



NEWSLETTER

Summer 2016

RITTENHOUSE
ASTRONOMICAL
SOCIETY

Founded 1888 WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG

MONTHLY MEETINGS OPEN TO THE PUBLIC

7:15 PM

The Franklin Institute

20th Street and Benjamin Franklin Parkway

Upcoming Meetings/Events Include:

Upcoming Astronomy Events



August 06, 2016: 7:30 p.m.
Public Star Watch at Batsto Village NJ. (Wharton State Forest.) Information posted at West Jersey Astronomical Society. Rittenhouse members team with West Jersey members for their public star watch.



SEPTEMBER 9, 10, 11 / 2016
Wyoming High Country Lodge Star Party
The Closest you can stay to Medicine Wheel! Bighorn Wyoming has some of the darkest skies in the nation. Join Ted Williams (VP. RAS) as he returns to WHCL as a featured speaker 2 miles from Medicine Wheel. This historic mystical site is a featured visit during your weekend stay at the Lodge.



SEPTEMBER 14, 2016
Membership convenes for 2016-17 academic year.
All meetings are open to the interested public, Collegiate students are encouraged to attend.

RAS Year in Review

~Denise Vacca

It's been another wonderful season for RAS. We've had a lot of fun and learned from many great speakers over the last ten months.

It all started in September with John Ashley. He wowed us with his beautiful astrophotography from Glacier National Park. I think of him every time I look at my autographed calendar & book of his brilliant work. Visit his website www.johnashleyfineart.com to see for yourself.

A big "Thank You" to our member, Fern Culhane, for reaching out across the country to find us such a fantastic presenter.

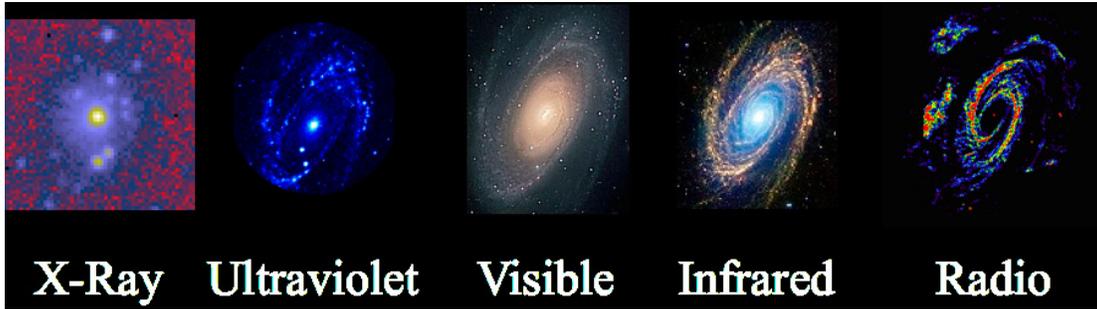
In October, we welcomed Dr. Emily Rice. I'm always excited when we have female scientists present at our meetings. Dr. Rice expanded our minds through her research of Brown Dwarfs, Exoplanets and Low-Mass Stars proving that even difficult concepts, such as astrophysics can be educational and entertaining.

As a treat in November, We were privileged to host two very excellent speakers, Eric Briggs of Spitz and Joseph Depasquale of the Chandra X-Ray Observatory.

Without planning, the two speakers complimented each other nicely by speaking about finding Supernova and then imaging Supernova as well as other deep sky objects in wavelengths other than the visual spectrum.

We had some special all dome images of the newest Chandra targets. I heard lots of "oooohs & aaaahs" from the audience.

With December came some of the warmest weather and one of our "warmest" speakers, Keith Johnson of Rowan University's Edelman Planetarium. Many of us have known and worked with Keith over the years and it was a great treat to hear about his life as an astronomer. Keith is retiring, but even though he won't be under his planetarium sky anymore, I'm certain he'll spend all that free time gazing under the real sky.

*Spiral
Galaxy
M81**Displayed
under
different
wavelengths*

X-Ray Ultraviolet Visible Infrared Radio

The New Year rang in 2016 and with it, a special Saturday night meeting in January to once again honor one of our favorite presenters, Dr. Robert Nimiroff of Astronomy Picture of the Day. All I can say is, "WOW"

We all really love seeing the photos on a daily basis online but Dr. Nimiroff shared with us the very best of the past 2 years and among them were some super fantastic pictures of Pluto. It's pretty cool to think that we are the first generation to actually see what Pluto looks like. And it is BEAUTIFUL.

