, and in 1993 was co-discoverer of Comet Shoemaker-Levy which broke part and crashed into Jupiter in 1994. Remarkably, she took up astronomy in 1980 at age 51. In addition to 32 comets she has discovered over 800 asteroids. She continues her work on asteroids and comets, in part as contributions to discovery of near earth objects, or NEO's - objects in space that have the potential for striking earth. She also studied variable stars, which are stars which vary regularly in brightness as observed from earth. She was the first woman to receive an honorary doctorate from the University of Oxford in 1925, and was the recipient of many awards. Yet she had started her astronomy career at 50 cents/hour doing detailed observations and calculations along with a number of other women likewise employed.

Jocelyn Bell Burnell (born 15 July 1943) was responsible for her mentor, Anthony Hewish, for being awarded the Nobel Prize for the discovery of radio pulsars as a graduate student at the University of Cambridge. The prize was not awarded to her

because it was common for the professor to be the first name on a scientific paper produced by one of his students and to receive credit for the work. She was monitoring variations in cosmic radio activity when she

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Astronomy Quiz

1. The secondary mirror in a Maksutov-Cassegrain telescope is:
   a. concave
   b. convex
   c. flat
   d. there is no secondary mirror.

2. The Juno space project is named for:
   a. the month of launch
   b. another name for Jupiter
   c. Jupiter's wife
   d. The nickname of the primary investigator

3. The pistol star is in which constellation?

4. Kepler's first law of planetary motion is the law of elipses. The second law is the law of equal areas. What is the third law?

5. In a type Ia supernova, one star in a binary star can be anything from a supergiant to a white dwarf, but the other star is always a __.

6. Name the three stars in the Winter Tiangle and their constellations.

7. Auriga is home to three Messier objects. They are:
   a) globular clusters
   b) open clusters
   c) nebulae
   d) galaxies

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noticed some very regular pings. Finding no evidence of any radio activity on earth like this at the time including military operations, she playfully designated the irregularities as LGM for "little green men", indicating that she wondered if these could be transmissions from some extraterrestrial civilization. It turned out that the pulses of radio waves were from spinning neutron stars. Think of a lighthouse beacon from a distance; as the beam sweeps past your vision, it seems that the light flashes on and off. So the linear radio emission from a spinning neutron star is received as a series of radio flashes. Dame Susan Jocelyn Bell Burnell has held prominent faculty posts at a number of universities and has received most prestigious honors in astronomy.

Margaret Geller (born December 8, 1947) "is a pioneer in mapping the nearby universe. Her maps provided a new view of the enormous patterns in the distribution of galaxies like the Milky Way"* Less than a century ago it was

thought that all of the stars we could see even with telescopes was within the Milky Way Galaxy. Yet Margaret J. Geller had mapped the distribution of galaxy subgroups, groups, clusters, and superclusters. She continues her work to this day.

Knowledge in various fields of astronomy is exploding and offers many opportunities to young women as well as young men with an interest in "STEM" (science, technology, engineering and math).

*https://www.cfa.harvard.edu/~mjg/

Monthly Viewing Targets

February: Bode's Galaxy, M82, spiral galaxy.
Ghost of Jupiter, NGC 3242, planetary nebula.

March: Sombrero Galaxy, M104, NGC 2594, spiral galaxy.
M3, globlar cluster.
Owl Nebula, M97, NGC 3587.

April: M94, spiral galaxy.
Jewel Box, NGC 4755, open cluster.

MAY: M5, globular cluster
M4, globular cluster

June: Hercules Cluster, M13, globular cluster.
M92, globular cluster.
Lagoon Nebula, M8, NGC 6523.

July: Ring Nebula, M57, NGC 76720, planetary nebula.

Poetry Corner

Mars Rovers

"Thank you for the "Spirit" and the "Opportunity"
Submitted Sofi Collis when she gave the rovers names
At nine her essay tells of when at two of age she claims
From dark and lonely orphanage the "sparkly sky" she'd see

Though Spirit was the first to land, was first to come to tears
But not before this shutterbug and rockhound made some tracks
From crater Gusev, grinding stone and snooping soil and cracks
O'er nearly eight kilometers and half a dozen years

So Spirit stretched the set assignment well beyond the three
Month expectation whether riding on six wheels or five
Discovering pure silica while fighting to survive
Suggesting liquid water might have filled a Martian sea

In March of twenty-ten the rover Spirit breathed its last
But Opportunity keeps Sofi's namesakes much alive
From "blueberries" to hydrothermal sources that survive
Eclipsing expectations though some thirteen years have passed.

John J Beck

NASA image

2018 Programs

A tentative schedule of programs for the general meetings has been developed by program director Steve Ransom-Jones and approved by the board. Changes may be made if situations arise.

