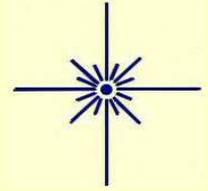




# The Guide Star

Newsletter of the Amateur Astronomers Association of Pittsburgh Inc  
Founded June 9, 1929 by Chester B. Roe and Leo J. Scanlon  
Website: 3ap.org



May 2013

Volume 47, No. 5

## AAAP General Business Meeting

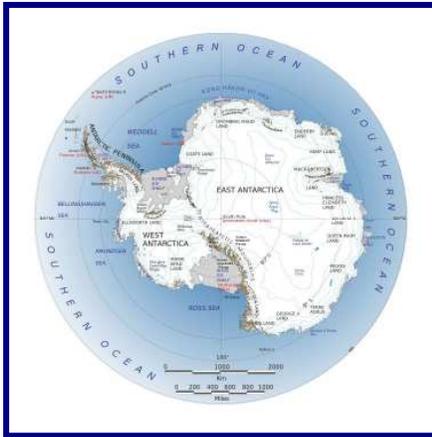
Friday, May 10, 2013, 20:00

Carnegie Science Center

Featured Speaker: **Tim Spuck**

Topic: **Science from the Coldest Place on the Planet - Antarctica**

Antarctica is a place like no other. A landmass as big as the US and Mexico combined, yet just 4000 people visit the continent each year. Other than near the coast, temperatures rarely get above 0 in the summer, and can dip below -100 at South Pole in the winter. The unique environment lends itself to the study of cosmos, space weather, penguins and more.



Presenter Tim Spuck spent 5 weeks on the Ice, spending time at South Pole, in the field on the East Antarctic Plateau and in a penguin colony on Cape Royds. The presentation will focus on the important science being done in Antarctica, and will provide a tour of one of the most unique places on planet Earth.

Tim Spuck teaches Earth & Space Sciences at Oil City Area Sr. High School in Oil City, PA, and has served as the District's K-12 Science Department Chair. He recently completed an Albert Einstein Distinguished Educator Fellowship with the National Science Foundation's Division of Graduate Education's GK-12 STEM Fellows Program. For the past 20 years Tim worked to develop student research materials and engage his students in authentic science research. Those students have been recognized by the scientific community for their discoveries and contributions to astronomy. Tim's own contributions in education have been recognized through numerous awards including the Einstein Fellowship, American Institute of Aeronautics & Astronautics Educator Achievement Award and the Kevin Burns Outstanding Science Teacher Award. Although his primary focus over the past 20 years has been astronomy education and the development and support of partnerships between STEM researchers and educators, he maintains a strong interest in a wide variety of STEM areas. Recently Tim was in Antarctica as a PolarTrec teacher working with the Polar Experiment Network for Geospace Upper atmosphere Investigations project (PENGUIn). Tim was embedded with the team in the field in an effort develop curriculum materials that help students better understand the concepts around "space weather" and the possible results of solar storms to life here on Earth.

## May Officer Elections

AAAP Officer Elections will also be held at this meeting. Official ballots containing a unique sequence number were mailed to AAAP members in good standing in April.

The ballots included specific instructions on how to sign and return the ballots by mail.

Official ballots not returned by mail, may also be returned at the May meeting by giving them to a member of the nominating committee. They are: John Cheng, chairman, Bill Yorkshire and Rowen Poole.

Finally, ballots may also be obtained and submitted at the May meeting provided members sign a form attesting they have not previously voted by mail.

The Nominating Committee has submitted the following candidates for club officer positions in the coming term. Their names are printed on the ballots. Space is also provided for write-in candidates.

Each officer nominee was invited to submit a brief statement to accompany this announcement.

### John Holtz: President

It's hard to believe that one year as President has gone by already. The current officers have accomplished a number of things, but there are things that still (always!) need to be done. My initiative for the next year, should I be elected, will be called "The Year of the Member". I want to make sure that the members we currently have are happy and therefore want to stay in the club for many years to come. Ideas that come to mind are as follows:

- contacting newer members so that they "know" what's going on,
- having mentors to help people learn the sky, their telescope, or anything else,
- easier access or even knowledge of club resources,
- having meeting topics that are geared towards the beginners and intermediate observers,
- member spotlights,
- and many more

But such an initiative comes with a price. Those who receive will be expected to "pay back" or "pass it on". This can be in the form of helping the next generation of members, helping at off-site star parties, or volunteering for one of the club's activities – whether it is as simple as giving an occasional observation report at a meeting, or as complex as reworking the club's website. There is opportunity for everyone to be involved regardless of your skill level, and I will be there to encourage you to participate! Clear and dark skies to everyone.

**Terry Trees: Vice President**

Terry Trees received a Bachelor's of Science degree from Case Western Reserve University, a Master's of Science degree from Slippery Rock University and his Doctorate from the University of Pittsburgh. He began his career in public education as a science teacher, counselor and an assistant principal. Then, for 20 years, he was a computer network engineer, traveling to South America, Canada, and China. He also served as an Adjunct Professor of Astronomy and Physical Sciences. Terry taught courses in astronomy, environmental sciences and information technology at both the undergraduate and graduate levels.

Terry is a member of the AAAP, the Royal Astronomical Society of Canada, the Astronomical League, A.L.P.O. and the Oil Region Astronomical Society. He has served as an officer in several AAAP positions during 6 of his first 7 years of membership, and also currently (President, Vice President and Corresponding Secretary). He was also the co-director of the Laurel Highlands Star Cruise.

Terry and his family have traveled to many star parties in the U.S. and Canada, where he has presented a number of astronomical topics. He has earned numerous observing awards from the AAAP and the Astronomical League and is currently pursuing the A.L.'s Herschel 400 Award.

