



Roanoke Valley Astronomical Society

News About Amateur Astronomy
in Southwestern Virginia



Volume 26 – Number 6

June 2009

The Skies of Summer

by Jiri Kolejka

In comparison to other seasons, summer nights are short, but warmer outdoor temperatures motivate dedicated astronomers to stay out longer and enjoy all the celestial beauty the summer sky offers.

The procession of beautiful summer constellations ascending above the northeast horizon is led by Hercules, recognizable by its trapezoidal asterism and featuring one of the most popular globular clusters (M13).

However, the most notable asterism in the northern celestial hemisphere is the "Summer Triangle" formed by alpha stars Vega, Deneb and Aquila of three adjacent constellations Lyra, Cygnus and Aquila. These 3 summer constellations contain outstanding planetary nebulas observable with a small amateur telescope.

Sagittarius is the richest of all constellations for Deep Sky Objects. This constellation has prominent emission nebulas and globular clusters in particular, and is easily recognizable by its "Tea Pot" asterism. It appears above the south horizon later in summer.



Jiri with his first telescope, a Celestron 4". It was a birthday gift from his daughter. He sold it on eBay, and now has a 10" Orion Dobsonian.

During summer months planet Saturn trails constellation Leo toward the western horizon. Even without open rings, Saturn is a fine telescope object, especially on a stable night when the cloud bands are visible.

General classification of DSOs:

- Globular clusters (GC); eye catching balls of old stars
- Open clusters (OC); loose concentrations of stars tied together by gravity
- Galaxies (GX) of all

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Astronomy Day 2009 in Elmwood Park

By John Goss

We have a very cool hobby. So cool that we enjoy bringing it to the public. The annual Astronomy Day was just such an occasion.

Saturday May 2nd saw several RVAS members assemble their visual and radio telescopes and displays at Roanoke's Elmwood Park for a conjunction of Astronomy Day and Community School's Strawberry Festival. While the morning setup was proceeding more or less smoothly, people walked up wondering what was going on.

What was going on was a radio telescope being erected that would give an audible alert when people passed in front of it.



Dave Thomas calibrates the field of reception of his radio telescope, after people walked in front. This calibration involved timing the drift of the Sun across the receptor, while measuring signal strength.

What was going on was a short tube 80 mm refractor being positioned so that it aimed directly at sightseers peering down from the Mill Mountain Star. What was going on was an f/4 8 inch reflector and a Celestron 4.25 inch go-to reflector showing that not all telescopes are unwieldy.

What was going on was a popular interactive display showing the weight of curious Earthlings on different solar system bodies.



Most importantly though, what was going on was an opportunity for people to discover amateur astronomy in the Roanoke Valley.

Once the Strawberry Festival opened its "doors," nearly 100 bicyclists from the Blue Ridge Bicycle Club completing the Mayor's Bike Ride rolled up to the RVAS event. There was quite a crowd of bicycles next to the various telescopes!



People from all walks of life and of all ages stopped to look at some of the facets of amateur astronomy. Folks were amazed that they could really see people at the Mill Mountain Star overlook. They were amazed that radio signals from the astronomical sources could really be picked up. Both adults and children

alike were amusingly pleased and then utterly shocked on discovering their weight on the moon, and then on Jupiter.

Just after the RVASers had their fill of strawberry shortcake, strawberry ice cream and chocolate covered strawberries, and after at least 300 people had looked at the displays and had pickup RVAS promotional material, the weather turned threatening. Since the telescopes and the displays were not rated as waterproof, the group decided to play it safe. The exhibit was knocked down by 2 p.m.

The RVAS would like to thank the thirteen members who helped share our hobby with the public. And thank you Rand Bowden for saving club members from sunstroke by bringing a canopy!



Frank Baratta's Astro-Quiz

In 1989, the Canadian city of Quebec achieved a rather dubious distinction due to a solar flare. What was that distinction?

Answer to Last Month's Astro-Quiz: The German celestial cartographer Johann Bayer (1572-1625) labeled stars on his maps using the Greek alphabet, so that the brightest was to be its "alpha," second brightest, its "beta", and so on. But in many cases, and for various reasons, Bayer didn't keep to this order. In fact, for 29 of the 88 constellations a star other than the alpha is the brightest of the pattern. What's more, in 3 cases the constellations don't even have a recognized alpha. Among the more well-known reversals are Rigel (beta Ori) and Betelgeuse (alpha Ori) and Pollux (beta Gem) and Castor (alpha Gem), in which the beta is *the brighter*.

Crater Guericke Area Looks Like a “Statue of Liberty Torch”

By Dave Thomas

Located in the Northern part of Mare Nubium at Lunar coordinates 11.5 S, 14.1 W, and spanning 40 miles across is the ancient lunar crater, Guericke.

This photo of the crater was taken in July 1964 by one of the Ranger series of spacecraft, just minutes before it impacted the Lunar surface.



natural actions of volcanic activity on the Lunar surface, partially filling in the crater floor. The rim has been worn down and has collapsed in many places.

The lighting in this photo on the crater and the surrounding area, to me, conjures up the image of the torch held by the Statue of Liberty in New York Harbor.

The Lunar surface has many varied and interesting features in its

The crater has been ravaged over time by the

landacape. The crater Guericke is just one of the many that dot the Lunar landscape.

