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

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AAAP January General Meeting

January 13, 2012, 7:30 pm
Bayer Science Stage at the Carnegie Science Center
Featured Speaker: John Holtz

The history of Astronomy is often presented as a steady progression toward truth helped by the accumulation of scientific knowledge.

But like most sciences, in fact, like most human enterprise, its advance shows missteps and corrections.

John Holtz, long-time AAAP member, and chair of the club's late Occultation and Transit Special Interest Group will share a personal view of Astronomy with stories of what went right – and what went wrong.

Experienced AAAP members are aware of John's superb knowledge of the mechanics of the sky. Many of us have had occasion to be grateful for both his expertise and his openness when more than the usual amount of precision was needed.

For quite some time, John has guided AAAP observers to the right place, at the right time with correct coordinates in hand.

Now…On Jupiter

Jupiter is perfectly placed for evening viewing and recent belt activity is easy to observe.

Dark spots or bars, called "barges" since 1917, are visible even in small scopes due to contrast.

The formations are on the northern edge of the Northern Equatorial Belt (NEBn) and can persist for as little as a month or two or may even survive until the next apparition of the giant planet.

North is up in this image captured on December 19, 2011 by Christopher Go of Cebu City in the Philippines.

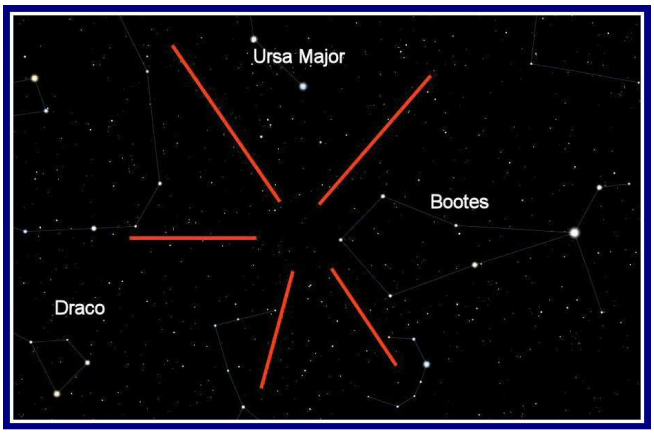
Chris Go's website is at:
jupiter.cstoneind.com/

January's Quadrantids

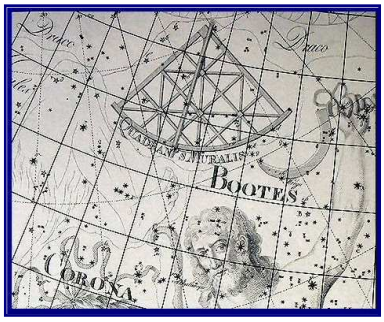
With the waxing gibbous Moon setting at 03:29 on the morning of January 4th, there will be an opportunity to watch one of the year's best meteor showers peak in a darkened sky during the ideal hours prior to dawn.

The Quadrantids, whose period of activity runs from December 28 to January 12, have a zenith hourly rate varying from 60 to 200 according to the International Meteor Association, but the practical observed maximum rate may have been about 80 per hour in 1932.

The peak period, often brief due to the Earth's near perpendicular angle of intersection with the meteor stream, may last no more than an hour and can be missed. We're favored on January 4th because at 02:20 (the IMO predicted peak time) the radiant in northern Boötes will be comfortably situated in our northeastern sky.



The progenitor of the Quadrantid meteor shower may be 2003EH1, an asteroid like object that in turn may be a remnant from a cometary brake-up about 500 years ago.



The Quadrantids take their name from the defunct constellation, *Quadrans Muralis* or Mural Quadrant, created by the French astronomer Jerome Lalande in 1795. It lay between Draco and Bootes but was purged by the International Astronomical Union in 1922.

- Guide Star Editor

Our Moon's "Golden Handle" – January 3

One of the joys of lunar observing is watching the dramatic effect that sunlight has on the surface of the Moon.

The searing illumination of the Sun at high angles highlights the ray systems that indicate relatively recent impacts. The low light of sun rise and set throws domes and mare ridges into relief and shows the volcanism active in the Moon's formative period.

One of the most prominent lighting effects – even noticeable naked eye – is sunrise on the Jura Mountain range while much of the Bay of Rainbows, Sinus Iridum, is still bathed in the darkness of lunar night.

The view has picked up the descriptive name the "Golden Handle".

Because the Sun rises on this area of the Moon during each lunation or phase cycle, the Golden Handle can be seen once each lunar month. However, when the terminator – the line separating lunar night from day – creeps across the critical area of the Bay illuminating only the mountains beyond, the Moon may not be viewable from our location.