**JoAnne Trees: Corresponding Secretary**

I have been a member of the AAAP since 1995. In the late 1990s, my husband was Corresponding Secretary of several years and I assisted him with that massive job. Then, when he became AAAP President, I ran for and was elected Corresponding Secretary. I've had many years' experience sorting, stapling, folding and mailing thousands of Guide Stars. I've also been involved with many club outreach programs such as star parties and Star Cruise. I coordinated the Star Cruise children's activities. I've assisted with many holiday parties and the Wagman Observatory expansion dedication ceremony. I'm not only a member of the AAAP but also the Astronomical League, the Royal Canadian Astronomical Society and the Oil Region Astronomical Society

**Diane Yorkshire: Recording Secretary**

For the past 20 years I have served the AAAP in several capacities and have received a few awards along the way. I am the current Recording Secretary and have attended both AAAP and Executive Board meetings, taking minutes that provide an accurate detailed record of the actions of the club. In addition, I serve on the board of Wagman Observatory and am the resident face painter.

A Pitt graduate with a master's degree in Language Communications, I am an English teacher.

**Eric Fischer: Guide Star Editor**

I have been an active AAAP member for the past 37 years, and started as Guide Star Editor in the late 70s and early 80s. Since then, I served as Project Manager of Wagman Observatory Phase I construction, Wagman Co-Director, and three terms as club President. I was also elected Membership Secretary for several

years in the 1990s and produced the first edition of the modern membership directory. In 1995, I was elected again as Guide Star Editor, an office I held until early 2005 when I had to step aside for an illness. During that term, I transitioned the newsletter to the current all-electronic format (earlier issues were paper copy paste-ups). Presently, I'm a member of the Wagman Observatory Committee and an at-large member of the AAAP Executive Committee. In addition, I run the "All Things Astronomical" segment of the business meetings and have delivered astronomy and space science presentations to our club and other organizations, and for events such as ORAS Astro Blast.

As your new Guide Star Editor, I would like to build upon the excellent work of current Editor John Cheng by adding news items from the astronomy/astrophysics community in the greater Pittsburgh area (Allegheny Observatory, Carnegie Science Center, CMU, SSP, CCAC, etc.). I am also interested in exploring possibilities for direct e-mailing (attachment or hyperlink) of the newsletter to the membership, in addition to the current practice of downloading from the club's web site. I am also considering a plan to send mid-month Guide Star updates to provide more timely response to events such as Auroras, new comets and last-minute changes to scheduled club events.

**Don Hoecker: Membership Secretary**

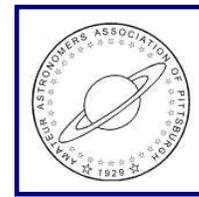
My name is Don Hoecker. I joined the AAAP in 1987, just in time to attend the dedication of the first section of the Wagman Observatory. I have been the Membership Secretary since 2009, and would be glad to continue for the coming year.

**Of Club Interest: AAAP Logo Selection**

In the March issue of the Guide Star, club president John Holtz announced a contest to choose a new logo for the AAAP. Currently, there are three designs which are in use. These are shown below along with the period from which they date.



1970's



Late 1990's



Early 2000's

The club's May general business meeting will include a vote which will decide which new design will represent the AAAP as it goes forward. The new designs are shown on the two-page ballot which follows.

The ballots should be printed. You should record your vote by checking your preference.

Bring the ballot along to the May meeting for collection and tallying.

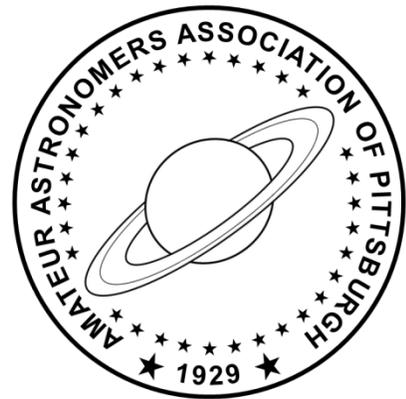
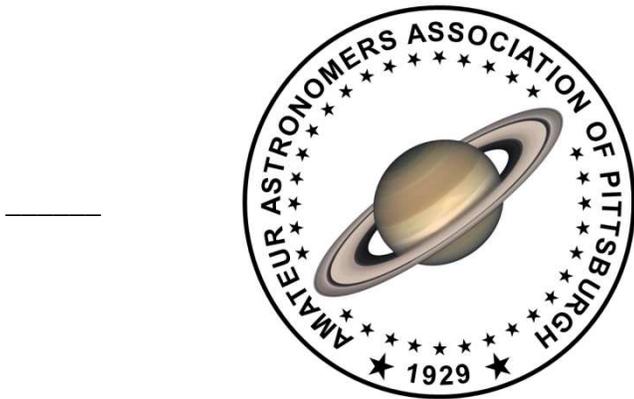
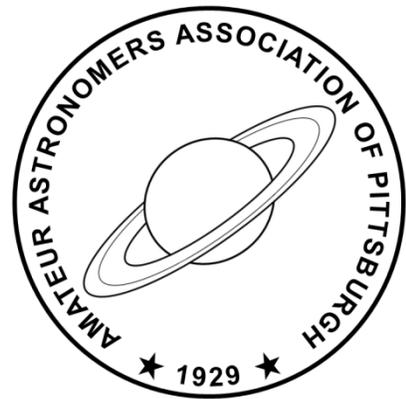
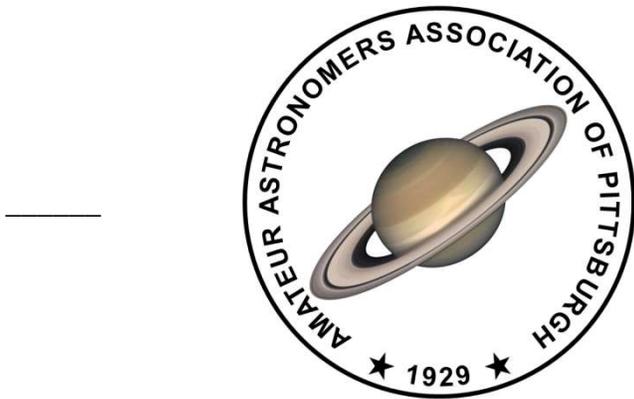
## AAAP Logo Contest Ballot

YOU have a say in the design that the AAAP uses as its official logo. Each design is shown in two formats: one that would be used when the logo can be in full color (e.g. internet) and one that would be used when a black and white logo is required, such as when the logo is printed or copied (e.g., letterhead).