The Roanoke Valley Astronomical Society is a membership organization of amateur astronomers dedicated to the pursuit of astronomical observational and photographic activities. **Meetings are held at 7:30 p.m. on the third Monday of each month, at the Center in the Square in downtown Roanoke, Virginia. Meetings are open to the public.** Observing sessions are held one or two weekends a month at a dark-sky site. Yearly individual dues are \$20.00. Family dues are \$25.00. Student dues are \$10.00. Articles, quotes, etc. published in the newsletter do not necessarily reflect the views of the RVAS or its editor.

RVAS web page: <http://rvasclub.org>

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"The Open Cluster"

By Clark M. Thomas

June 15th RVAS Meeting is Important

On the RVAS calendar, June means Society officer elections and, just as importantly, a time to remember the past year and to consider the new one.

If you want to learn what's up in the June and July skies, please come to the **June 15th meeting**. If you want to discover how the RVAS can help you enjoy amateur astronomy, then this meeting is for you!

The meeting will begin 30 minutes early — at 7:00 p.m. — with pizza and soft drinks courtesy of the RVAS. (No pre-meeting dinner is scheduled for this month.)

Please don't forget that it is also that time of year — **dues time!** Membership is still the "best deal in town."

Some Odd Hubble Facts

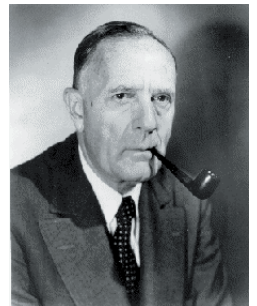
Now that the magnificent Hubble Space Telescope has been repaired for the last time, it is fun to consider these odd facts:

(1) Hubble has photographed every planet in the Solar System, except one: Mercury. It's too dangerous for the Hubble to look at something that near the Sun. No problem, we have satellites around nearby Mercury beaming back better images. By the way, Mercury is, on average, the closest planet, not Venus.

(2) When "Naked Gun 2 1/2" came out in 1991, Hubble was still a national laughingstock. In the movie, it was pictured in the Blue Moon Cafe on a wall of failures, smack in the middle of the Titanic and the Hindenberg.

(3) When the U.S. Postal Service released a special 41-cent stamp for Edwin Hubble in 2008, they called him a "pioneer of the distant stars."

But Hubble was close to choosing another path for himself. Born in Missouri in 1889, Hubble studied math and astronomy as an undergrad, but then went on to study law as one of the first Rhodes Scholars at Oxford University. He reportedly moved to Kentucky to practice law. But the pull of the cosmos was too great. Hubble spent most of his career at California's Mt. Wilson observatory.



He is credited with many discoveries, but most notably for observing that the farther apart galaxies are from each other, the faster they move away from each other. Based on this, Hubble concluded that the universe expands uniformly. When the Hubble Space Telescope launched, one of its goals was to figure out this expansion rate, called the Hubble Constant.

(4) Everyone wants a piece of the Hubble, but it only has 3,000 available hours each year. To divvy up the time, a panel of internationally renowned scientists at the Space Telescope Science Institute reviews proposals submitted by teams of scientists around the world. Some teams may only get a couple of minutes with the telescope, but even a window of time that small is highly coveted.

A Superb "Object of Interest"

By Jack Gross

Pietro Angelo Secchi, an Italian astronomer, who was the director of the Observatory at the Gregorian University, was a bit of a 19th century Renaissance kind of a guy. According to Wikipedia:

- * He invented the Secchi disk, which is used to measure water transparency in oceans and lakes.

- * He studied the climate of Rome and invented a "Meteorograph" for recording weather data.

- * He also studied the Aurora Borealis, lightning and hail.

- * He organized monitoring of the Earth's magnetic field.

- * He was in charge of the placement of sundials and the repair and installation of municipal water systems for the Papal government

- * He supervised a survey of the Via Appia in Rome which was later used in the topographic mapping of Italy.

- * He supervised construction of lighthouses for the ports of the Papal States.

A few of his accomplishments in the field of Astronomy include:

- * He discovered three comets, including Comet Secchi.

- * He produced an exact map of the lunar crater Copernicus.

- * He drew a detailed map of Mars.

- * He revised Struve's catalog of double stars, compiling data for over 10,000 binaries.

- * He observed and made drawings of solar eruptions and kept sunspots records.

- * He organized expeditions to observe solar eclipses in 1860 and 1870.

However, Father Secchi's main interest was in astronomical spectroscopy. He invented the heliospectrograph, star spectrograph, and telespectroscope. And, he is of special interest to us because, tah-dah, he named this month's

special OOI (Object Of Interest) "La Superba" With an apparent magnitude of +4.8 to +6.3, La Superba, is a very rare carbon J-star found in The Hunting Dogs - Canes Venatici at right ascension, 12h 45m 07.83", declination, +45° 26' 24.92".

But, the really nifty thing about this star is its color. It is one of the least hot and reddest stars in the sky. It is also one of the brightest giant red carbon stars.

Carbon stars are similar to red giants, but contain more carbon than oxygen. These carbon compounds create a kind of "sooty" atmosphere which results in the blood-red color. Most of their energy output is in infrared radiation.

La Superba (Y Canum Venaticorum) has a radius of approximately 2 AU. If it were placed at the location of our sun, the star's surface would extend beyond the orbit of Mars.