Sinus Iridum, the Bay of Rainbows is located in the lunar north west (north east as we look at it) in this image of the ten day old waxing gibbous Moon.

This month, however the Golden Handle should be observable from about 23:30 on January 3rd continuing into the early hours of January 4th. Coincidentally, these times are just prior to the predicted dawn peak of the Quadrantid Meteor shower. Some future opportunities to view the Golden Handle could be:

April 1, 2012 : Sun above the horizon for part of the event
May 30, 2012: Sun above the horizon for part of the event
July 28, 2012: Event probably begins in early twilight.

- Guide Star Editor

Wagman Volunteers for 2011

Thanks to all of the AAAP volunteers at Wagman Observatory, the 2011 Star Party season was very successful. Fifty-three members assisted 250 times at twelve observable star parties, three very cloudy nights and two clear night private events. At least 1,400 visitors attended these evenings at the observatory. This is slightly below last year's total, but the lower number is due to a decrease in requests for private groups.

Here's the list in order of the times volunteered. Though the number of members who helped was similar to 2010, these members showed up 83 more times than last year. What a wonderful effort:

The following members can choose a hat, a patch or decline:

Tom Reiland	17	Eric Fischer	10
Flac Stifel	15	Joyce Osborne-Fischer	10
Bill Yorkshire	15	Mary DeVaughn	10
Diane Yorkshire	11	Matt Maskas	10
Bill Hayeslip	11	& grandson Scott 9 non-member	

The following members are eligible for a patch or may decline:

Fred Klein	9	Tim Manka	7
Don Hoecker	9	Mike Nizinski	6
Todd Ciarimboli	7	John Holtz	6
Terry Trees	7	Patrick Reiger	6
Joanne Trees	7	Dan Cousineau	6
Geoffrey Trees	7	Rowen Poole	5
Frank Pastin	7		

Other thoughtful members:

Pete Zapadka	4	Ron Pollack	2
Ed Moss	4	Bill Roemer	2
Lori Seitz	3	Dan Golembiewski	2
Bill Moutz	3	Tony Orzechowski	2
Tim Colbert	3	Roz Orzechowski	2
Katie Holtz	3	Ann Norman	2
Julie Yorkshire	3		

The following members volunteered at a single Wagman event:

Beth Stifle	Houston Westfall
Paula Meddings	Kelly Fletcher
Anne Beswick	August Hall and son (Family membership)
Matt Sandilla	
Cindy Pollack	Craig Lang
Sala Udin	Phil Breidenbach
Allen Tracht	Jim Klueber
Gene Kulakowski	Kathy DeSantis
Leah Shaner	Jack Landman

Once again, thanks for your great support. I'm proud to know people like you. ***- Tom Reiland, Director, Wagman*** **Obs.**

Winter's Grace: Orion

In January, Winter paints the landscape with a diminished palette, mostly browns and grays, and even strips the Sun of warmth. But in compensation, the "most brilliant of constellations", Orion, the Hunter, begins to dominate the evening sky.

Orion holds rewards for everyone, astronomers and non-astronomers alike, the well-equipped and those who watch the sky with eyes alone.

Its rising - this month taking place about sundown – was called "one of the most imposing spectacles that the heavens afford" by astronomer Garrett Serviss and impressed poets separated by almost two millennia:

"… behold Orion rise,
His arms extended measure half the skies:
His stride no less. Onward with steady face.
He treads the boundless realms of starry space,
On each broad shoulder a bright gem displayed
While three obliquely grace his mighty blade…"

- Manilius, Poeticon Astronomicon 1st century AD

"…You know Orion always comes up sideways.
Throwing a leg up over our fence of mountains,
And rising on his hands, he looks in on me
Busy outdoors by lantern-light with something
I should have done by daylight, and indeed,
After the ground is frozen, I should have done
Before…"

- Robert Frost, The Star Splitter 1923

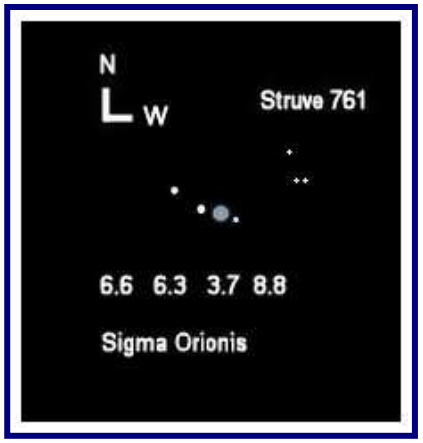
The "leg" mentioned by Frost is marked by blue-white Rigel, an Arab name that in fact means the "left leg of the giant". Although catalogued as beta Orionis, at magnitude .28, it's usually the brightest star in Orion.

