



# THE BLUE MOON OBSERVER

## Door Peninsula Astronomical Society

PO Box 331  
Sturgeon Bay, WI  
54235

[www.doorastronomy.org](http://www.doorastronomy.org)

Meeting notes	page 1
Who We Are	page 2
Scholarships	page 2
Outreach	page 2
Elections	page 2
Poetry Corner	page 5
NCRAL Database	page 2
DPAS Board	page 3
Astronomy quiz	page 4
NCRAL2018 Success	page 4-6
Programs	page 5
Viewing Nights	page 6



The Blue Moon Observer

June, 2018  
Volume 20 Number 6



The June meeting of DPAS will be held on Tuesday, June 5, at 7 PM at the Ray & Ruthie Stonecipher Astronomy Center. The main program, “Measuring Gravity-From Newton to LIGO”, will be presented by Steve Ransom-Jones. The monthly “Learning the Night Sky” topic, “Scorpio and Sagittarius”, will be lead by John J. Beck. Note: elections for officers and Board members will be held; see page 2.

### May Meeting Notes by Barb Henkelmann

Door Peninsula Astronomical Society’s monthly meeting was held on Tuesday, May 1, 2018, at the Ray and Ruthie Stonecipher Astronomy Center. President Gary Henkelmann, welcomed everyone to the meeting. Announcements included:

- New members, John McGinnis and Lana Billeaud from Houston, and Kelly Avenson Goettelman and Elliot Goettelman
- Refreshments were provided by Pat and Dennis Meyer
- We received a Thank You letter from Jennifer Weber at Sunrise School for taking part in the STEAM Night. It was a success with about 250 attendees at the event.
- Thanks to the volunteers who signed up to help with the NCRAL Convention. 17 DPAS members have registered.
- There will be a Clean Up day on Wednesday from 9-noon to clean up the Astronomy Center and Observatory and to bring rakes to help with spreading gravel on the drive.
- The NCRAL Committee and volunteers should meet at the Astronomy Center about noon on Friday to prepare for the Conference, which starts at 3:00pm at The Lodge at Leathem Smith.

Gary introduced Steve Ransom-Jones, who presented both the meeting’s short program, “Exploring the Universe”, and also introduced the main program, Lecture 2 of the Dark Matter, Dark Energy: The Dark Side of the Universe, Great Courses video series.

### “Exploring the Universe”

Using Ursa Major, the Big Dipper asterism, and Polaris, the North star, as the starting points, Steve Ransom-Jones led us around the night sky and introduced three circumpolar constellations (visible all year round): Ursa Minor, the little Bear, Cepheus, the King, and Draconis, the snake or worm (also known as Draco, the Dragon).

Ursa Minor, between Ursa Major and Cassiopeia, has 4 reference stars. Kochab used to be a pole star and was used by the Greeks and Persians to navigate. It has a brightness of 2. Other stars useful for star comparisons are Pherkad, which has a brightness of 3, Zeta, a brightness of 4 and Eta, a brightness of 5.

Moving from Polaris toward Cassiopeia, we see a house-like shape which is Cepheus, the King. He was Queen Cassiopeia’s husband. The *continws on page 3*

## 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](http://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.

## Door Peninsula Astronomical Society Scholarships Presented

Thanks to the generosity of Dr. Ray Stonecipher, DPAS has presented four scholarships to local high school graduates for the 2018 year. The scholarships are for \$6,000 each over a four year period. Following the criteria of the donor in presenting the awards, the recipients were chosen from a list of twelve excellent candidates. Dr. Stonecipher stipulated that the applicants plan to pursue degrees in science or math.

**Ava Hitzeman** from Gibraltar High School plans to major in pre-medicine and biology at the University of Wisconsin-Madison. **Zoey Kohler** from Southern Door High School plans to study biology at Grinnell College in Grinnell, Iowa. **Nathan LeRoy** from Sturgeon Bay High School will study mathematics at St. Norbert College in De Pere. **Mackenzie Straub** from Gibraltar High School plans to study chemistry and physics at the University of Wisconsin-Madison.