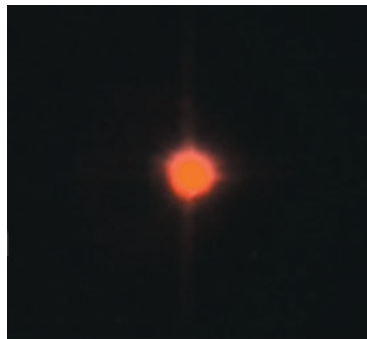


Photo: Michael Good

La Superba is almost impossible to locate with your naked eye (magnitude varies from 4.8 to 6.4), but doable with a modest telescope.

Start at 12 Alpha Canum Venaticorum, also known as Cor Caroli, a double star of magnitude 2.89. From there go about 6 degrees northwest to Chara (8 beta CVn), a star of the 4th magnitude. From Chara go 5 degrees NNW direction where you will find La Superba.

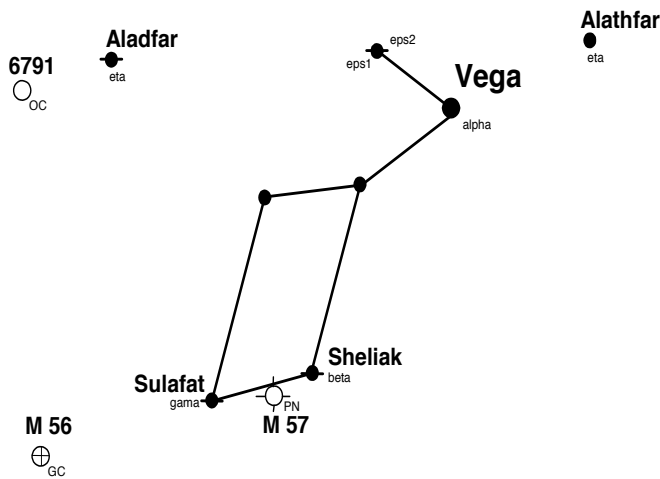
Once located in your eyepiece, you may well agree with Father Angelo Secchi who named this star for the beauty of its spectrum. From the Italian "La Superba" means "The Arrogant One." Perhaps a better translation may be "The Show-Off".

kind of shapes; beautiful spiral face on, edge on, irregular

- Elliptical galaxies; the results of past galaxy mergers
- Galaxies in cataclysmic collisions
- Planetary nebulas (PN); the remnants of dead stars
- Reflection (RN) and Emission (EN) nebulas; often the birthing places of new stars
- Supernova remnants (RN) of gigantic star explosions

Alphabetical prefixes of general DSO catalogs:
 M = Messier catalog by a 17th century comet-chaser Charles Messier, contains 110 objects in numerical sequence of their discovery
 NGC = New General Catalogue with nearly 3,000 objects initiated by John Herschel and published in 1880 by Johan Ludwig Dreyer
 IC = Index Catalog contains several thousand more objects observable by large telescopes.

Lyra



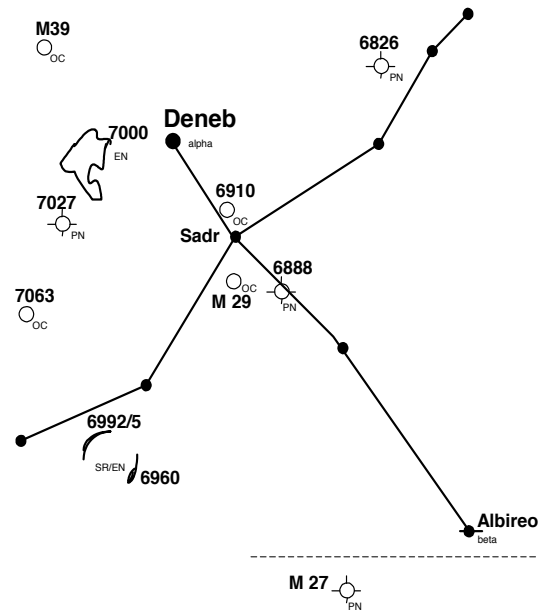
Hermes made a lyre and gave it to Orpheus to charm Hades to pass and plead for Eurydice to be released from Underworld. Pluto requested Orpheus not to turn and look back, but unfortunately he did.

Very small bright constellation, ranked 52nd. Alpha star Vega is brightest (mag 0) in summer sky, the principle star of "Summer Triangle" Parallelogram asterism of 4 stars (mag 3 & 4) with beta star Sheliak and gamma star Sulafat

Lyra DSOs:

Epsilon Lyrae; "Double-Double" two pairs of stars (mag 5) at 2.4 arcsec separation
 M 57; "Ring Nebula", beautiful 'smoke ring' is actually cylindrical PN, 2.3 Kly away, illuminated by a central white dwarf
 M 56; small dim GC discovered by Messier in 1779, located half-way between Sulafat and Albireo, 33 Kly away from earth

Cygnus



Zeus disguised himself as a swan to seduce Leda wife of king of Sparta. From Leda's egg emerged Castor and Pollux, daughter Helen of Troy.