Rigel is a physical double star with a magnitude 6.5 companion 9 arc seconds distant which is visible in a 3.1 inch refractor, although some books call for a 6 inch scope.

Alpha Orionis is better known as Betelgeuse, which can be translated "armpit of the central one". It's a red giant and the only significantly variable first magnitude star in the sky, cycling from magnitude 0.0 to 1.3 with a period of 6.39 years or 2335 days.

The rightmost star of Orion's belt, delta Orionis or Mintaka, besides being an easily split double, is also a handy signpost, being only 18 arc minutes below the celestial equator.

Zeta Orionis or Alnitak, the belt's leftmost star is less than a degree to the NW of the wonderful multiple star system sigma Orionis having four physically related components. (diagram contains magnitudes)



3 minutes to the NW is the faint triple Struve 761 with all components about magnitude 8.

But stars are only part of the story. Orion encompasses the (OMC) Orion Molecular Cloud, a huge formation of dust and gas that can be described as nothing less than a star factory.

The cloud is thought to be about 1600 light years distant and includes the Horsehead Nebula, one of the most difficult visual objects to spot (E.E. Barnard, noted for his acute vision, once failed to see it with the 40 inch Yerkes refractor) M78, M43, the nebular complex NGC 1973, 1975 1977, Barnard's Loop, thought to be a super-nova remnant similar to

Image Courtesy: Rogelio Bernal Andreo (DeepSkyColors.com)

the Veil Nebula in Cygnus and most famous of all, Messier 42, the "Great Nebula".

The Great Nebula in Orion, M42

Image captured by AAAP member Bill Snyder at *his personal observatory in Connellsville PA.* ***Bill used*** *a 130mm TMB refractor, Apogee U8300 camera and Astrodon LRGB Gen1 filters atop an Atlas EQG. Bill's website can be viewed at:* billsnyderastrophotography.com/

Actually visible to the naked eye as a glow surrounding Theta-1 Orionis, the middle of the three prominent stars in the Sword of Orion, it's a mystery why the nebulosity of M42 was only mentioned in 1610, Galileo having previously made a detailed sketch of the field in 1609.

William Herschel, prophetically correct about so many things, called the nebula "an unformed fiery mist, the chaotic material of future suns" as early as 1774.

M42 is thought to be 1300 light years distant and a bright "blister" on the near side of the OMC. Within, and mostly obscured within its "fiery mist" is a nursery harboring a young star cluster whose members may be as young as 10,000 years. This cluster is thought to have the highest density – 6000 stars per cubic light year – of any known open cluster.

Traditionally, Christian Huygens is thought to have been the first astronomer to have seriously examined the interior of the nebula in 1656 and is certainly the first to have mentioned what's come to be known as the Trapezium, a group of stars, members of the emerging cluster just mentioned, whose light has managed to pierce the nebular envelope. Huygens saw only three of the four most prominent stars initially. The fourth was discovered in 1673 by the priest and astronomer, Jean-Felix Picard.

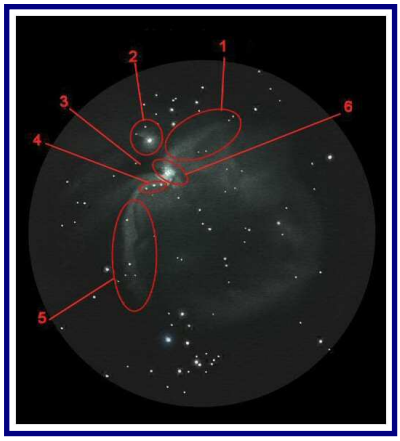
Visually, M42 is very different than most published images. The following sketch by Jeremy Perez whose web site is at beltofvenus.perezmedia.net is an accurate representation of what most amateurs will see with a moderate size scope.

Observing M42 is definitely helped by the use of filters. Both narrowband UHC and OIII filters improve the view although their effects differ on some areas of the nebula. An orange filter used with large apertures is said to help to reveal more stars within the nebula boundary.

A technique to show the full extent of M42, or any DSO, is to dark adapt your eyes, turn off scope tracking and let the nebula drift in and out of the field of view.

