

THE BLUE MOON OBSERVER

MARCH, 2017

The March general meeting of the Door Peninsula Astronomical Society will be held on Tuesday, March 7 at 7 PM at the Ray and Ruthie Stonecipher Astronomy Center.



**Door Peninsula
Astronomical Society**

Mailing Address:

P.O. Box 331

Sturgeon Bay, WI 54235

Meeting notes	page 1
Who we are	page 2
DPAS Board	
Viewing nug	page 3
Astronomy quiz	page 4
Poetry Corner	page 5
Coming Events	page 6

Notes from our Meeting: February 7, 2017

There were seven of us present at the meeting. They were so few, I'll name them: Dave U, Dave L, John, Tom, Roger, Mike, Dennis. Actually, Jim T came with fifteen minutes to go - we thought it was the cops, checking on the activity going on, but, no, it was Jim. I think he came for the cookies.

This was the second airing of the show, and so, yes, we few, we lucky few, had the original "opening" down to ourselves. It was on ***time and time travel!*** The three assistants, Norman, Marisol and Paul, were back - their "first showing". And it all started in upper Manhattan, like 43rd and Broadway, with a big picture of Stephen Hawking on a corner building and three numbers to give directions: 48, 11 and 16. They quickly figured out the clue and started walking toward 48th Street

and 11th Avenue and then up to the 16th floor, where a party was to take place. Greg Radnick was introduced, a scientist, and Descartes was on a bed looking up and watching a fly. All back and forth movements of the fly were translated quickly into descriptive coordinates, and then he let the fly "fly", and up and down became another factor, and such was the birth of the Cartesian coordinate system. Time became a dimension that a traveler travelled through: space-time described the event and not just a place: space-time, unified. The show became the timing of the party: the place was right, but the show was over, and all there were were the left-overs of the party that was. Space-time was celebrated with the remnants of a bottle of champagne.

The next frame showed the three transported to a place out west:
continued 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, a weather station housed in the observatory with current readings 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 an object through the same binocular.

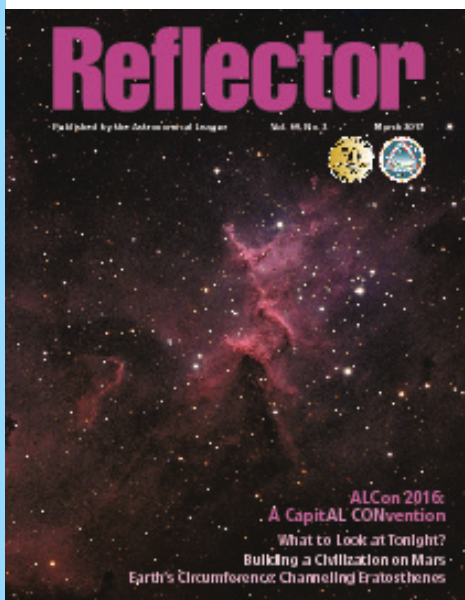
The Ray & Ruthie Stonecipher Astronomy Center, shown on the right at the top of this page, provides for storage, projects, meetings, warm-up and toilet facilities. It also houses a StarLab, an inflatable planetarium with a sophisticated projection system. The planetarium is available for group presentations.

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. Set your GPS to 2200 Utah.

From our ALCOR, Gary Henkelmann: The Astronomical League has created a new Observing Award for the 2017 Solar Eclipse.

"2017, the year of the North American Eclipse is here. The path of totality will pass through the middle of the United States, beginning in Oregon, and ending in South Carolina on August 21, 2017. For those fortunate enough to live along the path, or those who have planned ahead and are traveling to the path, there is a rare opportunity to experience a Total Solar Eclipse. The path of the partial solar eclipse is wide and will be visible to many more people in North America. To commemorate the event the Astronomical League has adopted a Special Observing Award. This Award will be similar in style and effort to the Mercury and Venus Transit Special Observing Awards. And like those awards, this is an opportunity for Astronomical League members to relive the excitement of the efforts of scientists past." For more info, see the AL website.