16th largest constellation with alpha star Deneb Beta star Albireo is famous color contrast double (3 yellow & 5 deep-blue) also called Northern Cross
 The Great Rift starts at Cygnus

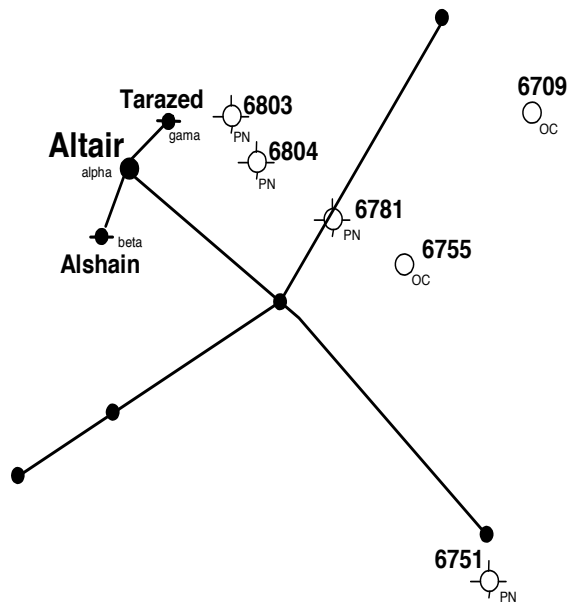
Very rich on DSOs, star clusters and nebulas:
 M 29; small bright OC with 2 variable stars;
 one eclipsing binary with long period
 M 39; triangular OC of 25 stars, also called
 "Aristotle", 800 ly away
 NGC 6826; "Blinking Planetary" (mag 8.8) PN
 with very bright central star
 NGC 6888; "Crescent Nebula", faint oval EN,
 5Kly away, energized by 2 solar winds; one out-
 ward & second inward, need for OIII filter
 NGC 6992/6995; "Veil Nebula" eastern part,
 magnificent supernova remnant
 NGC 6960; "Veil Nebula" western part, also
 called "Filamentary Nebula"
 NGC 6979; "Veil Nebula" waterfall; need for
 OIII filter
 NGC 7000; "North American Nebula", large faint
 EN resembling east coast
 M 27; "Dumbbell Nebula", outstanding PN in
 adjacent constellation Vulpecula

In the Greek mythology, Zeus in the form of
 eagle plunged to Earth and abducted Ganymede
 to Olympus

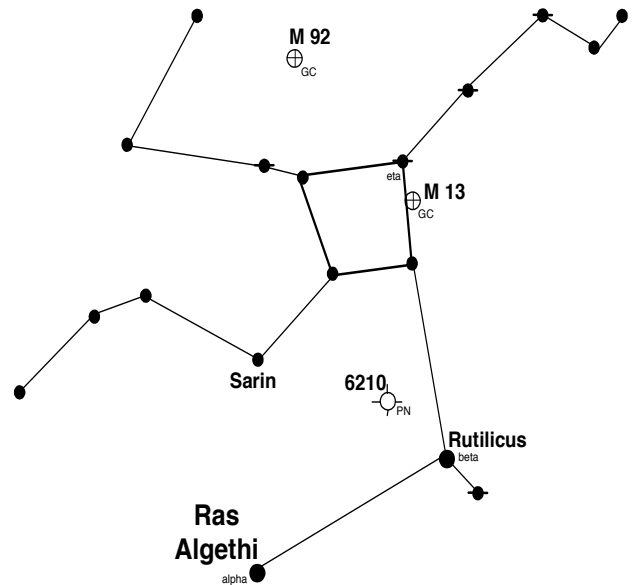
22nd largest constellation with alpha star Altair
 as eye in the neck & head asterism
 Prominent part of The Great Rift at Aquila

Need for OIII filter to see PNs
 NGC 6781; bright PN discovered by Herschel in
 1788
 NGC 6751; "Glowing Eye Nebula", PN
 NGC 6772; small grayish nebula near lambda
 Aquila
 NGC 6709; relatively loose OC with stars in
 clumps & chains
 NGC 6755; small cloud-like OC

Aquila



Hercules



Half-mortal son of Zeus. Zeus spouse Hena
 was jealous of Hercules strength, made him
 temporarily mad and he killed his family.
 Twelve Labors of Hercules as pennant; killed
 Leo, Draco, Hydra and Cancer, built Pillars of
 Hercules at present Gibraltar

A large 5th rank constellation with keystone
 shape asterisk at the center

Alpha star Ras Algehi is orange & blue binary
 Rho Herculis is white binary

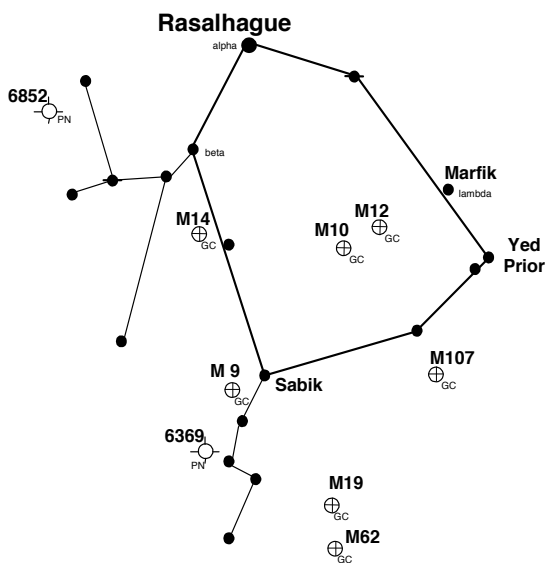
Three interesting DSOs:

M 13; "Hercules Cluster", outstanding 'naked eye' GC with star chains and dark lanes "The Propeller", 25 Kly away

M 92; distinctive rectangular GC with bright dense core

NGC 6210; "Turtle Nebula", very small (mag 9) hazy blue PN

Ophiuchus



Asclepius son of Apollo and nymph Coronis snatched herb from snake mouth. Considered Healer or Snake-Oil Merchant was killed by Zeus after complaint by Hades