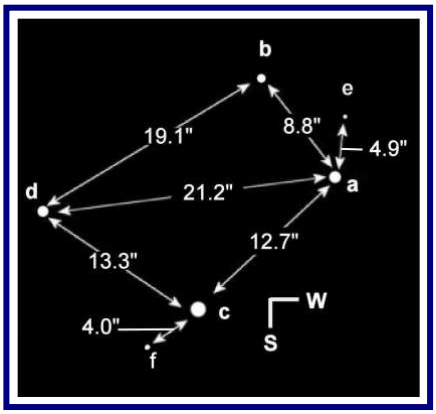
All the areas of M42 are named. Some prominent ones are:

1) Proboscis Minor
2) M43, a separate entity
3) The dark "Fish Mouth" or **Sinus Magnus**, crossed by a light ridge, **Pons Schroteri**
4) Theta-2 Orionis (three stars)
5) Proboscis Major or the Sword
6) Regio Huygheniana, bright area around the Trapezium, whose stars are catalogued as **Theta-1 Orionis.**



The Trapezium, the name usually meant to designate the four stars in the heart of the nebula, is easily resolved by even small scopes. A 60mm (2.4 inch) refractor does quite well.

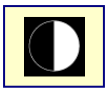
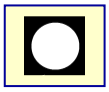
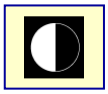
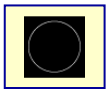
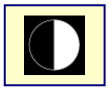
The object has a long history in the annals of visual astronomy. There are actually six stars within reach of amateur scopes. This chart shows the accepted designations of the six members and their separations in arc seconds:



Member Magnitudes

a = 6.7 to 7.7, an eclipsing binary with a 65 day period
b = 7.9 to 8.6, an eclipsing binary with a 6 day period
c = 5.4
d = 6.7
e = 10.3
f = 10.2

- Guide Star Editor

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1  Quadrantids Dec 28 to Jan 12 SR:07:43 SS:17:04 MR:11:52 MS:00:35 PI:48%	**2** SR:07:43 SS:17:04 MR:12:20 MS:01:34 PI:57%	**3** SR:07:43 SS:17:05 MR:12:52 MS:02:32 PI:66%	**4** Lunar "Golden Handle" Quadrantids Maximum SR:07:43 SS:17:06 MR:13:28 MS:03:29 PI:75%	**5** SR:07:43 SS:17:07 MR:14:10 MS:04:26 PI:83%	**6** SR:07:43 SS:17:08 MR:14:57 MS:05:21 PI:89%	**7** SR:07:43 SS:17:09 MR:15:52 MS:06:13 PI:95%
8 SR:07:43 SS:17:10 MR:16:52 MS:07:00 PI:98%	**9**  SR:07:43 SS:17:11 MR:17:56 MS:07:42 PI:100%	**10** SR:07:43 SS:17:12 MR:19:03 MS:08:19 PI:99%	**11** Herschel discovers Uranus moons Titania & Oberon 1787 SR:07:42 SS:17:13 MR:20:10 MS:08:53 PI:97%	**12** SR:07:42 SS:17:14 MR:21:18 MS:09:24 PI:92%	**13** AAAP General Business Meeting CSC 07:30 PM SR:07:42 SS:17:15 MR:22:27 MS:09:54 PI:85%	**14** SR:07:41 SS:17:16 MR:23:36 MS:10:24 PI:76%
15 SR:07:41 SS:17:17 MR:***** MS:10:56 PI:66%	**16**  SR:07:41 SS:17:18 MR:00:47 MS:11:31 PI:54%	**17** SR:07:40 SS:17:20 MR:01:57 MS:12:11 PI:43%	**18** SR:07:40 SS:17:21 MR:03:07 MS:12:58 PI:32%	**19** SR:07:39 SS:17:22 MR:04:14 MS:13:52 PI:22%	**20** SR:07:39 SS:17:23 MR:05:15 MS:14:52 PI:13%	**21** SR:07:38 SS:17:24 MR:06:08 MS:15:58 PI:7%
22 SR:07:37 SS:17:25 MR:06:53 MS:17:06 PI:2%	**23**  SR:07:37 SS:17:27 MR:07:31 MS:18:13 PI:0%	**24** SR:07:36 SS:17:28 MR:08:04 MS:19:18 PI:1%	**25** Crescent Moon and Venus in the West during twilight hours SR:07:35 SS:17:29 MR:08:34 MS:20:21 PI:3%	**26** SR:07:35 SS:17:30 MR:09:01 MS:21:22 PI:8%	**27** SR:07:34 SS:17:31 MR:09:27 MS:22:22 PI:14%	**28** Uranus moves north of the celestial equator SR:07:33 SS:17:33 MR:09:54 MS:23:21 PI:22%
29 Moon about 5° N of Jupiter SR:07:32 SS:17:34 MR:10:21 MS:***** PI:30%	**30**  SR:07:31 SS:17:35 MR:10:52 MS:00:19 PI:39%	**31** SR:07:30 SS:17:36 MR:11:25 MS:01:17 PI:48%	All times given are local. Legend: SR = Sunrise, SS = Sunset, MR = Moonrise, MS = Moonset, PI = Approximate Percentage Visible Lunar Surface Illuminated Local Midnight Details for AAAP Events can be found at: https://nightsky.jpl.nasa.gov/event-list.cfm?Club_ID=675&EventEra=Future			***"Theories crumble…. but good observations never fade."*** ***Harlow Shapley, director, Harvard Observatory 1921-52***