### Outreach

DPAS will make 2 more telescopes available to the Door County Library with the expectation that they will be loaned through the Egg Harbor site.

There will be no viewing at Birch Creek Music Performance Center this year.

Tom Minehan has made arrangements for viewing at Newport State Park from August 10 through August 14th. Participants can come for an evening or arrange to camp an stay longer. Further details next month.

Outreach on the astronomy campus will be impacted by problems with the 14" Celestron Schmidt-Cassegrain telescope in the Leif Everson Observatory. Plans to replace the telescope are in progress. Meanwhile our public viewing on campus will be more dependent on members' telescopes, the binoculars, and our

trusty laser pointers.

Although our inflatable planetarium remains functional, updated equipment is being investigated.

### Elections

First, it is with sadness but with appreciation for his years of service on the Board and his years of reporting on the monthly meetings for The Blue Moon Observer that I announce that Mike Egan has left the Board. That opens a spot which happens to fall in line with our by-laws whereby on member leaves the Board after a 3 year cycle. The Board has approved the following slate for approval at the June general meeting:

President: Gary Henkelman  
Vice President: Dave Leniis  
Secretary: Susan Basten  
Treas: Susan Basten  
Academic Coordinator: Jim Maki  
Outreach Coordinator: Tom Minahan  
Board 3 year term: Dennis Sundin, Tom Minahan, Gary Henkelmann.

### NCRAL Database

*This is a request from NCRAL. Whether or not you want the region to have this information is up to you; failure to comply does not affect your membership in DPAS.*

### Add Your Email Address to NCRAL Member Database

Add your email address to the NCRAL member database now so that you can get direct mailings of NORTHERN LIGHTS and important and timely announcements about Regional conferences, star parties, and so forth. Your email address will never be shared with or sold to outside entities. Sign-up takes only about a minute. You'll need to provide your name, email address, astronomy club affiliation (including at-large), and indicate if you hold particular positions within your club. Go to the following case-sensitive URL to add your information to our database:

<https://goo.gl/gS8SF>

## DPAS BOARD

Gary Henkelmann, President  
president@doorastronomy.org

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, Past President and 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.



The Blue Moon Observer

## Meeting notes from page 1

brightest star is Alderamin. Delta is a Cepheid variable star. This kind of star is important in figuring distances around our galaxy. It expands from 40 to 46 solar diameters in 4 ½ to 5 days. There are 3 red giants in Cepheus: The Garnet Star, W Cephei, which is one of the largest stars in our galaxy and T Cephei.

Draconis snakes its way between Ursa Major, Ursa Minor, and Cepheus. Its brightest star, Thuban, was a former pole star from 3442 BC – 1793 BC. In 21,000 years it will once again become the pole star. The pyramids of Egypt were oriented so that Thuban shone into one entryway. Draconis has 3 binaries, Eta, Mu and Nu and the Cat's Eye Nebula. Abell 2218 is a galactic cluster. Also in Draconis is the most distant amateur object viewable with a 12-14" telescope, that of Q 1634+706, a quasar. This is about 13 billion light years away, which takes 8 ½ to 9 billion years for the light to get here. Thanks to Steve's expert guidance, we will be able to find three more constellations in the night sky. I also appreciated using Steve's notes to write this report.

### **“Dark Matter, Dark Energy, The Dark Side of the Universe”**

The Great Courses video series. Steve introduced our main program for the evening, Lecture 2, “The Smooth Expanding Universe” by Sean Carroll, PhD, from the California Institute of Technology. A quick review from Lecture 1, Steve mentioned that 25% of the universe is “dark matter”, 70% is a mysterious force called “dark energy” and the remaining 5% is ordinary matter. Einstein's theory of General Relativity deals with space time. There is a “Standard Model of Physics” which includes atoms, quarks, etc. In the last century discoveries have changed our reality of the universe... that the universe is expanding.