The Astronomical League Magazine, The Reflector, is available in e-format.

In this issue:

- A CapitAl CONvention
- What to look at tonight
- Building a Civilization on Mars
- Earth's circumference - Channeling Eratosthenes

Download this issue in single page format at <https://www.astroleague.org/reflector/file/12092/B581O004O816Y272L460>

Download this issue in double page format at <https://www.astroleague.org/reflector/file/12093/B581O004O816Y272L460>

You may update your profile information, access current and past issues of the Reflector, get your Celestial Savings Discount codes, and view other member's only content at the AL members website <https://members.astroleague.org> To request an account visit URL https://members.astroleague.org/request_account and enter your email address. An email should be sent to you within a few minutes with instructions and a link to create your account.

NCRAL this year is to be held April 21-23, hosted by the Rochester Astronomical Society. Details are available at:

https://ncral.files.wordpress.com/2016/12/northern_lights_winter_2017.pdf

Keep in mind that DPAS will be hosting NCRAL in 2018. Details to follow. There will be plenty of opportunities for members of DPAS to play a role in the planning and execution of this important event.



DPAS BOARD

David Udell, President
president@doorastronomy.org

Thomas Minahan, Vice President and Board Secretary

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

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

John W. Beck, Webmaster

Gary Henkelmann, ALCOR*

Jim Maki, Curator

Mike Egan, David Lenius, and Jacque Axland, Members at Large

Ray Stonecipher, in spirit

*ALCOR is the acronym for Astronomical League Correspondent.

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 scheduled for 4 PM on Monday, 8 days prior to the following general meeting, at the Astronomy Center.

Meeting notes from page 1

and on a parking lot with three lanes, labeled forward, back and forward, and they watched themselves traveling back and forward at the same time with three identical vehicles. They demoed that you couldn't go back in time: time is all one way. Then they found themselves at a University where there was a large black balloon that became an *ersatz* black hole and they had little golf carts in which they could go around the black hole. In one cart, with Marisol and Norman, they had a timer, which was synchronized with other timers off-set from the one in the cart. Einstein saw that the presence of mass warps the surrounding space: time passes at different speeds depending on how strong gravity is. And they were traveling at a time out of synch with the other timers ... it took them less time to move at a faster rate than the other cart going around. The question proposed was whether you could travel to the future, seeing that time is weaker as you go faster. Something like that - I'd have to watch it again. Now the question was different: in the distance was a mountain, with the top of the mountain used as a base for an observatory. That base was further from the center of mass of the mountain. The demo to follow as to show that the higher one goes up the mountain, the weaker time is. Another scientist, Tom VanBrock, interceded for this demo. He was at the top of Mt Lemmon, waiting to greet the travelers in the car coming up the

mountain to meet him. And, *voila*, at the top of the mountain, measured to be 9091' high, they were 20 nano-seconds slower than the instrument at the bottom of the hill, and therefore younger. Back to NYC and the lingering questions, could you get to the future by altering speed?

Thankfully, cookies, made by Dave U, and with juices alongside, were there to save us from speculation: it took me three to get back to reality of the top of Observatory Hill, and thoughts of TS Eliot's, "the end is where we start from" walked me out the door.

Mike Egan

Viewing Nights 2017

March 25

April 29

May 27

June—none*

July—none*

August 19 at Whitefish Dunes State park

September 23

October 21

November 28

December 16

*Except for a viewing night to follow a Birch Creek performance, viewing is not scheduled in June and July because it gets dark so late.



Astronomy Quiz

1. Voyager I and Voyager 2 were launched almost 40 years ago. Their current mission is the VIM. What does VIM stand for?
2. In 2004, Voyager 1 passed through the feature where the supersonic solar wind becomes subsonic. That feature is known as the _____.
3. The next milestone will be when Voyager 1 passes through the heliopause. So currently it is in what phase of the mission?
4. Once Voyager 1 passes through the heliopause it will be in what environment?
5. Prior to the VIM, Voyager 2 passed by which planets?
6. Voyager 1 is escaping the solar system at about _____ AU/year.
7. Earth is partially protected from solar wind by its magnetosphere. Which planets do not have a magnetosphere?