Some Solar System Highlights

- *Quadrantid Meteor Shower* maximum on the morning of January 4th.
- *Selenographic Colongitude* is 356.5° at 0h UT on the first day of the month. Add 12.2° each day.

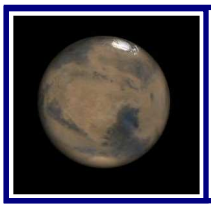
The following planetary entries include Local Rise and Set Times, Magnitudes and Disk diameters in Arc Seconds on the 1st, 11th, 21st and 31st days of the month.

Mercury is low in the dawn sky early in the month and will be lost in the Sun's glare by month's end. Mercury is at aphelion, or the point in its orbit farthest from the Sun's center, on the 18th.

Rise / Set	**(1st)** 06:14 / 15:38	**(11th)** 06:43 / 15:54	**(21st)** 07:08 / 16:24	**(31st)** 07:27 / 17:05
Mag. / Arc Secs	**(1st)** -00.40 / 05.67	**(11th)** -00.40 / 05.11	**(21st)** -00.50 / 04.83	**(31st)** -01.00 / 04.75

Venus is in evening twilight all month and increases its apparent separation from the Sun from 33° on the 1st to 38° on the 31st. It passes a bit more than a degree south of Neptune on the evening of the 13th. and will be less than 7° south of the crescent Moon on the evening of the 26th.

Rise / Set	**(1st)** 09:49 / 19:45	**(11th)** 09:42 / 20:10	**(21st)** 09:32 / 20:33	**(31st)** 09:19 / 20:55
Mag. / Arc Secs	**(1st)** -04.00 / 12.92	**(11th)** -04.00 / 13.52	**(21st)** -04.00 / 14.21	**(31st)** -04.10 / 15.01



Mars, brightening, will move from eastern Leo into Virgo at mid- month. It begins retrograde, or east to west, motion on the 25th as it approaches opposition on March 3rd.

Rise / Set	**(1st)** 22:38 / 11:31	**(11th)** 22:08 / 10:57	**(21st)** 21:32 / 10:21	**(31st)** 20:51 / 09:43
Mag. / Arc Secs	**(1st)** 00.20 / 09.02	**(11th)** -00.00 / 09.85	**(21st)** -00.30 / 10.76	**(31st)** -00.50 / 11.73

Jupiter is well placed for evening viewing all month, being high in the south near the Aries-Pisces border at sunset. Jupiter resumed its usual direct or prograde motion (west to east) a bit after Christmas. The Moon will pass close to Jupiter on the evenings of the 29th and 30th. Jupiter's System II longitude is 173°.

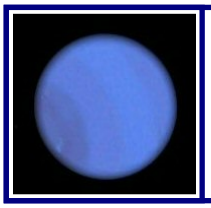
Rise / Set	**(1st)** 12:52 / 02:12	**(11th)** 12:13 / 01:35	**(21st)** 11:35 / 00:59	**(31st)** 10:59 / 00:25
Mag. / Arc Secs	**(1st)** -02.50 / 43.31	**(11th)** -02.50 / 41.88	**(21st)** -02.40 / 40.50	**(31st)** -02.40 / 39.21

Saturn, in the morning sky, is in Virgo, close to first magnitude Spica all month. The north side Saturn's rings are currently visible and inclined at an angle of about 14° to our line of sight. This will remain the case until October when the angle will increase.

Rise / Set	**(1st)** 01:53 / 12:58	**(11th)** 01:15 / 12:20	**(21st)** 00:39 / 11:42	**(31st)** 00:01 / 11:04
Mag. / Arc Secs	**(1st)** 00.70 / 16.62	**(11th)** 00.70 / 16.90	**(21st)** 00.60 / 17.19	**(31st)** 00.60 / 17.49

Uranus in Pisces, is placed for early evening observation. On the 28th Uranus will move above the celestial equator and remain north of it until 2052.