11th ranked constellation with two second mag stars; alpha Rasalhague and eta Sabik

A lot of M objects, mostly GCs:

M 9; bright easily observable GC, near to MW center, many variable stars

M 10; nice OCs with hazy background

M 12; another nice OCs with many variable stars, 16 Kly away from us

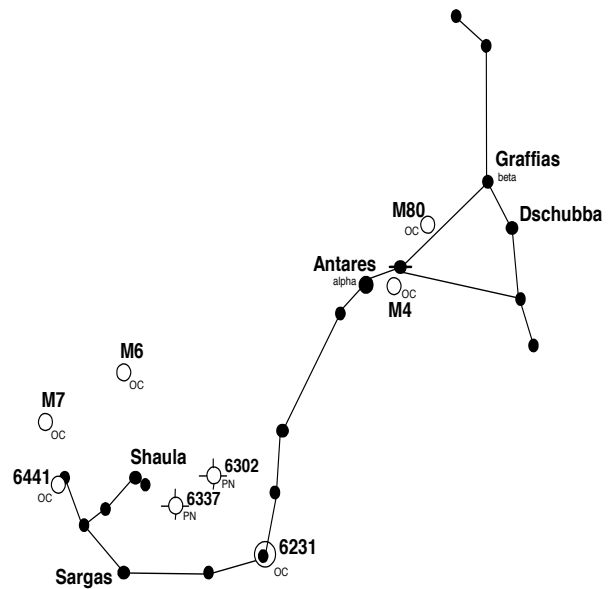
M 14; large weakly concentrated GC, not easy to resolve stars

M 62; large evenly concentrated GC, halo with hundreds of dim stars

M 19; GC with oval halo, many resolved stars, 28 Kly away

NGC 6369; "Little Ghost Nebula", annular form PN, looks like a donut

Scorpius



In Greek mythology, Scorpius was associated with Orion who boasted about killing all animals on the Earth. Goddess Galla sent a scorpion to challenge him in a battle. Orion exhausted after the fight fell asleep and the scorpion stung him to death.

The alpha star Antares, red supergiant 15-times heavier than our Sun was Greek god of war. Antares is expected to blow up as a supernova in about 106 years.

Objects of interest:

M 4; nearest to Earth (10Kly) GC with a central bar structure of bright stars

M 6; "Butterfly Cluster" OC with bright stars forming an outline of butterfly wings

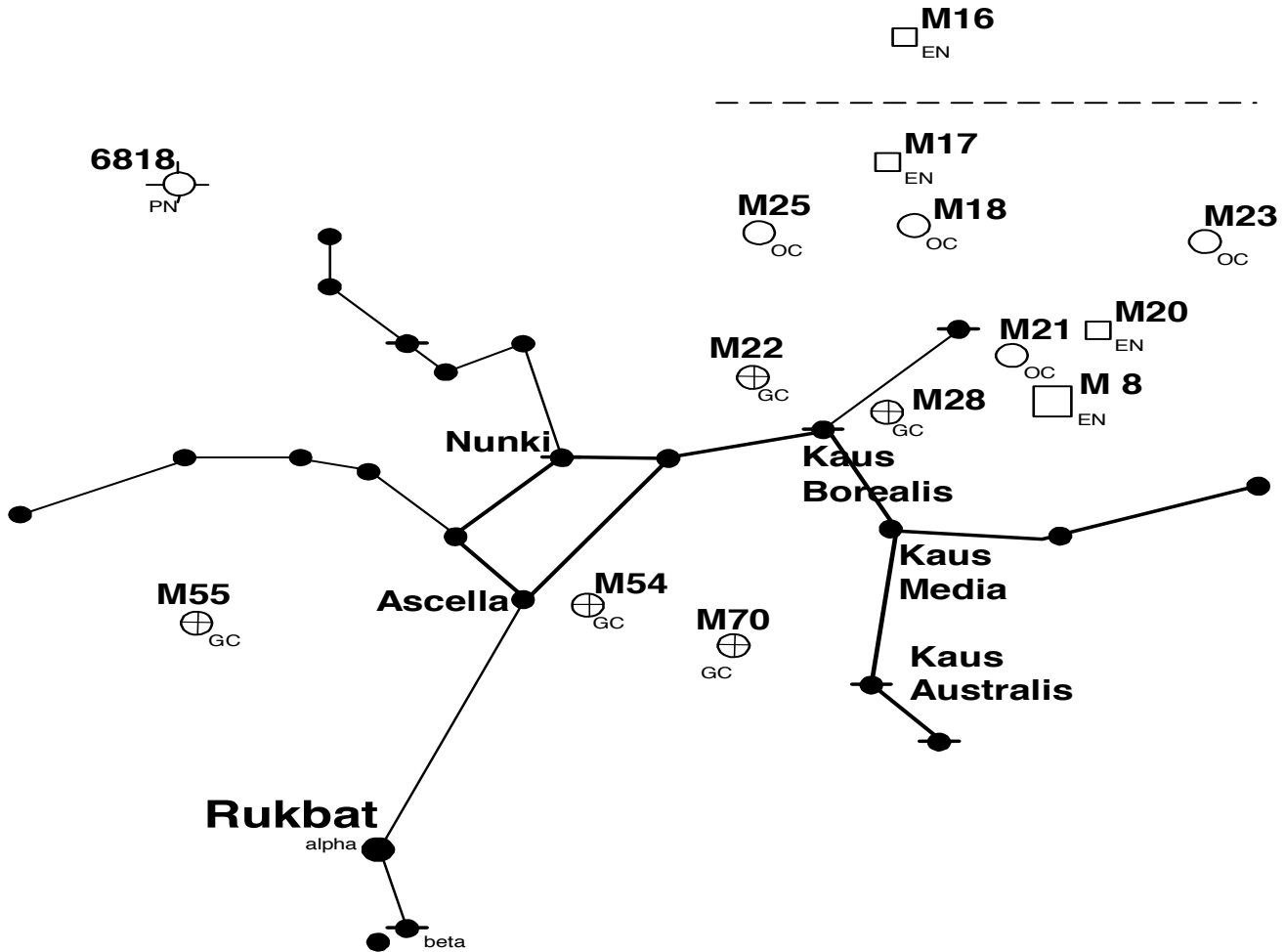
M 7; "Ptolemy Cluster" is a huge OC of dazzling stars known since antiquity