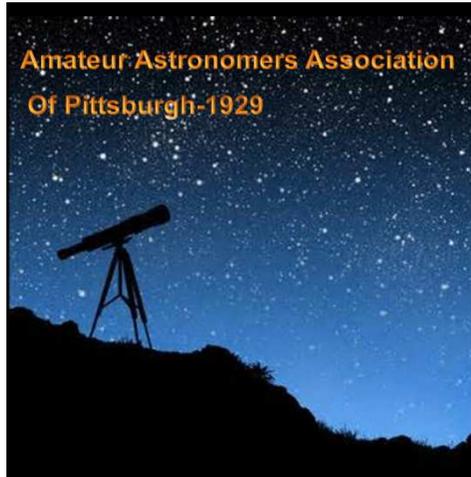
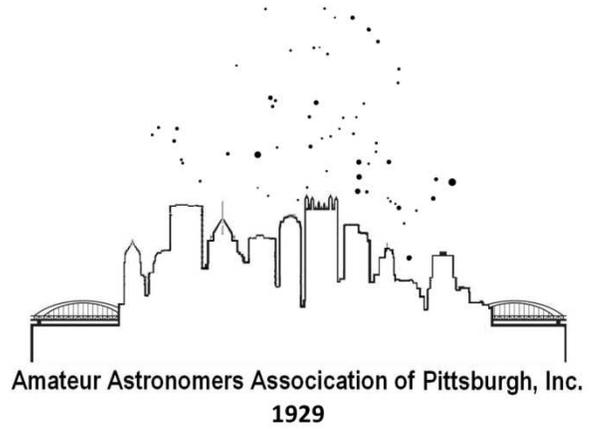
These designs are not necessarily complete and may be tweaked in the final design. For example, a different font may be used; lines may be heavier or lighter. Please vote on the CONCEPT.

Please place a checkmark on the line to the left of the design that you like the best.

Vote	Color (or Filled) Version for Internet	Black & White (or Line) Version for Letterhead
------	--	--



Vote	Color (or Filled) Version for Internet	Black & White (or Line) Version for Letterhead
------	--	--



**Win a Brand New 6- inch Dobsonian Telescope.**

At both Wagman and Mingo Observatories, raffles for new telescopes will be conducted throughout the star party season.

Tickets are \$5 each. The winner at each observatory will be selected at the last star party in October. This would be the October 19<sup>th</sup> star party at Wagman and the October 26<sup>th</sup> event at Mingo.

The telescopes are on display at the observatories.

**March's Astronomy Weekend at CSC**

March 23rd and 24th saw the AAAP participate in the Carnegie Science Center's annual Space Out Astronomy Weekend Event. It's estimated that about 5,000 visitors attended.



***Rich Mc Laughlin and Terry Trees visit Tom Kasner of the Starlight Astronomy Club***

Beside the AAAP, the Kiski Astronomers, the Tripoli Rocket Launching Association and the Starlight Astronomy Club of Hollidaysburg served to educate and entertain the public at the two-day family-oriented event.



***Eric Fischer and Ed Moss***

As posted to the AAAPgh user group, the following members shared their time and knowledge at Astronomy Weekend:

- |               |                 |                 |
|---------------|-----------------|-----------------|
| Mary DeVaughn | Ed Moss         | Geoff Trees     |
| Eric Fischer  | Tim Manka       | Joanne Trees    |
| Les Johnson   | Rich McLaughlin | Terry Trees     |
| Fred Klein    | Bill Moutz      | Diane Yorkshire |
| John Holtz    | Dan Peden       | Bill Yorkshire  |

*Images courtesy of Mary DeVaughn*

**From the Club Observatories**

**Mingo Creek Park Observatory**



**Mingo Observatory: Telescope for Loan**

8" Orion Dobsonian  
Contact Bill Roemer  
412-257-8756

**Mingo Observatory: Need telescope help?**

Contact Gene Leis, Help facilitator  
412-310-2504

**Mingo Observatory 10 inch Refractor Telescope Training**

Saturday, May 18, 4:00 PM

Requirements: Familiarity with telescope operation and AAAP membership for at least one year.

Members previously trained on the 10 inch refractor and who wish a review are also welcome.

Training on the 24 inch reflector will be conducted later in the summer. One year's previous experience on the 10 inch refractor is required for training on the 24 inch.

**April 19th Star Party Attendance**

Members: Bill Roemer, Mike Meteney, George Guzik, John Diller, Glenn Smith, Jon Johnson, Frank Pastin, Ed Moss, Nick Martch, Kathy DeSantis, Dick Haddad, Gene Kulakowski

36 visitors attended.

**April 20th Star Party Attendance**

Members: Bill Roemer, George Guzik, John Diller, Glenn Smith, Kathy DeSantis, Ken Kobus, Ed Moss, Nick Martch, Jon Johnson, Dick Haddad, Fred Klein, Mary DeVaughn, Mike Meteney, Mike & Michael Christeson, Jim Klueber, Gene Kulakowski,

89 visitors attended.