Rise / Set	**(1st)** 11:39 / 23:40	**(11th)** 11:00 / 23:02	**(21st)** 10:21 / 22:25	**(31st)** 09:43 / 21:47
Mag. / Arc Secs	**(1st)** 05.90 / 03.47	**(11th)** 05.90 / 03.44	**(21st)** 05.90 / 03.41	**(31st)** 05.90 / 03.39



Neptune in Aquarius, is low in the western sky in the early evening. It will disappear into evening twilight during the month.

Rise / Set	**(1st)** 10:21 / 21:00	**(11th)** 09:43 / 20:22	**(21st)** 09:04 / 19:44	**(31st)** 08:26 / 19:07
Mag. / Arc Secs	**(1st)** 07.90 / 02.19	**(11th)** 08.00 / 02.18	**(21st)** 08.00 / 02.17	**(31st)** 08.00 / 02.17

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..

They are organized by observing sessions beginning with the first event of interest on a given evening and continuing to Jupiter's setting, past midnight on the following day. Using January 13th /14th as an example, at 18:11 on January 13, with Jupiter already high in the South, Io will begin to transit the Jovian disk (signified by the code "T") . At 19:32, Io's shadow will appear on the disk, so both Io and its shadow will be transiting the disk (code "ST"). At 20:22, the Io transit ends, but its shadow is still in transit (code "S"). At 21:35, the Great Red Spot crosses the central meridian and at 21:42, Io's shadow will exit the disk. Jupiter sets after midnight at 01:18 on the morning of the 14th. All times are local.

1 01:47 GRS: Crosses Central Meridian
1 02:06 Jupiter Sets

1 21:38 GRS: Crosses Central Meridian
2 02:02 Jupiter Sets

2 17:30 GRS: Crosses Central Meridian
3 01:58 Jupiter Sets

3 19:48 Gan: Transit Begins T
3 21:53 Gan: Transit Ends
3 22:53 Eur: Transit Begins T
3 23:17 GRS: Crosses Central Meridian
4 00:36 Io : Disappears into Occultation T
4 01:08 Gan: Shadow Transit Begins ST
4 01:22 Eur: Transit Ends S
4 01:27 Eur: Shadow Transit Begins SS
4 01:54 Jupiter Sets

4 19:09 GRS: Crosses Central Meridian
4 21:48 Io : Transit Begins T
4 23:07 Io : Shadow Transit Begins ST
4 23:59 Io : Transit Ends S
5 01:17 Io : Shadow Transit Ends
5 01:51 Jupiter Sets

5 17:23 Eur: Disappears into Occultation
5 19:04 Io : Disappears into Occultation
5 19:53 Eur: Reappears from Occultation
5 20:04 Eur: Disappears into Eclipse
5 22:30 Eur: Reappears from Eclipse
5 22:31 Io : Reappears from Eclipse
6 00:56 GRS: Crosses Central Meridian
6 01:47 Jupiter Sets

6 17:36 Io : Shadow Transit Begins ST
6 18:28 Io : Transit Ends S
6 19:46 Io : Shadow Transit Ends
6 20:47 GRS: Crosses Central Meridian
7 01:43 Jupiter Sets

7 17:10 Eur: Shadow Transit Ends
8 01:40 Jupiter Sets

8 22:26 GRS: Crosses Central Meridian
9 01:36 Jupiter Sets

9 18:18 GRS: Crosses Central Meridian
10 01:32 Jupiter Sets

10 23:40 Gan: Transit Begins T
11 00:05 GRS: Crosses Central Meridian
11 01:24 Eur: Transit Begins TT
11 01:29 Jupiter Sets

11 19:57 GRS: Crosses Central Meridian
11 23:42 Io : Transit Begins T
12 01:03 Io : Shadow Transit Begins ST
12 01:25 Jupiter Sets

12 19:57 Eur: Disappears into Occultation
12 20:58 Io : Disappears into Occultation
12 22:28 Eur: Reappears from Occultation
12 22:43 Eur: Disappears into Eclipse
13 00:27 Io : Reappears from Eclipse
13 01:09 Eur: Reappears from Eclipse
13 01:21 Jupiter Sets

13 18:11 Io : Transit Begins T
13 19:32 Io : Shadow Transit Begins ST
13 20:22 Io : Transit Ends S
13 21:35 GRS: Crosses Central Meridian
13 21:42 Io : Shadow Transit Ends
14 01:18 Jupiter Sets