M 80; faint small (mag7.4) GC with sharply

compressed core, found by Massier
 NGC 6231; compact bright OC of supergiant stars
 NGC 6302 and NGC 6337; beautiful PN near Scorpius stinger
 NGC6441; concentrated GC near G-star Scorpii

of dark nebulae and scattering of diamond-like stars, use low power EP
 M 16; "Eagle Nebula" is EN adjacent to Scutum constellation, includes star forming region called "The Pillars of Creation"
 M 17; "Omega Nebula" also called "Swan Nebula", EN appears like numeral 2 with extended baseline
 M 18, M 23, M 25 are OCs located above The Tea Pot

Sagittarius



Many mythical interpretations; for Roman it was Centaur with a bow

Low on SW horizon it is the 15th largest constellation with so called "The Tea Pot" asterism. Lambda star Kaus Borealis is the pot top. Sagittarius is chest throw of beautiful DSOs, more GCs and ENs than any other constellation: M 8; "Lagoon Nebula" complex EN with swath

M 20; "Trifid Nebula", the most photogenic EN is split into 3 segments
 M 21; compact bright OC near Triffit nebula
 M 22; probably the 3rd best of all GCs
 M 28; bright misty GC, ball of haze difficult to resolve into stars
 M 54, M 69, M 70 are small compact GC in the base of Tea Pot.

Member of the Month...

Mark Hemm Comes Home to Virginia

by Dave Godman

One of the newest members of the RVAS is Mark Hemm. Already an avid observer, he seeks to find others with the same exuberance, finding out about our club through the internet.

Originally from Roanoke, he moved away with his family at an early age, only to return this spring after having served as a geriatric physician in Vermont for 25 years.

Starting with a Meade ETX 60mm scope, he has over the years acquired a severe case of aperture fever, progressing through an 8 inch,

10 inch and now to a 14 inch Meade LX200. In addition, he has the 14 inch installed in his own observatory in Craig County at an extremely dark sky site. Getting the best astrophotos has been his latest passion, and he looks forward to swapping techniques and results with our members.

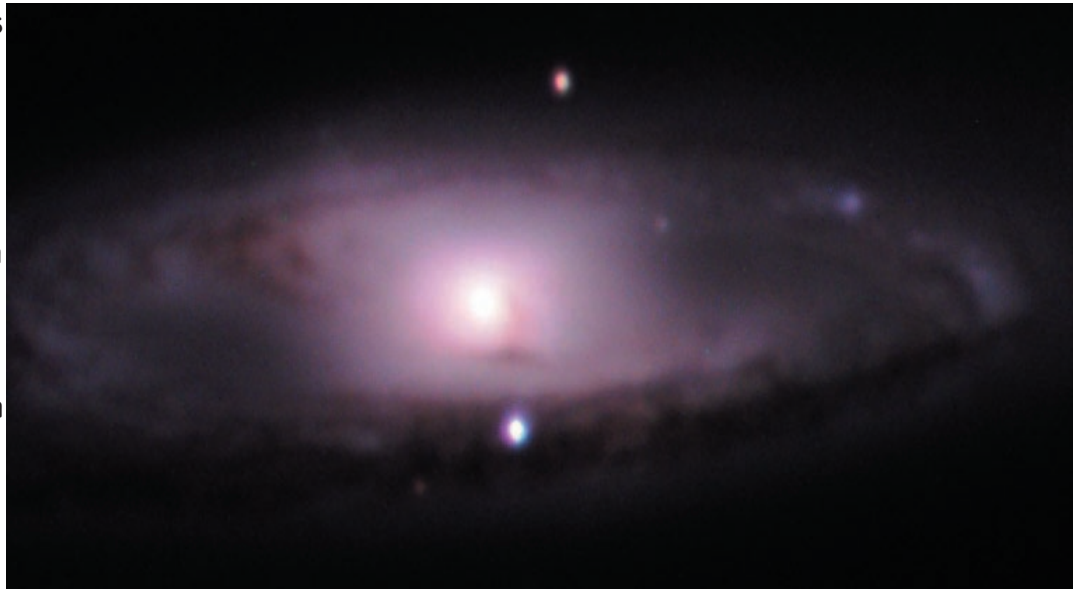
Due to some health conditions he hopes to relocate to the dry, dark skies near Flagstaff, AZ in the next few years. Until then, Mark, welcome to the RVAS. Let's have some great times together.

Galaxy M65 in Leo

By Michael Good

Galaxy M65 in Leo makes an appealing target for astrophotography using many different sizes of aperture. Dust lanes will be visible photographically in images from even the smallest telescopes. Last imaged with my 10" Meade, I decided to pursue with my Celestron 14" at full plate scale (f/11).