Dr. David Bradstreet has been with us before so it was so nice to welcome him back in February. His wit and charm had the audience laughing while learning about Binary Stars. His graphic representations really helped everyone understand the dynamics of the pairs no matter what level of astronomy education they possessed.

If you thought private space travel is only a thing of science fiction, think again. In March, Greg Kennedy of the Nastar Center, right here in Southampton, PA, showed us that we could be traveling into low Earth orbit in less than 25 years. I'm ready to book a flight, how about you?

The Philadelphia Science Festival happens every April and as is our tradition, Dr. Derrick Pitts, joined us to excite & inspire everyone for City Wide Telescope Night. He also updated us on the Thirty Meter Telescope and a possible primo viewing location for the August 2017 Solar Eclipse.

At the 2015 Philly Science Carnival, Ted and I met this year's May speaker, Roger W. Kennedy of the Albuquerque Astronomical Society. He had some tremendous photos of the Sun on display. We were happy he agreed to share some of those with us this year.

Our last meeting of the season falls each June and we sum things up with a truly fun members night. RAS members take a few minutes to discuss what astronomical things are on their minds.

With so many great speakers, it's even more amazing to add that just about each meeting also held an observing session guided by Ted Williams. He has shown me more ways to find deep sky objects than I can remember. He always shares some simple technique to easily jump our way through globular clusters, galaxies and other deep sky wonders.

I don't want to forget everyone else who has presented, educated or entertained us this past year. Renee, Dave, Dan, and all the other Board Members/Members at Large, who help make each month's meeting special.

And lastly, our meetings are so fun because we get to share them with you, our members. Thanks again for such a great season and I can't wait to see you all in September 2016

Clear Skies!

*Jupiter and its four Galilean Moons**The Sun through an Hydrogen Alpha Filter*

City Wide Telescope 2016 Reports

Report from Lynn King

Wayne and I had a wonderful time. Couldn't tell how many people, but those that came early stayed until the end. One young man was very enthusiastic all evening. We had time to spend talking and pointing things out. Jupiter put on a wonderful show. Loved watching one of the moons start out close then move away.

Looking forward to spending time with our new friends at Grumblethorpe next year.

Report from Dave Walker

With the help of Manny Lim and Chuck <Young> we were set up with our telescopes at Laurel Hill Cemetery. Laurel Hill is beautiful in the Spring as the golden evening lit the pinks and reds of the dogwood trees and azalea bushes among the stone monuments.

The weather was clear but got chilly as the Sun set.

There was time for limited Solar viewing before the Sun disappeared behind the tree line; one Earth sized Sunspot was visible.

A crowd of about 50 had arrived by Sunset and were greatest and given an overview of what was to come.

Between the time the Sun disappeared and the arrival of darkness the growing audience was introduced to the concepts of how the stars work, what planets were, the changing colors of the evening, and engaged the presenters with a variety of questions about the universe. The youngest ones especially!

The first challenge was to see who would see what first. Would it be Jupiter high over head? Would it be one of the Winter Circle stars; Sirius, Betelgeuse, Rigel, or Aldebaran?

Many were already prepared with star maps and a hit list of things they wanted to see: the Geminid meteor shower, Jupiter, the Moon (maybe, if we're lucky), Mars, and even rockets!

Jupiter was the first to appear and telescopes were swung to. A crowd of nearly one hundred lined up to see the giant and the three visible of its four Jovian moons. It wasn't long before some sharp eyed viewers we calling out "another Moon!" As Io appeared out of eclipse.

Most had a chance to view by the time the Winter stars came out low on the horizon. Viewers were amazed by the scintillation of Sirius; particularly vivid because of its low position and local turbulence.

Alas, due to haze and glare on the horizon the Pleiades were absent.

But spacecraft weren't!

The view was shifted to the Big Dipper in time to see two passes between 8:20 and 9:00 right through the handle. Many oh's and ah's and bright young eyes trying to figure out if her saw an airplane or a spaceship.