February: Video: Fundamental Cosmology Building Blocks

March: Time and Relative Dimensions in Space - The Future of Time Travel

April: Video: The Smooth, Expanding Universe

May: Measuring Gravity (Newton to LIGO)

June: Video: Space, Time and Gravity

July: Atmospheric Physics of the Terrestrial Planets

August: Video: Cosmology in Einstein's Universe

September: Black Holes

October: Video: Galaxies and Clusters

November: Intentionally left open

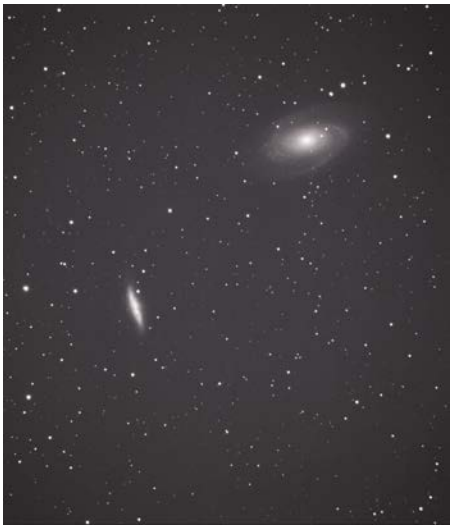
December: Video: Gravitational Lensing

The monthly series of programs, in addition to the feature programs, will be "Learning the Sky and Constellations."

Viewing Activity

Viewing night was Saturday, January 13. It was a beautiful night except that light haze to the west exaggerated the glow of "the Sturgeon Bay nebula". Steve Ransom-Jones opened the Leif Everson Observatory and set about critically aligning the telescope and mount with the computer software. Meanwhile, Susan and Lee Basten were in the Astronomy Center, packing up and storing the inflatable planetarium. Gary Henkelmann set his 8" Dobsonian out of the vehicle to equilibrate to the ambient temperature, then joined Steve in the observatory. John J. set up the 4" Renaissance at the Star Garden. Dennis XXX and later Susan joined the group in the observatory and Shauna Simonar and her daughter took in both the Lief Everson Observatory activities but also hiked to the StarGarden to view a few objects through our telescopes and binoculars.

One view through the 4" Renaissance refractor was the pair of galaxies M81 and M82. In the observatory when Steve heard that he showed an image he had obtained of those two wonders in the same field which he had captured with his own equipment, taking and stacking multiple images. The result is indeed striking, as you can see below.



Astronomy Quiz Answers

1. The correct answer is (b) convex.

2. (c) Jupiter's wife

3. Saggitarius

4. The law of harmonies

5. white dwarf. One must be a white dwarf regardless of the type of other star in the binary system.

6. Betelgeuse in Orion, Procyon in Canis Minor, and Sirius in Canis Major

7. The three open clusters in Auriga are M 36, M 37, and M 38.

Viewing Nights 2018

February 17
March 17
April 14
May 19
June 16
July 14*
August 11*
September 8
October 6
November 10
December 8
*May be cancelled because it gets dark so late.

Times will be posted in the Blue Moon Observer and on the website:
www.doorastronomy.org

NCRAL 2018

Speakers List

Newport State Park IDA designation
Saturday 9-10
Beth Bartoli is the Naturalist at Newport State Park in Door County, our Recently designated Dark Sky Site. The designation was awarded after years of work by her, the staff of the park and our Door Peninsula Astronomical Society. She helps conduct astronomy programs at the park and states "We never tire of seeing that 'aha' moment on the upturned faces of our visitors as they gaze toward the heavens". The Wisconsin Department of Natural Resources and Newport State Park are committed to protect our dark sky through lighting projects, community education and outreach.

One Star at a Time
Saturday 10:30-11:30
Audrey Fischer works through her organization, One Star at a Tie, to create star parks in Chicago and around the world. Star parks are designated areas where the light are off or directed downward. As a Chicago native, she knows that it isn't a perfect place for stargazing, but she is working to return stars back into all cities. Audrey stated during an interview for the Chicago Tribune "Starlight belongs to each and every person in the world. A starry night gives people a reason to look up and to realize that others from around the globe share the same sky. Starlight is the path to closer understanding of our universe, each other and ourselves – and maybe it's even a path toward peace".

Near Earth Objects
Saturday 1-2
Tyler Linder is a professional astronomer supported by NSASA's Near Earth Object Observations (NEOO) research grants to track and study the Near0Earth Asteroid (NEA) population. His presentation will focus on the information that can be obtained by asteroid characterization, both through light curve analysis as well as visible and near-infrared spectroscopy. The collaboration between amateur and professional astronomers uses middle and high school students as well as undergraduate students.

Innovators Developing Accessible Tools For Astronomy
Saturday 2:30-3:30
Kate Meredith is the Education Director at the University of Chicago Yearkes Observatory in Williams Bay, Wisconsin. She is currently working on a program for students with low vision and blindness to develop image processing software. The three-year project, Innovators Developing Accessible Tools for Astronomy (IDATA) is funded by the National Science Foundation. She will explore what else we can do with invisible data that will allow everyone access to the same quality and quantity of information.

Light Polution
Saturday Evening
Kevin Poe is the Green Energy Project Manager at the National Perk Service at Bryce Canyon, Utah. He is a second-generation Park Ranger and owner of Dark Ranger Telescope Tours. Kevin calls himself the Dark Ranger to make environmental advocacy cool and heroic, and describes himself as a Planet Hugger. Teaching awareness of light pollution and understanding of the universe to people of all ages through lectures and stories is his goal.