14 17:10 Eur: Transit Ends
14 17:21 Eur: Shadow Transit Begins S
14 17:27 GRS: Crosses Central Meridian
14 18:56 Io : Reappears from Eclipse S
14 19:01 Gan: Disappears into Eclipse S
14 19:46 Eur: Shadow Transit Ends
14 20:50 Gan: Reappears from Eclipse
15 01:14 Jupiter Sets

15 23:14 GRS: Crosses Central Meridian
16 01:11 Jupiter Sets

16 19:06 GRS: Crosses Central Meridian
17 01:07 Jupiter Sets

18 00:53 GRS: Crosses Central Meridian
18 01:03 Jupiter Sets

18 20:45 GRS: Crosses Central Meridian
19 01:00 Jupiter Sets

19 22:34 Eur: Disappears into Occultation
19 22:52 Io : Disappears into Occultation
19 01:00 Jupiter Sets

19 22:34 Eur: Disappears into Occultation
19 22:52 Io : Disappears into Occultation
20 00:56 Jupiter Sets

20 20:06 Io : Transit Begins T
20 21:28 Io : Shadow Transit Begins ST
20 22:18 Io : Transit Ends S
20 22:24 GRS: Crosses Central Meridian
20 23:38 Io : Shadow Transit Ends
21 00:53 Jupiter Sets

21 17:21 Io : Disappears into Occultation T
21 17:25 Gan: Disappears into Occultation T
21 18:15 GRS: Crosses Central Meridian
21 19:35 Gan: Reappears from Occultation T
21 19:45 Eur: Transit Ends
21 19:57 Eur: Shadow Transit Begins S
21 20:51 Io : Reappears from Eclipse S
21 22:22 Eur: Shadow Transit Ends
21 23:03 Gan: Disappears into Eclipse
22 00:49 Jupiter Sets

22 18:07 Io : Shadow Transit Ends
23 00:03 GRS: Crosses Central Meridian
23 00:46 Jupiter Sets

23 19:54 GRS: Crosses Central Meridian
24 00:43 Jupiter Sets

25 00:39 Jupiter Sets

25 21:33 GRS: Crosses Central Meridian
26 00:36 Jupiter Sets

26 17:25 GRS: Crosses Central Meridian
27 00:32 Jupiter Sets

27 22:03 Io : Transit Begins T
27 23:12 GRS: Crosses Central Meridian
27 23:24 Io : Shadow Transit Begins ST
28 00:14 Io : Transit Ends S
28 00:29 Jupiter Sets

28 19:04 GRS: Crosses Central Meridian
28 19:17 Io : Disappears into Occultation
28 19:52 Eur: Transit Begins T
28 21:28 Gan: Disappears into Occultation T
28 22:22 Eur: Transit Ends
28 22:34 Eur: Shadow Transit Begins S
28 22:46 Io : Reappears from Eclipse S
28 23:39 Gan: Reappears from Occultation S
29 00:26 Jupiter Sets

29 17:53 Io : Shadow Transit Begins ST
29 18:43 Io : Transit Ends S
29 20:03 Io : Shadow Transit Ends
30 00:22 Jupiter Sets
30 19:46 Eur: Reappears from Eclipse
30 20:43 GRS: Crosses Central Meridian
31 00:19 Jupiter Sets

Suggested Deep Sky Objects for January

This table is part of a series of monthly Deep Sky targets compiled by Bob Kepple, co-author of *Night Sky Observer's Guide*. The complete set of tables, one per month, may be found at the AAAP web site : http://www.3ap.org/ under the S.I.G. link (Special Interest Group) for Deep Sky Observing.

Bob mentions that, "…objects in the … lists may be observed for about two months before and after the month they are listed… If you have a small telescope see how many objects you can find in the lists for larger scopes and, of course, individuals with larger instruments will have no trouble observing objects listed for smaller instruments…." [PA = Position Angle of second component in relation to primary, with 0° representing North, 90° representing East, etc.]