The importance of the Northern sky, and the agricultural portent of the Plough, Arcturus, and Spica were explained before moving on to find Polaris.

The crowd was thinning as young families headed to bed and the Moon rose through the trees. It was just starting to be clear of obstruction when the site was closing down; the last remaining ten to twenty stragglers love they sight of its orange face.

With four RAS telescopes, plus two site loaners from the Franklin Institute we could use a couple of extra hands in the future..

Report from Mike Atwell

Checking in From Jenks Elementary School in Chestnut Hill (Anne and Joe Lamb, Robbin and Mike Atwell):

Our team had planned to support a "Discovery Days" event (specific to Jenks – but makes good use of the general awareness of Science Festival week) with solar observing on Saturday. But as you know, we couldn't do solar because of rain. Bummer...for all. But the weather gods smiled upon us and the evening was nice and clear. We roughly estimated over a hundred evening visitors in total. The attendees were a nice mix of parents and kids. Some were very well versed on solar system facts, others had more to discover and were excited just to look through a telescope. Great fun...

Anne and Joe brought a 10" reflector on a GEM, and Robbin and I brought an 80mm refractor on a push-to mount. It was a bit of a physical challenge because there was no parking held for us, but we did find street parking. The "observing site" is about 100 yards from the nearest street parking. Fortunately, there were volunteers that helped carry some of our gear to the schoolyard. Holding parking for the telescope staff is a "development need" at Jenks for 2017.

We had very long lines, though none of the attendees fussed about the wait, as the views were quite good through both scopes. We observed from the concrete schoolyard / basketball court area of the school property. It was nice as the school building on the east and trees on the west side helped block some of the winds that challenged other observing teams – like on the Battleship New Jersey. We mostly observed Jupiter, but took a couple of detours to Alcor and Mizar as well as Betelgeuse for a bit of stellar

color. Objects in the far west are obscured by trees (like the Orion Nebula) and that can't be helped. The moon was obscured in the east by the school building. So I would coach future observers at Jenks – prepare a short list of objects that will be visible more than 35 degrees above the horizon.

There was a good group of volunteers that staffed an information table and that passed out the Science Festival schwag – red lights, maps, etc. Kudos to them.

Thank You for City Wide Telescope More Linked than you Think

~Derek Pitts, Chief Astronomer
Franklin Institute

Fellow City Wide telescope volunteers had a night with weather that really turned out well for us, even though the breeze did come with a chill! But the sky was clear and our audiences, perhaps diminished by the change in date, came with great anticipation about viewing the sky.

Thank you all so much for volunteering time to share your knowledge and enthusiasm about astronomy, pulling the Philadelphia region together into one giant star party. Twenty-eight locations hosted events last night and they could not have become the 'astro center' of their community for the evening without your help. On behalf of the location hosts, the Philadelphia Science Festival and The Franklin Institute, we thank you for your participation in this year's program. It was awesome!



Philadelphia Science Festival Thank You!

~Jamie Collier

Director of Volunteer Programs
Franklin Institute

Dear Philadelphia Science Festival Volunteer,

Thank you for dedicating your time and energy in making the 6th annual Philadelphia Science Festival a huge success. Your professionalism and enthusiasm made each and every event special for both the host organizations and the participants—we cannot thank you enough.

The 6th annual Philadelphia Science Festival was held from April 22-30, 2016. The 90+ events that took place touched a record number of Philadelphians! We are proud to report that approximately 45,000 people transcended upon the Great Plaza at Penn's Landing for the Science Carnival on Saturday, April 30. Initial evaluations for the event are extremely positive, which is very likely due, in part, to the positive attitudes our amazing volunteers and staff exhibited throughout the especially memorable day.

Please know how much we value you and realize that we could have never reached so many people throughout the city, inspiring them with a renewed love of science, without your help. With 290 people contributing over 2000 service hours, volunteers were instrumental in making the Festival a grand success.

Gerri Trooskin, Festival Director, had this to say. "It would literally not be possible to have a celebration of this size without the volunteer support we receive each year. Volunteers continue to play a crucial role in Festival operations. Their consistent energy, enthusiasm, and willingness to jump in and help out with just about anything continue to be vital to the success of the festival. I cannot possibly thank each and every volunteer enough for everything they helped us to accomplish during the 2016 Festival."