**Nicholas E. Wagman Observatory**



**Wagman Telescope Training**

We are planning to hold training sessions for the Manka and Brashear Telescopes on one or all of the following dates: May 14, 15 & 16. This is weather dependent and there are guidelines for those who may be taught how to operate these scopes.

1. At least one year in good standing as an AAAP member.
2. Members should have prior knowledge concerning the operation of telescopes.
3. Should assist with at least four star parties before training.
5. Should have a director or Wagman Obs Committee member on the first night or two that they use the scope.
5. Once they have operated the Manka Scope without any mishaps, then they can train on the Brashear.
6. Their first time or two on the Brashear should be the same as with the Manka.
7. There will be a key fee charge for members who make it through "Basic" training. \$15.

Please contact me if you qualify to train on the scopes or would like to retrain on them.

Sessions will start at 7:30 PM.

**April 20th Star Party Attendance**

75 to 80 visitors, about double what I expected, attended Saturday's SP on a cold, windy evening. Thankful, the wind died down and made observing more tolerable.

We showed our guests the Moon, Jupiter and 4 moons, Saturn with Titan and Rhea, M42, M3, M13, M104, Comet PANSTARRS, 2 ISS passes and several other objects. Here's a quick list of the members listed from the log sheet:

Rowen Poole  
 Kelly Fletcher  
 Patrick Rieger Family (4)  
 Bill Moutz  
 Bill and Diane Yorkshire  
 Flacc Stifel  
 Terry and Joanne Trees

Eric and Joyce Fischer  
 Bill Hayeslip  
 Fran Pastin  
 Kevin Spencer  
 Matthew Jones  
 Michelle Gauger  
 Tom Reiland

***Tom Reiland, Director***

**Upcoming Star Parties**

<i>Mingo</i>	<i>Wagman</i>	<i>Closest Phase</i>
May 17-18	May 17-18	First Qtr May 18
Jun 14-15	Jun 14-15	First Qtr Jun 16
Jul 12-13	Jul 12-13	First Qtr Jul 15
Aug 9-10	Aug 9-10	First Qtr Aug 14
Sep 7 (DS)		New Sep 5
	Sep 14	First Qtr Sep 12
	Sep 21 (MR)	Full Sep 19
Sep 28 (DS)		Last Qtr Sep 27
Oct 12	Oct 12	First Qtr Oct 11
Oct 26 (DS)	Oct 26 (DS)	Last Qtr Oct 26
Nov 9 (BUSF)		First Qtr Nov 10

WWF - Wagman Winterfest      DS - Dark Sky  
 BUSF - Bundle-up Starfest      MR - Moon Rise

**James Keeler: Pioneer of Modern Astronomy**

James Keeler died at age 42 in August of 1900. At the time, his passing was called an 'incalculable' loss to astronomy by those who understood his research.



Looking back, we can understand the prescience of the observing program in which he was engaged, the influence of his choice of tools and methods with which he carried it out and appreciate that, had he lived a full life, he was ideally positioned to accomplish things that would take others decades.

We can legitimately call the timing of his death a cruel turn of fate.

It's well known to Pittsburgh astronomers that his remains are interred at Allegheny Observatory where he was director from 1891 to 1898 and that it was there, using the 13-inch Fitz-Clark refractor and his expertise in spectroscopy, that Keeler verified James Clerk Maxwell's conjecture that Saturn's rings were particulate, not solid.

Prior to this, Keeler had been part of the original staff at Lick Observatory, the country's best, located in the pure air of Mount Hamilton near San Jose, California. He began his tenure there by discovering Encke's Gap. This was the new observatory's first discovery and it was made during the inaugural observing run of its new thirty six inch refractor. This was an auspicious beginning for both observer and institution.

But Keeler's reputation among those at the forefront of late nineteenth century astronomy (such as George Ellery Hale, with whom he founded the *Astrophysical Journal*) and his continuing legacy depended on his early mastery of two tools that would change the face of astronomy: spectroscopy and the photography of extra-solar system objects using large reflecting telescopes.

Keeler was considered "the leading expert in astronomical spectroscopy of his time" and during his career he concentrated on determining radial velocities – the speed and direction of objects along our line of sight. He pursued this research at Lick as a staff member, at Allegheny as director and finally as Lick's director beginning in 1898.

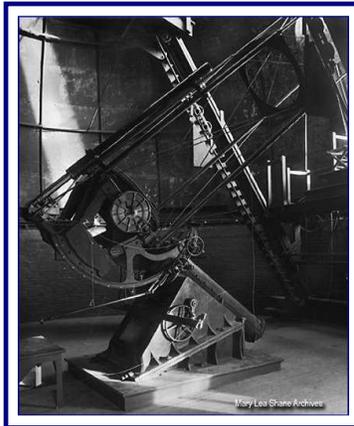
At the time of his death, Keeler was observing nebulae and working with John Brashear on a new spectroscope design to examine the spectra of planetary nebulae and spirals, specifically M 31. Specifically, he wanted to investigate absorption lines in its spectrum that were similar to those found in solar spectra. The similarities hinted that M 31 was not simply an amorphous cloud of gas, but was a distinct galaxy, an independent star system. This was a conclusion that would not be reached definitively for another quarter century with the coming of Edwin Hubble.

Keeler's biographer, Donald Osterbrock, himself a Lick Observatory director also writes that in examining galactic spectra:

*... Keeler would have discovered the very large radial velocities of the spiral nebulae (which had to wait until 1913)...large velocities ...were part of the evidence used to establish that they could not be within our galaxy but must be separate, independent systems.*

Keeler's use of reflecting telescopes in an age when refractors were all the rage at research institutions sheds light on his character.

While Keeler was director in Pittsburgh, Lick's spectroscopic programs were handled by William Campbell, previously Keeler's assistant. Over time, Campbell's reputation had blossomed and his results on the 36-inch refractor were excellent, easily better than what Keeler was getting at Allegheny.