I captured luminosity images (17 five minute images or 1 hr 25 minutes) on Mar 20, and color data after midnight plus more color data on March 22. Since red light passes through our atmosphere the easiest, and even though I was using the Don Goldman "balanced" color filters for the SBIG CCD cameras, I took 20 minutes (4x5) of red data, 25 minutes (5x5) of green, and finally 35 minutes (7x5) of blue data, since blue light is the most difficult to capture due to



atmospheric absorption/extinction.

The image proved a challenge to process. I tried no less than six different nights to process this image using Photoshop. I wanted to bring out the faint background galaxies visible in the original data, but this dramatically brought up the background noise. I also wanted to remain true to the natural colors.

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In this case, M65 is a galaxy filled with older Population II stars, hence is predominantly yellow in color, with a sprinkling of blue and red foreground stars. Further, I continue to learn Photoshop tricks for enhancing images, including a new technique to reduce bloated stars by using a Photoshop "Filter - Other - Minimum" filter. Then I obtained doughnuts around the reduced size stars, so had to add in "noise" and brighten these selections. You literally will spend hours more in image processing than in actually taking the picture. The result I am

presenting here is limited by atmospheric blurring (an example of the same telescope under North African skies can be found on the web taken by the German amateur Volker Wendell). Even so, my image, when viewed on calibrated monitors in full screen, presents a wealth of detail in the spiral arm structure of the galaxy, showing the impressive dust lanes that dive into and surround the core of this lovely galaxy.

Head out and take in M65, part of the famous trio of galaxies in Leo.

Giant Outburst of Sun's Energy Detected

By Dave Thomas

On May 9, 2009 at 1614 hours Universal Time, the Sun released a huge amount of energy in the form of a radio frequency burst. Sounding like a sudden increase in the background noise on my Radio Jove receiver, it rose to a crescendo of sound, reached a peak, and slowly descended down to the normal background level. The outburst lasted almost two minutes.

This great outpouring of energy from the Sun was classified as a type III/V radio burst.

These radio bursts occur when strong magnetic lines of force break away from the Sun and beam electrons along their path. Bursts of this type produce frequencies between 40 and 10 Mhz that start at the upper frequency and drift down to the lower frequency.

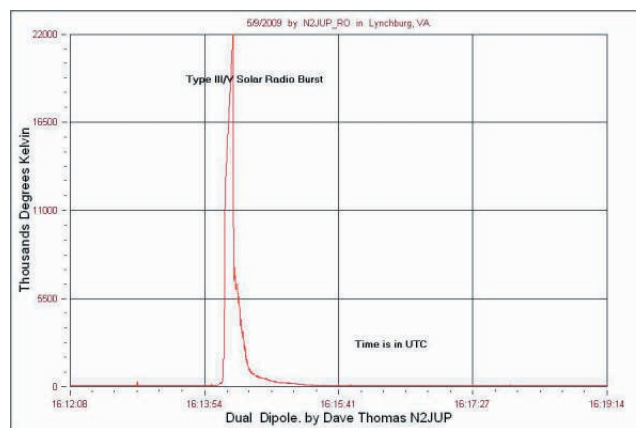
Using Radio Skypipe charting software from Radio Sky, I was able to chart the progress of the outburst on my lap top computer using the sound card and the audio output from the Radio Jove receiver, which was tuned to 20.1 Mhz. The burst registered an amazing 22 million

Kelvin, equivalent antenna temperature, at the antenna terminals. The burst was also recorded by Wes Greenman at his LGM (Little Green Men) radio observatory in Alachua, Florida.

Phenomena such as this and radio emissions from the planet Jupiter can be monitored by the equipment I described. Although unsophisticated when compared to professional and government installations, it can be very exciting to be able to monitor these natural occurrences, and at the same time learn a little of the science involved in their creation.

The charting software used is available from radiosky.com. There is a free version that can be downloaded from the site. The hardware, including the receiver, ready built, or in kit form, and antenna are

available. Information about the NASA Radio Jove Program and obtaining the software and hardware can be found at <http://radiojove.gsfc.nasa.gov/> mp3 Sound file of the radio burst is at http://www.heliotown.com/S200905091614ut_Ashcraft.mp3 The sound file was made by amateur radio astronomer Thomas Ashcraft of Heliotown, New Mexico.



ALCon 2009 Travel Tips

By Genevieve Goss

This time of year brings my travel recommendations for the annual convention of the Astronomical League (August 7-8). ALCon 2009's venue is Hofstra University, located on Long Island, NY.

This event is being padded with some pre-convention tours (August 2-6) including an all-day foray into the American Museum of Natural History's Rose Center of Earth and Space/Hayden Planetarium (<http://www.amnh.org/rose/>) in Manhattan, a day on the Long Island beaches with a visit to the historic Fire Island Lighthouse, tours of the Cradle of Aviation Museum and Brookhaven Institute and a "star-becue" with wine tasting at the Custer Institute and Observatory. All tours are priced as individual trips, beyond ALCon registration.

In addition to these extra tourism features, ALCon 2009 has an impressive array of speakers in four different tracks of subject matter: <http://www.alcon2009.org/speakers.html> Many of the speakers are well-known names in amateur astronomy circles (David Levy, Phil Harrington, Al Nagler, etc.) and others are professional astronomers whose expertise will expand your knowledge of astronomy without overwhelming it.