Dr. Carroll started his lecture stating

that our universe looks the same everywhere and it is expanding. There have been several bad analogies that have been used to explain this concept. One is a balloon with dots on it that are getting farther apart as the balloon is inflated. This isn't a good analogy because it implies there is an inside and outside to the universe. Another misleading example is raisin bread dough that when heated up, expands and the raisins get further apart. This implies there is a crust and the universe is expanding into something. He would like us to visualize the universe as it is by going outside and looking at the moon, sun and stars. Individual objects are getting farther apart and the space between them is growing. Our Milky Way looks like a cloud but thanks to the COBE (Cosmic Background Explorer) satellite photos, it appears to be a disk of stars and we are embedded in a plate shaped galaxy with 100 billion stars. Galaxies are not fixed but are orbiting and have their own gravitational fields.

One hundred years ago we thought of our galaxy as an island universe with nothing outside our Milky Way. Nebulae were fuzzy patches in a telescope. Outer space was empty. We have since discovered that the Orion nebula is another galaxy in the Milky Way and the Andromeda nebula is actually a galaxy similar to the Milky Way but outside of it.

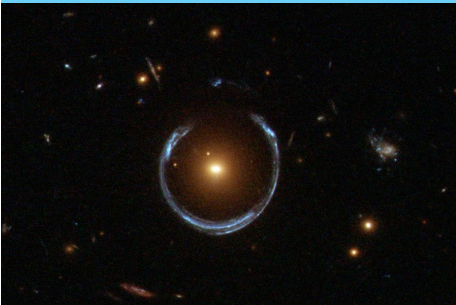
In 1925, an influential astronomer, Dr. Edwin Hubble, made some important discoveries. Better known in his early career as an athlete, he became a high school teacher and coach, studied law and Spanish at Oxford and eventually got his PhD in Astronomy. He moved to California to Mt Wilson Observatory to use the new Hooker 100" reflecting telescope. While studying the nebula Andromeda, he found that it was a collection of stars. He measured the distance between us and

*continued on page 4*



### Astronomy Quiz

1. How many named moons does Jupiter have?
2. The Whirlpool Galaxy, M51, is in which constellation?
3. A space telescope obtains images by recording data at the  $10^{-10}$  meter wavelength range. It is using:
  - a. visible light
  - b. X-ray
  - c. infrared
  - d. microwave
4. At noon,
  - a. Earth is between the sun and the moon
  - b. The moon is between the sun and Earth
  - c. The sun is between Earth and the moon
  - d. It depends upon the phase of the moon



5. The bright spot in the above image is a galaxy. What is the ring called? The ring is evidence of what?



The Blue Moon Observer

### Meeting notes from page 3

Andromeda using a “standard candle”. A standard candle takes a light of known brightness and when moved away looks dimmer. The relationship allows scientists to build a cosmic distance ladder to figure distances to the stars. Another technique was discovered in 1908 by Henrietta Levitt using Cepheid variable stars. These stars have known periods of oscillations and she calibrated certain stars to discover that a certain period equals a certain brightness. Thus they could figure out distances to other objects. Hubble studied Andromeda and its Cepheid stars and determined that it was not a nebula but a galaxy.

Dr. Carroll makes three important points:

1. The universe is really BIG. How do we know? The Hubble Ultra Deep Field Telescope took a photo of 100 billion galaxies, each with 100 billion stars.

2. The universe is getting BIGGER. Hubble was using the Doppler Effect to measure the apparent velocity of galaxies. Not only does the Doppler effect refer to the difference in the pitch of sound waves as they come closer and then further away, so do light waves appear different as they come closer (blue shifted) or move further away (red shifted). We are not in the center of the universe. Every galaxy is moving away from every other galaxy. Hubble came up with an equation,  $V=Hd$ , where  $V$  is the velocity,  $H$  is the Hubble Constant and  $d$  is the distance. He plotted the relationship of velocity to distance on a graph which resulted in a straight line. Wendy Freedman in the 1990’s discovered that 72km/sec/Mpc (a parsec is 30 trillion kilometers). Now velocity measurements can be determined.

3. The universe is “SMOOTH”. On a large scale the universe has the same basic properties everywhere allowing us to apply principles to the whole universe. The Sloan Digital Sky Survey discovered hundreds of

thousands of galaxies in every direction and it also showed clusters of galaxies on a smaller scale.