**Lick's 36-inch Crossley reflector in 1895, before Keeler's modifications**

Keeler, returning as Lick's director, could have allocated time on the thirty six inch refractor for himself - recall, spectroscopy was his specialty – but instead, he allowed Campbell to continue his work. Keeler surprised the Lick staff when he began to spend time with the observatory's problem child, the virtually useless and unused 36-inch Crossley reflector, obtained free from an English donor by Lick's previous director.

After four months of intense work on the big reflector's mount, drive, coatings and accessories, Keeler began to produce photographic results which changed the astronomical community's ideas of what reflectors could accomplish. His images of spirals not only showed more detail in their intended object than ever before seen,

they also revealed that the sky was awash with nebulae of all shapes and sizes. We now know that these images were an early glimpse of those deep fields containing countless galaxies that constitute our idea of the universe.

Keeler himself remarked: *There are hundreds if not thousands, of unrecorded nebulae within reach of our 36-inch reflector.*

Science historian Marcia Bartusiak says: *Keeler was generating the Hubble Space Telescope pictures of his day.*

And Osterbrock writes: *Keeler was a far better trained, more experienced spectroscopist than any other astronomer of his time. No doubt he would have reached the conclusion that spirals were galaxies of stars.*

Astronomy as currently practiced owes Keeler a larger debt than is usually acknowledged and before he died, he held all the pieces that would have made his name synonymous with 20th century astronomy and astrophysics. Under different conditions, we might be enjoying images from the Keeler Space Telescope.

As it is, Keeler's discovery of Encke's Gap in 1888, was honored in 1980 when the gap in Saturn's A ring discovered by Voyager was named for him.

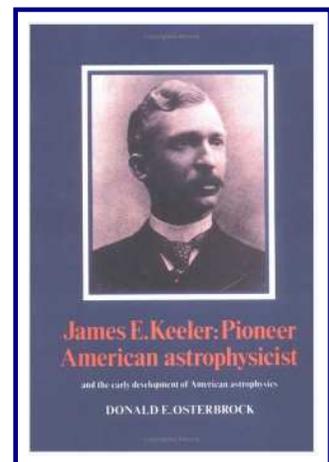
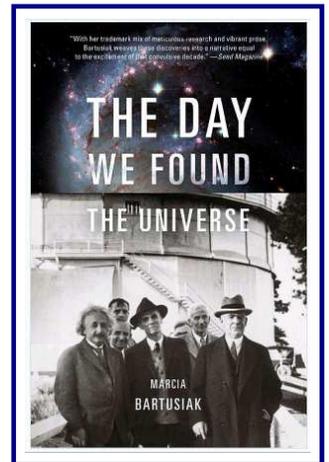
I've made it a habit when examining histories of astronomy to see how James Keeler is treated in their pages. Keeler was instrumental in making astrophysics the dominant concern of modern astronomical science. These two books recognize his contributions:

Marcia Bartusiak, a science writer and historian that teaches at MIT has written, *The Day We Found the Universe*, which is an excellent treatment of American astronomy and astrophysics in the early 20th century. It's simply a great read.

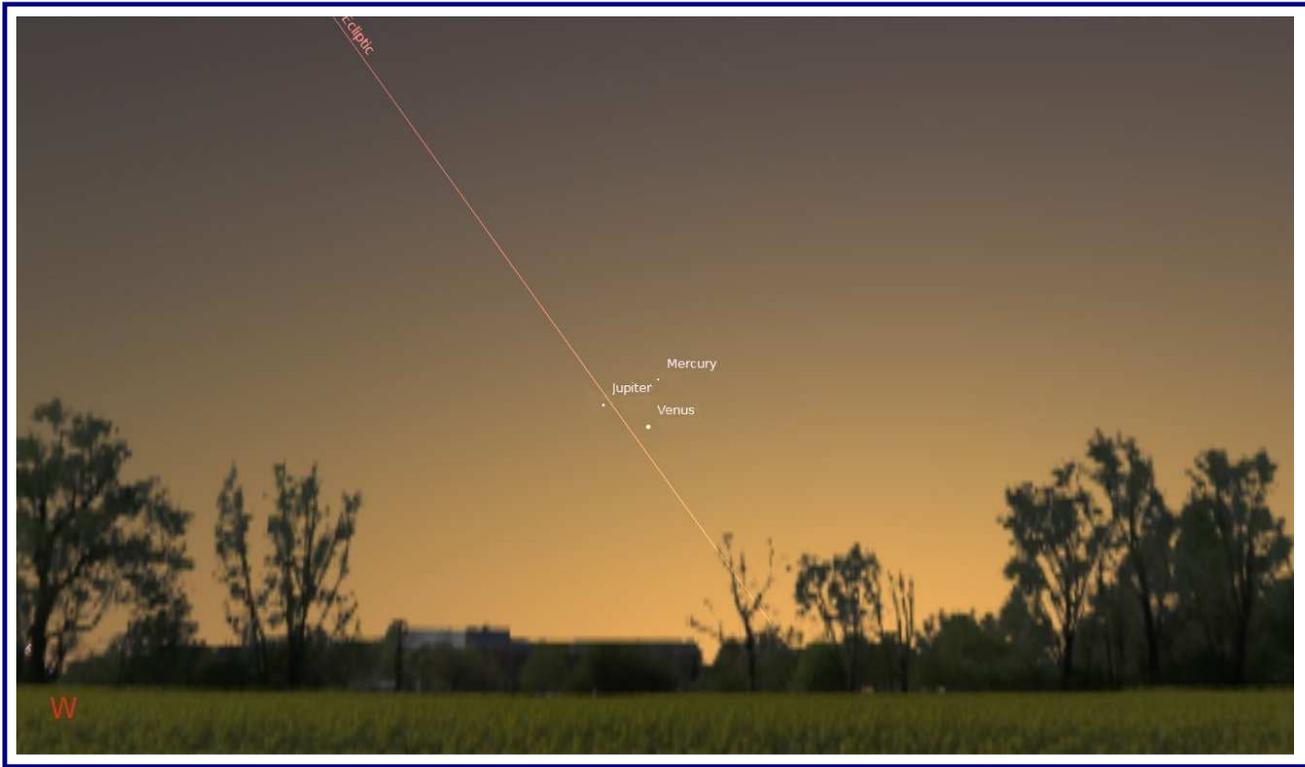
Much more detailed, Lick Observatory Director Donald Osterbrock's *James E. Keeler: Pioneer American astrophysicist* treats every facet of Keeler's career.