Objects for Binoculars							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
06h 32.4m	+04° 52'	NGC 2244	4.8v	23'		Mon	Open Cl in Rosette Nebula
06h 41.1m	+09° 53'	NGC 2264	3.9v	20'		Mon	OC 40* "Christmas Tree Cluster"
07h 03.2m	-08° 20'	M50	5.9v	16'		Mon	Open Cluster 80*
07h 36.6m	-14° 30'	M47	4.4v	29'		Pup	Open Cluster 30*
07h 41.8m	-14° 49'	M46	6.1v	27'		Pup	Open Cluster 100*
07h 44.6m	-23° 52'	M93	6.2:v	22'		Pup	Open Cluster 80*
Objects for Small Telescopes (2-6 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
06h 23.8m	+04° 36'	Epsilon (AB)	4.5, 6.5	13.4"	127°	Mon	Double Star
06h 51.8m	+00° 28'	NGC 2301	6.0v	12'		Mon	Open Cluster 80*
07h 37.5m	-12° 04'	Melotte 71	7.1v	9'		Pup	Open Cluster 80*
07h 38.8m	-26° 48'	k Puppis	4.5, 4.7	9.9"	318°	Pup	Double Star
08h 05.3m	-28° 10'	NGC 2527	6.5v	16'		Pup	Open Cluster 40*
08h 10.7m	-12° 50'	NGC 2539	6.5v	21'		Pup	Open Cluster 50*
Objects for Medium Telescopes (8-14 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
07h 08.3m	-10° 39'	NGC 2343	6.7v	6'		Mon	Open Cluster 20*
07h 17.8m	-15° 37'	NGC 2360	7.2v	12'		Cma	Open Cluster 80*
07h 41.8m	-14° 44'	NGC 2438	11.0v	66"		Pup	Plan Neb in M46
07h 41.9m	-18° 13'	NGC 2440	9.4v	14"/32"		Pup	Planetary Nebula
08h 00.2m	-10° 47'	NGC 2506	7.6v	6'		Mon	Open Cluster 70*
08h 00.7m	-19° 04'	NGC 2509	9.3p	8'		Pup	Open Cluster 150*
Objects for Larger Telescopes (16-inch & larger) Challenge Objects							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
06h 32.3m	+05° 03'	NGC 2337-39	-	80'x60'		Mon	"Rosette Neb" (Use O-III filter)
06h 39.2m	+08° 44'	NGC 2261	-	3.5'x1.5'		Mon	"Hubble's Variable Nebula"
06h 49.0m	-36° 00'	NGC 2298	9.4v	6.8'		Pup	Globular Cluster
07h 38.4m	-10° 41'	Melotte 72	10.1p	9'		Mon	Open Cluster 40*
07h 47.4m	-27° 20'	NGC 2452	12.0v	19"		Pup	Planetary Nebula
07h 47.8m	-27° 14'	NGC 2453	8.3v	5'		Pup	Open Cluster 30*

Future General Meeting Dates & Times

February	10, 2012	7:30pm (Planetarium show at 8:00pm)
March	09, 2012	8:00pm
April	13, 2012	8:00pm
May	11, 2012	8:00pm

Please note that the meeting times for March, April and May are a half-hour later than usual. This is due to a prior engagement of the Science Stage at the Carnegie Science Center.

Guide Star Submissions:

All AAAP members are encouraged to submit items to the club newsletter. Articles, images, observations, notices, ads, book, software and equipment reviews, all are welcome.

The Guide Star is posted online at month's end to both the club web site and the file section of the Yahoo Group AAAPgh.

Please submit items as early as possible for inclusion in the coming issue. Forward submissions or questions to: gseditor@3ap.org

Two Prominent Members Resign

Craig Lang has resigned from both the AAAP and from his position as club Vice President. This was done for health reasons. Working with Craig as an officer of the AAAP was a distinct pleasure.

Flacc Stifel, associate director of Wagman Observatory, longtime AAAP member, a mainstay of the club and a true friend to its members, has also resigned from the club.

Both their contributions and their company is already missed. We wish them well and hope that their absence is only temporary.

- Guide Star Editor

AAAP Welcomes a New Member

Nathan Langer

Amateur Astronomers Association of Pittsburgh, Inc.

2011-2012 Executive Officers

President:	Anthony Orzechowski president@3ap.org
Vice-President:	
Treasurer:	Michael Meteney treasurer@3ap.org
Corresponding Sec:	John Mozer correspondingsecretary@3ap.org
Recording Sec:	Dennis Derda recordingsecretary@3ap.org
Membership Sec:	Don Hoecker membershipsecretary@3ap.org
Guide Star Editor:	John Cheng gseditor@3ap.org

AAAP Member Dues:	$ 24.00
Student Membership (K-12 & full time college student):	$16.00
Family Membership	$ 40.00

Basic Procedure for Paying Dues:

1. Make check payable to "AAAP Inc."
2. Send check to: Michael Meteney, Treasurer
   1070 Sugar Run Road
   Venetia, PA 15367-1514