Solar Eclipse Field Trip

DPAS' Trip to the Great Total Solar Eclipse is rapidly approaching, and we've had a great response from our members. We are currently expecting 24 participants to show up at the St. Peters Drury Inn, and still have room on our expanded block of rooms for many more. If you have been thinking about it, but haven't made up your mind and need encouragement, read the article below.

Gary Henkelmann is coordinating the event for DPAS, so contact him at alcor@doorastronomy.org with any questions about lodging or to arrange possible ride-sharing to and/or from the St. Louis area. You can also leave a message at (920) 824-5323.

From explorestlouis.com:

Total Solar Eclipse to Shadow Parts of Missouri

For nearly 13 minutes on Mon., Aug. 21, 2017, Missourians in a 70-mile swath stretching catty-corner from St. Joseph in the Northeast to Cape Girardeau in the Southeast will witness the totality of the moon obscuring the sun, otherwise referred to as a total solar eclipse. Totality will last anywhere from a few seconds

to 2:39 depending upon a viewer's specific location. During that time, darkness will fall, temperatures may drop 10-15 degrees, breezes may vanish, insects will come out, stars and planets will be visible, and if one lives on a farm, the animals may head toward the barn.

This will be the first total solar eclipse to touch the United State since 1991 when one occurred in Hawaii, and the first coast-to-coast across the southern U.S. since 1918. The last time a total solar eclipse occurred in the greater St. Louis area was 1442. St. Louisans can expect the next one in 2505.

Eclipse-chasers from around the world are expected to converge in St. Louis and the areas beyond as about half of both Kansas City and St. Louis lie within the patch of totality. Consider that more than 43 million people live in large metro areas outside of the totality path where St. Louis is the closest large city, making St. Louis a main destination. Hotel rooms will be at a premium during the period and travelers are encouraged to book their accommodations and travel plans in advance to ensure the best possible experience.

Poetry Corner

Hymn to the Night

Henry Wadsworth Longfellow,
1807 - 1882

I heard the trailing garments of the Night
Sweep through her marble halls!
I saw her sable skirts all fringed with light
From the celestial walls!

I felt her presence, by its spell of might,
Stoop o'er me from above;
The calm, majestic presence of the Night,
As of the one I love.

I heard the sounds of sorrow and delight,
The manifold, soft chimes,
That fill the haunted chambers of the
Night,
Like some old poet's rhymes.

From the cool cisterns of the midnight air
My spirit drank repose;
The fountain of perpetual peace flows
there,—
From those deep cisterns flows.

O holy Night! from thee I learn to bear
What man has borne before!
Thou layest thy finger on the lips of Care
And they complain no more.

Peace! Peace! Orestes-like I breathe this
prayer!
Descend with broad-winged flight,
The welcome, the thrice-prayed for, the
most fair,
The best-beloved Night!

Exploring Our Celestial Neighborhood

As many government space agencies and some private companies plan manned missions back to the moon and to Mars it offers the opportunity to look at the sequence of missions that have lead up to it.

Exploration of our solar system by planetary scientists is in many ways like searching for a new house when we relocate here on earth. We start with observations and gathering information. We now use the internet and tools like Google Maps and Google Earth to get an overview of the area. Then we get in the car and take a drive. If an area looks promising we may then drive around -- "orbit" -- an area, looking at schools, parks, shops and other things. Finally we get out and explore on foot, visit a house, and observe and gather as much information as we can.

For NASA the sequence of missions to the moon, or any of the inner or outer planets followed a deliberate plan. Initial observations were made with earth based telescopes and space based telescopes. Then a "flyby" mission was planned. Send a spacecraft with instruments and enough fuel to just flyby the planet, take photos, measure size, mass, chemical make-up and gather as much information as possible on this brief encounter. Examples of flyby missions include the early Mariner missions to Venus and Mars, the Pioneer missions to Jupiter and Saturn and most recently

the New Horizons mission to Pluto.