Particularly interesting is the coverage of Keeler's time at Allegheny Observatory and his realization that his results under Pittsburgh skies could never keep pace with those produced at Lick.

Like his friend, G.E. Hale, who built Yerkes and Mount Wilson, Keeler had an unerring sense of the direction of 20th century astronomy and unique talents with which to exploit and further it.



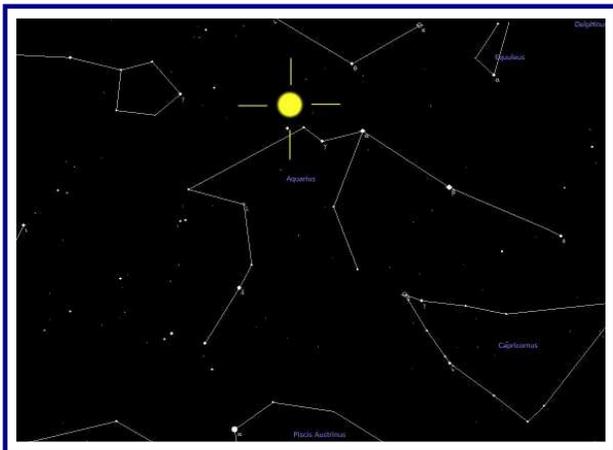
## For Observers: 2013's Best Planetary Conjunction & an "Iffy" Meteor Shower



*The RASC's Observer's Handbook calls this month's dance between Mercury, Venus and Jupiter "the best planetary conjunction of the year". Look to the WNW just after sunset on the evenings of May 25th, 26th and 27th. On all three dates, the planets will lie within 3° of one another, making a great sight in binoculars. The image above shows the trio at 20:45 local time on the evening of Sunday May 26 about five minutes after sunset.*

### The $\eta$ -Aquariids (ETA)

Although best viewed from the southern hemisphere, the generally good conditions that surround the dates of increased activity make this year's  $\eta$ -Aquariid shower worth mentioning, especially for very early risers.



*The eta Aquariid meteor shower radiant is located a bit to the north of the star eta Aquarii, hence the shower name.*

Associated with Comet Halley, the shower is best seen a few hours before dawn. The shower is active from 19 April to 28 May, with increased levels from 3 May to 10 May. The maximum date falls on 5 May.

Quoted Zenith hourly rate is 55 with variability between 40 and 85. However, the International Meteor Organization records a ZHR above 30 between 3 May and 10 May for the period 1984 to 2001. Remember ZHR is a number that represents perfect conditions if the radiant were directly overhead.

The shower members are described as fast, often bright with many meteors leaving glowing persistent trains.

During the dates of increased activity the waning crescent Moon passes through Aquarius with New Moon occurring on May 9/10. So while admiring the Moon in the East, keep an eye out for members of this shower.

The shower radiant culminates at about 08:00 local time.