Mark your calendar—the 7th annual Philadelphia Science Festival will take place during April 2017! We will be in touch with exact dates as more details unfold over the course of the coming months.

On behalf of the Philadelphia Science Festival, The Franklin Institute, and the many Festival partners, we thank you for volunteering your time and making the 6th annual Festival memorable for all.

Society Business

Election of New Officers

At the June Board Meeting of Rittenhouse Astronomical Society, new officers were appointed. The officers for RAS are now as follows:

President - Ted Williams
 Vice President - Denise Vacca
 Secretary - Dave Walker
 Treasurer - Dan McCormick

Current Board Members are:

Fern Culhane - Registrar
 Eric Carter - Astronomical League
 Ruth List - Newsletter Editor and Historian
 Mike Mountjoy - Institute Technology Advisor
 H. Alfred Ryan - Public Outreach
 Renee Stein - Educator

In addition to appointing new officers, the Board finally came to agreement on new By-Laws for our Society. The verbiage of the old by-laws no longer matched our group's focus and operations. Many by-law samples were scrutinized and after much deliberation were finally agreed upon and passed by the board. A copy of the by-laws can be found at the following link:

<http://www.rittenhouseastronomicalsociety.org/Downloads/RAS%20Bi%20laws%206-13-16.pdf>

Staying in Touch

~Dan McCormick

Starting this month, we will be introducing our new website address! This address will primarily be used for press materials but will also include shortcut links to our main site and Facebook page (<http://www.facebook.com/RittenhouseAstronomy>). Don't worry, our current address will continue to function so if you have it bookmarked no need to worry there. The nice thing about our new address is that it is quick, short and easy to remember. So the next time you are online go to your web browser and take a look at <http://www.rasphilly.org> ... This will bring you right to our new landing page with handy shortcuts. So enjoy, and tell your friends about our new link!

New Ways of Renewing

~Dan McCormick

This past year our society has been going through a lot of changes making things easier for everyone. If you remember, this past membership year we started to accept payments electronically for existing members via PayPal on our members' site. After this initiative we received great feedback because it was much more convenient for members to renew their dues.

After this exciting change we decided to adapt another great way for you to sign up. We will now be accepting Credit or Debit cards instantly at our meetings. Membership types include: student, regular and premium (for those would like to offer additional support). If you would like to make donation of any amount to the society (non tax-deductible) we can process this, too! We can sign you up right on the spot with no fuss. Once signed up, you will become a member in good standing for that current academic year. This is a win-win for everyone because there will be no delays in processing your dues and it will help us keep a much more accurate database.

Secondly, after we process your dues we can email you a receipt all from an iPad. The society is doing this securely over the Square app. This is an easy to use app that links directly to our bank account and has been used widely by independent shop owners and other organizations. Of course, if you still wish to pay by Check this will always be an option. Please let us know what you think of this new membership signup method. Any questions, please email membership@rasphilly.org.



RAS History Tidbits

~Ruth M List

As some of you may know, Rittenhouse Astronomical Society published a book in 1960, which we commonly call our "Blue Book". This book recorded the history of our society from 1888 - 1960. Some of us became concerned that the history of our society is about to be lost after that date until the present time, unless some action is taken. A "Blue Book" committee was formed and we have been meeting to explore and research many historical paper artifacts which we received from our Past President, Dr. Milton Friedman upon his death, in the hope of creating a second volume to this book.

The original "Blue Book" is available in PDF version on the main Rittenhouse Web Site, look under the picture of David Rittenhouse for a link to "All about RAS" on that next page under the picture of our first President, Mr. Edmund Elliot Reed, Jr., you will find the link to the first book.

So, I thought it would be fun if on occasion when we run across an item of interest, that I might highlight the item in a newsletter. Here is this first submission:

The following parody was composed before 1890 to help children learn some facts about our solar system - you will note at this time Saturn was the last known planet and Jupiter was thought to have only four moons. The last two verses were added recently by H. W. Cornell. (A November 1968 document in our files.)

Hi diddle diddle,
The Sun's in the middle,
And around, in procession so grand;
The planets all go,
Some fast and some slow,
Through the Zodiac circle or band.