Dr. Carroll mentions going back in time to the Big Bang when everything was on top of everything else and density infinitely large. Will the universe keep expanding or start contracting? Einstein’s theory of General Relativity and Hubble’s observations on the expansion of the universe will take us into the next lecture in the series. Thanks to Steve for loaning me the DVD to review Dr. Carroll’s lecture. My notes made more sense after having a second look.

---

### NCRAL Convention Draws a Crowd and Acclaim

By Gary Henkelmann

DPAS hosted the 2018 Convention of the North Central Region of the Astronomical League (NCRAL) on May 4-5, with 75 participants and guests registered from 17 of the Region’s 43 astronomy clubs. The event featured presentations by professional astronomers, activists, and scientists who entertained the assembled enthusiasts to engrossing lectures from asteroid hunting to “seeing” the stars by the sightless. DPAS was well-represented at the meeting, with 18 of our members partaking in the talks, NCRAL business meeting, and banquet at the Lodge at Leathem Smith. The Leif Everson Observatory and Stonecipher Astronomy Center were both open for tours and planetarium shows Friday night, and then the telescopes and binoculars came out for hours of clear sky viewing.

Perhaps some of the comments received from the attendees can sum up the degree to which the program was a success:

“This was a great conference and wanted to pay you folks a compliment on everything you did. It was *continued on page 5*



## Poetry Corner

Come Walk with Me  
By Jean Napp

Come walk with me tonight, my dear;  
We'll leave the hearth fire burning.  
We'll wrap up snug and brave the cold--  
We'll not be late returning.  
We'll pass through pine groves dark and still  
To reach the treeless prairie  
Where ancient stories 'bout our heads  
Cause us to gaze and tarry.  
The twins are hiking side by side.  
A long-horned bull is prancing.  
Three kids rest sweetly by their doe  
Near seven sisters dancing.  
Our winter friends will be replaced  
By springtime stars, west creeping:  
The lions stalking near the pond;  
Gazelles, alarmed, thrice leaping.  
The slinking water-serpent slips  
Along the tree tops gliding;  
The crow and goblet on its tail  
Haphazardly are riding.  
Soon rising in the east so bright  
The hook where hangs the lyre  
Predicts tall tales of centaurs, whales,  
And sea goats told 'round fires.  
Reluctantly t'wards warmth we'll turn,  
Our hurried gait belying  
Deep yearnings to go back and watch  
The eagle and swan flying.

*The above poem, used by permission of the author, was the prize-winning submission to NCRAL 2018.*



The Blue Moon Observer

*NCRAL acclaim from page 4*

also a great way for me to do some networking and see a beautiful part of the country I haven't been to in a while. Anyway, as our team is getting going on the details of NCRAL 2019, I just wanted to say "thanks" for providing a nice example for us to follow." *Alan Sheidler, Popular Astronomy Club.*

"Thank you to the entire committee. It was a very successful event." *Marji and Dan.*

"Thank you for a fun weekend. You guys did a great job." *Lynda Schweikert.*

"Sunday morning I spent an hour at the observatory ground and was truly delighted with what I saw there. I especially love the raised seating — to encourage folks to lay back and enjoy the sky. The sundial was beautiful, too— and it works! Some others came out, too, while I was there, to take a look at the grounds during the day. It is evident that a lot of TLC is given to this site! I can only imagine the numbers of people that DPAS has helped connect people to the stars. Thank you for that! Cheers+stars" *Audrey Fischer*

"I'm writing today on behalf of the membership of the North Central Region of the Astronomical League to express our deep appreciation to the members of the Door County Astronomical Society for hosting the Region's annual meeting, NCRAL 2018. I saw many wonderful ideas worthy of emulation by other clubs including my own. I noted and hereby acknowledge the great expertise shown by Jacque Axland and the conference planning committee. I commend her and her fellow planners for the leadership, foresight, and selflessness — all prerequisites for operating a successful meeting. I expect to see NCRAL 2018 at Sturgeon Bay remembered for the time and place where we started to make a dent in re-vivifying amateur astronomy in the North Central Region of

the Astronomical League."