Next in the sequence is an "orbiter." These space craft require just as much fuel to slow down when attempting to be inserted into an orbit around a planet as they do to accelerate to get there! They must also be more robust and durable to withstand the orbital insertion, the additional time in orbit, and sometimes radiation or magnetic fields. All the while they are transmitting photos and data back to earth. Examples of "orbiter" spacecraft are the Messenger mission to Mercury, Magellan mission to Venus, Mariner 9 to Mars, Cassini to Saturn and the current Juno orbiter to Jupiter. The Juno spacecraft requires its electronics be housed in a 1 centimeter thick titanium vault to protect it from Jupiter's intense radiation!

After orbiter missions or sometimes as part of an orbiter mission a "probe" is sent directly to the planet. Again sensors and cameras are used to observe and gather information regarding the planet's atmosphere, makeup and density and all the other information that scientist try to gather. Probe missions include Pioneer 13 to Venus, the Vega – Venus Balloon, and the Huygens probe to Saturn's moon Titan carried by the Cassini spacecraft.

Landers and rovers make up the next in the sequence of missions and have an amazing history of exploration.
continued on page 6



Astronomy Quiz Answers

1. VIM stands for Voyager Interstellar Mission.
2. The Termination Shock.
3. Heliosheath exploration phase.
4. The interstellar wind.
5. Jupiter, Saturn, Uranus and Neptune.
6. Voyager 1 is escaping the solar system at about 3.6 AU/year, with AU standing for Astronomical Units, or the mean distance between Earth and our Sun.
7. Venus and Mars are not enveloped by a magnetosphere. Mercury, Earth, Jupiter, Saturn, Uranus and Neptune each possess a magnetosphere.

Exploring from page 5

The Russian Lunokhod rovers on the moon and rovers on Mars include Sojourner in 1997, Spirit and Opportunity in 2004, and still operating since 2013 is the Curiosity rover. Landers and Rovers carry instruments that are absolutely critical for future manned missions. They measure not only with visual cameras but with a variety of spectrometers for measuring x-rays and chemicals as well as radiation detectors, environmental sensors and atmospheric sensors. All of that data provides planetary scientist to plan for manned missions and what human explorers will need to take to protect them to survive but also what the planets environment can provide to them during their stay.

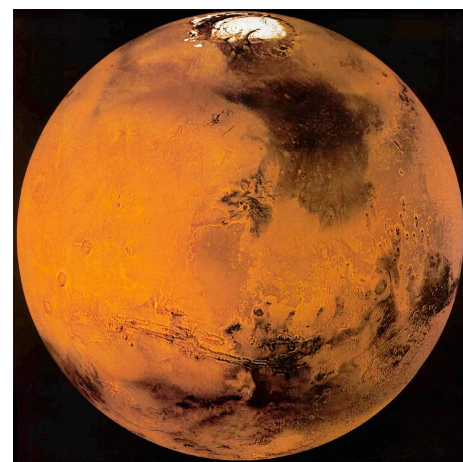
Each mission is built on the information gathered from the previous missions and manned mission are the final step in exploration. Manned missions are able to gather the most data and samples in the shortest time compared to Landers and Rovers. And future manned missions of longer duration are developed based on this information. They are also the most costly due to size of vehicle and the amount of items and technology required for life support.

Humans are explorers by nature and exploring space and our solar system are the part of our quest for knowledge and understanding. Manned missions to Mars are being planned while rovers are gathering critical data.

If you are interested in the current status of planned missions to Mars come to the March 7th meeting of the Door Peninsula Astronomical Society at the Stonecipher Center at 2200 Utah St. Or join us for the next viewing night at the Observatory on Feb 25th.

Dave Udell

The preceding article was published in the Peninsula Pulse in February and used by permission of the Peninsula Pulse and doorcountypulse.com.



Mars