Hi diddle diddle,
The Sun's in the middle,
And Mercury's not very far;
Then shining so bright
With soft lustrous light
Comes Venus, the fair Evening Star.

Hi diddle diddle,
The Sun's in the middle,
Our Earth is next to appear;
The Moon, with its phases,
Around the Earth races
Each month in the course of the year.

Hi diddle diddle,
The Sun's in the middle,
And next comes the fiery-red Mars;
To the Greek and the Roman
It served as an omen,
Foretelling of tumults and wars.

Hi diddle diddle,
The Sun's in the middle,
And Jupiter next makes its swing;
Its four moons at night
Tell the speed of the light,
While Saturn rolls next in its ring.

Hi diddle diddle,
The Sun's in the middle,
Uranus by Herschel was found;
A strange outer force
Affected its course,
'Twas Neptune that swung it around.

Hi diddle diddle,
The Sun's in the middle,
And Pluto the faintest and last;
With slow moving pace
In the cold outer space,
Here ends our Sun's Family at last.



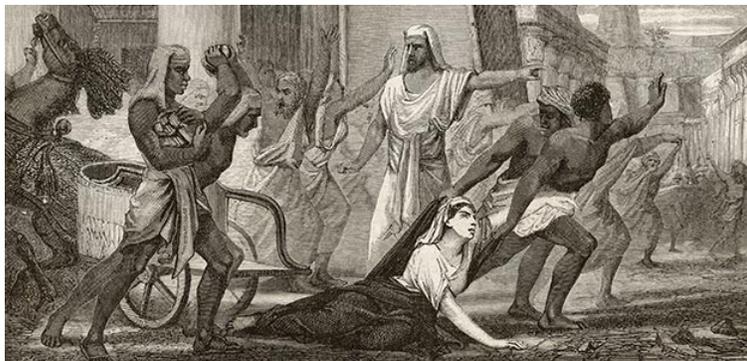
History and Astronomy: More Linked than you Think

~Christian Murphy

History and astronomy are two discourses that are rarely linked together. However history and astronomy are actually very close bed fellows. Both have been intimately linked through time, with one affecting the other for the good or bad. The purpose of this article and future ones to come are to expose that relationship between these two subjects.

Being a historian I am urged to begin my lecture at the beginning of time, but for the sake of my thesis I fell compelled to start at a point and time much later than the beginning of history. This point in time is one where the inertia of history and the advancement of astronomy and the sciences collided. This conflict can be exemplified and told by the story of the not so well known Hypatia of Alexandria. Hypatia was a mathematician, philosopher and one of history's first recorded female astronomers.

Hypatia's works did not survive to the present day, but her intellect and teaching survived by the correspondences of her pupils who studied with her at the Serapium, a successor library of the Great Library of Alexandria. These correspondences made much of her knowledge and work in the field of astronomy through the use of an astrolabe. With this tool she could chart the stars and the planets as they moved through the sky. Being of great intellect she would have been well versed in the astronomical theories of both Ptolemy and Aristarchus, the former being the proponent of a geocentric model of the solar system, the later having supposedly espoused that idea of heliocentricity. One can even imagine her musing on these two theories and coming to the conclusion, based on her observances of the force of gravity and the movements of the heavenly bodies, that the planets revolve around the sun. Indeed she was a great intellectual, wealthy and influential figure in Alexandria in the late 4th and early 5th century.



Unfortunately for Hypatia, her work with the astrolabe, her knowledge of the stars and her influence on the magistrates of the city of Alexandria threatened and took her life when she ran into the history of her time. With Christianity on the rise and the fall of paganism in Alexandria and throughout the Roman Empire there was an increase of conflict between the new way and the old. She ran a ground with Bishop Cyril of Alexandria in or around the year 415 A.D. She was accused due to her works, her influence in the city and her gender of being a witch. A mob of Christian's who took Cyril at his word seized upon her one day as she rode through the streets. They then took her, humiliated her and ultimately killed her in a very brutal fashion. They saw her as espousing that which was contrary to their beliefs. This great lady fell victim to the tempest that history can be. Her work would not be taken up with such fervor in the western world till the likes of Galileo and Copernicus nearly one thousand years later. Although the relationship between both history and astronomy is not always a pretty one, it is there in this and many other examples that run the spectrum from one extreme to the other.

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