*Carl J. Wenning, Chair (2017-2019)*

As for me, the hands down best highlight of the conference came from a quiet-mannered, soft-speaking graduate student who blew us away with his expertise and self-assuredness. Tyler Linder works out of his basement in Sullivan, Illinois, splitting his time working for a PhD in Astrophysics at North Dakota and as a NASA contractor (operating telescopes in Chile) to find and catalog the orbits of Near Earth Object (NEO) asteroids. He offered that he needed us as translators to explain his science-speak into English for the rest of the country, so we can all understand the importance of his efforts. Apparently, it would be a good idea to know where all of these planet-killing rocks are and where they are going. Armed with this information, a threat to our existence from an asteroid strike could be averted with technology we have today, but only if we can detect the threat soon enough to intercept it. Nothing nuclear, just a nudge. Tyler is a modest and sincere professional whose communication skills far exceed his self-assessment, such that he really doesn't need us to convince others of the value of his work, but he's so busy being one of the World's leading asteroid hunters that it would really help him if we pitched-in a little bit.

---

### Programs for the rest of 2018

July: Video: Space, Time, and Gravity

August: Atmospheric Physics of the Terrestrial Planets

September: Video: Cosmology in Einstein's Universe

October: Black Holes

November: Video: Galaxies and Clusters

December: Video: Gravitational Lensing

In addition, the monthly series is "Learning the Sky and Constellations"

## Astronomy Quiz Answers

1. Fifty three are named; an additional 16 have been detected and await confirmation.
2. M51 is in Canes Venatici.
3. b. X-rays are in the  $10^{-10}$  meter wavelength range.
4. d. When the moon is full, Earth is between the sun and the moon. This is especially obvious during a lunar eclipse. During a full moon, the moon is between Earth and the sun, especially obvious during a solar eclipse.
5. The ring is called an Einstein's Ring. It is caused by gravitational lensing of a galaxy far more distant than the one in the center of the ring. It is evidence of Einstein's General Theory of Relativity.

## Viewing Nights 2018

June no viewing night  
 July no viewing night  
 August 11\*  
 September 8  
 October 6  
 November 10  
 December 8

Times will be posted in the Blue Moon Observer and on the website:

[www.doorastronomy.org](http://www.doorastronomy.org)

Also from Carl Wenning, posted on our Facebook page:  
 North Central Region of the Astronomical League - NCRAL  
 May 7 at 3:58pm ·

We had a great time at NCRAL 2018 in Sturgeon Bay, WI, this past weekend. More than 60 were in attendance from 14 NCRAL-affiliated clubs. There were great talks, great meals, two nights of great viewing from a great location. If you missed it, you'll have to wait for the summer issue of Northern Lights to learn more. Below are just a few images that I happened to take; it was too busy to take more.

Thanks to the Door Peninsula Astronomical Society for hosting this great event!

Carl J. Wenning, NCRAL Chair (2017-2018)



Then this from Pat & Dennis Meyer:

Being relatively new to DPAS, we were asked to comment on the recent NCRAL conference which we attended. Not having followed astronomy very closely there may have been a little hesitation on the value for us attending such an event, but once it started we found it very engaging. The theme of Dark Skies for Bright Stars is of importance for everyone, not just astronomers.

It was interesting to learn the effects of lighting on us and the environment, besides just lowering the visibility of the stars. Having a resource like Newport Beach State Park for dark skies is something we have a greater appreciation for now and we all should all take more advantage of it. The tracking of asteroids was another topic of interest and the current efforts on what is being done, and how, was very informative. It is somewhat comforting to know there are no asteroids on a collision path with the earth in the foreseeable future. One of the best parts was being able to visit with the people from other clubs as well as our own members.

As a final note, Einstein was quoted as saying, "If You Can't Explain it to a Six Year Old You Don't Understand it Yourself", in which case, we would say the presenters understood their topic very well. We enjoyed the conference, just don't ask us to explain it.

**Note: The July general meeting will be held on July 10 rather than on July 3 to avoid conflict with Independence Day activities.**