*John Cheng, Guide Star Editor*

Sun

Mon

Tue

Wed

Thu

Fri

Sat

<p><i>From our home on the Earth, we look out into the distances and strive to imagine the sort of world into which we are born. . . . But with increasing distance our knowledge fades, and fades rapidly, until at the last dim horizon we search among ghostly errors of observations for landmarks that are scarcely more substantial. The search will continue. The urge is older than history. It is not satisfied and it will not be suppressed.</i></p> <p align="right"><b>- Edwin Hubble</b></p>		1	2	3	4	
		<p>SR:06:19 SS:20:16 MR:01:24 MS:11:55 PI:67%</p>	 <p>07:15</p> <p>SR:06:17 SS:20:17 MR:02:05 MS:13:03 PI:55%</p>	<p>η-Aquariids Increased Activity</p> <p>SR:06:16 SS:20:18 MR:02:41 MS:14:09 PI:44%</p>		<p>SR:06:15 SS:20:19 MR:03:14 MS:15:14 PI:34%</p>
5	6	7	8	9	10	11
<p>η-Aquariids Increased Activity 3 May to 10 May</p>						
<p>SR:06:14 SS:20:20 MR:03:45 MS:16:17 PI:24%</p>	<p>SR:06:13 SS:20:21 MR:04:15 MS:17:19 PI:16%</p>	<p>SR:06:11 SS:20:22 MR:04:46 MS:18:20 PI:9%</p>	<p>SR:06:10 SS:20:23 MR:05:18 MS:19:19 PI:4%</p>	<p>SR:06:09 SS:20:24 MR:05:53 MS:20:17 PI:1%</p>	<p>SR:06:08 SS:20:25 MR:06:31 MS:21:13 PI:0%</p>	<p>SR:06:07 SS:20:26 MR:07:13 MS:22:05 PI:1%</p>
12	13	14	15	16	17	18
<p>Jupiter near the Crescent Moon</p> <p>SR:06:06 SS:20:27 MR:07:60 MS:22:53 PI:4%</p>	<p>SR:06:05 SS:20:28 MR:08:49 MS:23:36 PI:8%</p>	<p>SR:06:04 SS:20:29 MR:09:42 MS:***** PI:14%</p>	<p>SR:06:03 SS:20:30 MR:10:38 MS:00:15 PI:21%</p>	<p>SR:06:02 SS:20:30 MR:11:35 MS:00:50 PI:29%</p>	<p>Mingo &amp; Wagman Star Party</p> <p>SR:06:01 SS:20:31 MR:12:33 MS:01:23 PI:38%</p>	 <p>00:35</p> <p>Mingo &amp; Wagman Star Party</p> <p>SR:06:01 SS:20:32 MR:13:33 MS:01:54 PI:48%</p>
19	20	21	22	23	24	25
		<p>Moon in Virgo near Spica and Saturn</p>				 <p>00:26</p> <p>Mercury, Venus, Jupiter, 25,26,27</p> <p>SR:05:55 SS:20:39 MR:21:25 MS:06:20 PI:100%</p>
<p>SR:06:00 SS:20:33 MR:14:35 MS:02:24 PI:58%</p>	<p>SR:05:59 SS:20:34 MR:15:39 MS:02:54 PI:68%</p>	<p>SR:05:58 SS:20:35 MR:16:46 MS:03:26 PI:78%</p>	<p>SR:05:57 SS:20:36 MR:17:55 MS:04:01 PI:86%</p>	<p>SR:05:57 SS:20:37 MR:19:07 MS:04:40 PI:93%</p>	<p>SR:05:56 SS:20:38 MR:20:17 MS:05:27 PI:98%</p>	
26	27	28	29	30	31	
<p>Mercury, Venus and Jupiter, all within 3° in the fading WNW evening twilight. The best planetary conjunction of 2013.</p> <p>SR:05:55 SS:20:39 MR:22:25 MS:07:22 PI:99%</p>		<p>SR:05:54 SS:20:40 MR:23:18 MS:08:29 PI:95%</p>	<p>SR:05:53 SS:20:41 MR:***** MS:09:40 PI:88%</p>	<p>SR:05:53 SS:20:42 MR:00:03 MS:10:51 PI:80%</p>	 <p>14:59</p> <p>SR:05:52 SS:20:43 MR:01:16 MS:13:06 PI:59%</p>	<p><i>In the field of observation, chance favors the prepared mind.</i></p> <p align="right"><b>- Louis Pasteur</b></p>

### Some Solar System Highlights

Lunar entries are listed by named phase and include maximum libration dates. Note: Values are lunar east and lunar west.

Planetary entries include Local Rise and Set Times, Magnitudes and Disk diameters in Arc Seconds on the 1st, 10th, 20th and 31st days of the month.



Date / Time	Phase	Arc m/s
02 07:15	Last	32.36
09 22:29	New	29.78
18 00:35	First	30.41
25 00:26	Full	33.56
31 14:59	Last	31.28

The Moon's Selenographic Colongitude is 156.72° at 0h UT and 159.22° at 0h local on the first day of the month. Add 12.2° each day.

Max Libration dates:

East limb on 4th (+6.2°)	West limb on 20th (-7.4°)
North limb on 17th (+6.9°)	South limb on 2nd (-6.8°) & 30th (-6.8°)



Date	Rise	Set	Mag	Arc
01	05:57:09	19:14:37	-1.0	5.24
10	06:05:35	20:17:52	-2.0	5.07
20	06:28:37	21:32:37	-1.4	5.35
31	07:04:35	22:26:50	-0.4	6.33

Mercury vanishes from the dawn sky early in the month, reaches superior conjunction on the 11th and reappears in the evening sky by May 18th.

See information above on the planetary conjunction of May 25, 26, 27.



Date	Rise	Set	Mag	Arc
01	06:47:09	20:58:45	-3.9	9.80
10	06:44:48	21:20:25	-3.9	9.90
20	06:46:53	21:43:03	-3.9	10.04
31	06:55:40	22:04:16	-3.9	10.23

Venus is low in the western evening twilight.

See information above on the planetary conjunction of May 25, 26, 27.



Date	Rise	Set	Mag	Arc
01	06:13:18	19:57:30	1.3	3.82
10	05:55:46	19:56:07	1.3	3.81
20	05:37:19	19:54:07	1.3	3.80
31	05:18:26	19:51:10	1.4	3.80

Mars is not visible.



Date	Rise	Set	Mag	Arc
01	08:21:30	23:12:19	-2.0	33.50
10	07:53:30	22:45:53	-2.0	33.04
20	07:22:50	22:16:45	-1.9	32.64
31	06:49:35	21:44:49	-1.9	32.32

Jupiter, System II longitude is 194° this month. Low in the WNW in evening twilight. Near the crescent Moon on the 12th. Jupiter vanishes into evening glare near month's end.

See information above on the planetary conjunction of May 25, 26, 27.



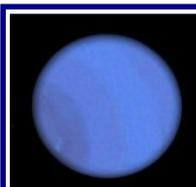
Date	Rise	Set	Mag	Arc
01	19:42:51	06:30:36	0.1	18.77
10	19:04:09	05:53:22	0.2	18.72
20	18:21:23	05:12:04	0.2	18.62
31	17:34:51	04:26:53	0.3	18.44

Saturn is visible most of the night. Just past opposition, it's retrograding on the Libra-Virgo border. The ring system, which we continue to view from the north until 2025, will be inclined to our line of sight by about 18° until October when it will begin to open to an eventual 22° by year's end.



Date	Rise	Set	Mag	Arc
01	05:06:20	17:34:05	5.9	3.35
10	04:31:59	17:00:54	5.9	3.36
20	03:53:43	16:23:48	5.9	3.38
31	03:11:30	15:42:41	5.9	3.41

Uranus, is low in the in the dawn sky in Pisces.