The only negative things that come to mind with this year's venue should be of no surprise to those who visit New York—the cost and the traffic!

The organizers of ALCon 2009 offer campus housing at Hofstra University as a way to beat the high cost of New York lodging. That convenience spares you local driving too. Regarding traffic from NYC to Long Island on a summer weekend, our New Yorker daughter offered this message: "DON'T DO IT. YOU WILL GO CRAZY. NO ONE IN THEIR RIGHT MIND SHOULD

BE SUBJECTED TO THAT MADNESS. :-)"

For those planning to take the pre-convention tours, midweek travel and timing arrival to New York before rush hour may avoid some of the traffic. Good driving directions are available on the Hofstra U site: http://www.hofstra.edu/About/InfoCenter/info_hofdirect.html

Alternatives to the aforementioned 'forced lunacy' could include the USAirways non-stop from Roanoke to LaGuardia, which has been available at bargain prices, though that alternative creates complications for ground travel to Hempstead, NY (Hofstra).

So, for a less-stressful plan, consider Amtrak from Lynchburg to Penn Station, and the Long Island Railroad from there to Hempstead station (Hofstra has a free blue commuter bus from the station to the campus). Amtrak leaves Lynchburg early, but breakfast in the dining car is worth the trip! Watch for 'Hot Deals' on Amtrak and/or plan to use your AAA discount. If you haven't taken a 'choo-choo' since your youth, it's still a fine ride. Maybe some RVAS-ers could car pool to Lynchburg. (Note: Amtrak is also available out of Clifton Forge, but requires a change of trains in DC and a later arrival in NYC).

Just in time for the summer travel season, Amtrak has lowered fares on the Northeast Regional (available from Richmond or DC). You can save up to 25% off lowest available fares when you book 14 days in advance.

[If all this is just too much hassle, then start thinking about a future ALCon in our area! MERAL (the MidEast Region of the Astronomical League) has not hosted an ALCon since Frederick, MD, in 2001. Perhaps, a partnership with some VAAS clubs could yield a proposal for 2011 or 2012.]

Galileo, the Medici, and the Age of Astronomy Exhibition

By Jack Gross

While visiting Philadelphia over the Memorial Day weekend I was lucky enough to catch the only North American exhibit of one of the two remaining telescopes made by Galileo. This is the first time either one of these telescopes has left Italy.

The Franklin Institute Science Museum is hosting the "Galileo, The Medici and the Age of Astronomy Exhibition," which showcases not only the telescope, but also many other 16th and 17th century astronomical and scientific artifacts.

Galileo's two surviving 14X and 20X telescopes were constructed of wood strips glued to black fabric. One was probably constructed as a gift and is covered with leather and decorated in gold.

The other, which is in the exhibition, is covered with paper and resin glue. This instrument has been authenticated by some technical specifications in Galileo's own handwriting near the objective lens. This telescope which may have been used by Galileo in some of his observations around 1610, is a little over four feet long and has a field of view of about 15'.



Other valuable instruments and paintings from the collection of the Medici family who provided the financial backing for Galileo's work are in the display. A Nocturnal, a device which was the equivalent of a hand-held nighttime sundial, and could be used at

different locations throughout Europe to tell the time, is included in the exhibit.

With an adult entrance fee of \$20.75, the Galileo exhibition isn't cheap (tip: go in the evening when the fee is only \$9), especially when added to the museum, planetarium, and

IMAX fees.

Don't miss seeing the new STAR TREK IMAX movie shown in the dome. It's over 70 feet across and 4.5 stories tall and has more than 50 speakers with a total of 20,000 watts of amplifier power.

A trip to Philadelphia to see the Galileo telescope is a great way to celebrate the International Year of Astronomy, and 400th anniversary of Galileo's use of the telescope to make astronomical observations.

Calendar of Events

Submitted by Frank Baratta

MONTHLY MEETING: Monday, June 15th, 7:00 p.m., Fifth Floor Meeting Room, Center In The Square, Downtown Roanoke. *The evening will begin with a pizza feast at 7:00, which means we will be starting one-half hour earlier than usual. Also, this meeting is when the new slate of officers will be elected.*

✓ RVAS WEEKEND OBSERVING SESSIONS:

Unless otherwise noted, observing sessions are held at Cahas Mountain Overlook, milepost 139 on the Blue Ridge Parkway.

★ Friday and Saturday, 12th and 13th. Sunset is at 8:42 p.m. Astronomical twilight ends at 10:34 p.m. The Moon rises at 12:05 and 12:30 a.m., respectively.

★ Friday and Saturday, 19th and 20th. Sunset is at 8:43 p.m. Astronomical twilight ends at 10:37 p.m. The Moon sets at 5:35 and 6:48 p.m., respectively.

★ July Sessions: 17th and 18th.

✓ RVAS EXECUTIVE COMMITTEE MEETING: To be announced.

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✓ Other Programs:

ROANOKE CITY PARKS DEPT. PUBLIC STARGAZE: Saturday, June 20th, 9:30 p.m., Cahas Overlook, milepost 139, Blue Ridge Parkway. For City, County and other area residents; RVAS members welcome. Call 540-774-5651, for information. (Next session: July 18th, 9:30 p.m., Cahas Overlook.)

FRANKLIN COUNTY PARKS DEPT. PUBLIC STARGAZE: Next Session, Saturday, August 22nd, 8:45 p.m., Franklin Co. Recreational Park.