Date	Rise	Set	Mag	Arc
01	03:43:09	14:36:30	7.9	2.21
10	03:08:10	14:01:53	7.9	2.22
20	02:29:11	13:23:10	7.9	2.23
31	01:46:09	12:40:16	7.9	2.24

Neptune is in the eastern dawn sky in Aquarius.

**Jupiter Activity: Satellites & the Great Red Spot**



Following are times for Jovian satellite transits and occultations and Great Red Spot meridian crossings for the current month that are visible in our area.

They are organized by observing sessions beginning with the first event of interest on a given evening and continuing to Jupiter's setting or the Sun rising.

The codes following the entries indicate what is currently happening, for example, T indicates a satellite transit, S indicates a shadow transit, ST indicates both a satellite and a shadow are transiting, STT indicates one shadow and two satellites are in transit. All times are local.

Fri 3 22:29 Io : Transit Begins T  
 Fri 3 22:58 Jupiter Sets  
  
 Sat 4 22:37 Io : Reappears from Eclipse  
 Sat 4 22:55 Jupiter Sets  
  
 Sat 11 21:42 Io : Disappears into Occultation  
 Sat 11 22:35 Jupiter Sets  
  
 Sun 12 21:14 Io : Transit Ends S  
 Sun 12 21:52 Io : Shadow Transit Ends  
 Sun 12 22:32 Jupiter Sets  
  
 Mon 13 21:19 Europa: Disappears into Occultation  
 Mon 13 22:29 Jupiter Sets  
  
 Tue 14 21:53 GRS: Crosses Central Meridian  
 Tue 14 22:26 Jupiter Sets

Sun 19 21:03 GRS: Crosses Central Meridian  
 Sun 19 21:03 Io : Transit Begins ST  
 Sun 19 21:26 Ganymede: Shadow Transit Ends T  
 Sun 19 21:34 Io : Shadow Transit Begins ST  
 Sun 19 22:11 Jupiter Sets  
  
 Mon 20 20:56 Io : Reappears from Eclipse  
 Mon 20 22:08 Jupiter Sets  
  
 Wed 22 21:01 Europa: Transit Ends S  
 Wed 22 21:56 Europa: Shadow Transit Ends  
 Wed 22 22:03 Jupiter Sets  
  
 Sun 26 21:15 Ganymede: Transit Begins T  
 Sun 26 21:51 Jupiter Sets  
  
 Wed 29 21:20 Europa: Transit Begins T  
 Wed 29 21:42 Jupiter Sets  
  
 Fri 31 21:03 GRS: Crosses Central Meridian  
 Fri 31 21:37 Jupiter Sets

AAAP Welcomes New Members

EDWARD BOCKMAN  
JOHN L. DILLS  
PURI J. THENRENGAN  
STEWART S. HOUGH  
MIKE M. BALANDIAT

Amateur Astronomers Association Of Pittsburgh, IncExecutive Committee2012-2013 Elected Officers

President: John Holtz  
[president@3ap.org](mailto:president@3ap.org)  
Vice-President: Terry Trees  
[vicepresident@3ap.org](mailto:vicepresident@3ap.org)  
Treasurer: Nate Brandt  
[treasurer@3ap.org](mailto:treasurer@3ap.org)  
Corresponding Sec: Kelly Fletcher  
[correspondingsecretary@3ap.org](mailto:correspondingsecretary@3ap.org)  
Recording Sec: Diane Yorkshire  
[recordingsecretary@3ap.org](mailto:recordingsecretary@3ap.org)  
Membership Sec: Don Hoecker  
[membershipsecretary@3ap.org](mailto:membershipsecretary@3ap.org)  
Guide Star Editor: John Cheng  
[gseditor@3ap.org](mailto:gseditor@3ap.org)

Facility DirectorsMingo Creek Park Observatory

Director: Bill Roemer  
Assistant Director: Gene Kulakowski  
Assistant Director: Mike Meteney

Wagman Observatory

Director: Tom Reiland  
Assistant Director: Rowen Poole  
Assistant Director: Bill Yorkshire

Executive Committee Appointees

Eric Fischer  
Bill Moutz  
Chris Mullin  
Joyce Osborne-Fischer  
Mike Skowvron

Membership Information

AAAP Member Dues: \$ 30.00  
  
Student Membership  
(K-12 & full time  
college student): \$ 20.00  
  
Family Membership \$ 45.00

## Basic Procedure for Paying Dues:

1. Make check payable to "AAAP Inc."
2. Send check to: Nate Brandt, Treasurer  
2520 Campmeeting Rd.  
Sewickley, PA 15143-9104

## Membership Renewal Form can be found at:

[http://www.3ap.org/AAAP\\_Mem\\_RenForm\\_2013.pdf](http://www.3ap.org/AAAP_Mem_RenForm_2013.pdf)

## New Membership Form can be found at:

[http://www.3ap.org/AAAP\\_New\\_MemForm\\_2013.pdf](http://www.3ap.org/AAAP_New_MemForm_2013.pdf)

Thank you

This is my last issue of the newsletter as editor. I'd like to thank everyone who contributed to the Guide Star over the past three years and say that your feedback meant a great deal.

I'd like to offer special thanks to two people.

To Christopher Go of the Philippines, a tireless Jupiter observer who called the world's attention to changes in oval BA, as it became "red spot junior". Whenever asked, he was uniformly gracious in allowing his planetary images to appear here to illustrate specific surface phenomena.

To Bill Snyder of the AAAP, whose images are models of what can be done by a dedicated amateur astronomer. When I mentioned that an article would benefit from a picture of a particular object, Bill captured the image without being asked and sent it along within a few days.

It's generosity like this and gestures such as these that argue that the universe, which can appear so turbulent, so threatening and so indifferent to us, harbors pockets of benevolence.

Clear skies,  
John Cheng,  
Guide Star Editor