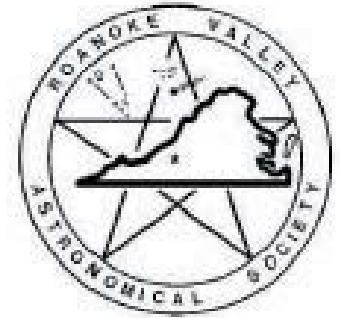




Roanoke Valley Astronomical Society



News About Amateur Astronomy
In Southwestern Virginia
<http://www.roavas.org>

Vol. 21 - No. 11

November 2004

Astronomy in Virginia's Heartland

Maps, Charts, and Atlases

By John Goss

You can't say that amateur astronomy in the Roanoke Valley is nowhere to be found. On October 27, members will have gathered near Explore Park to show the public the disappearing full moon. A few weeks later, the Society will present a telescope workshop for newcomers to the hobby.

The Charlottesville Astronomical Society hosted a great convention of the Virginia Association of Astronomical Societies (VAAS) on October 16. Eleven RVAS members were treated to great speakers and met with other amateurs from across the Dominion. The RVAS congratulates **Mark Klosinski, Ken Harker**, and rest of the CAS for a convention well done!

If you are concerned about astronomy and our youth, the RVAS has a program for you. We will be teaming with Lucy Addison Aerospace Magnet School to bring amateur astronomy to their after school science club. The initial meeting was scheduled for Tuesday October 26.

The Skies Above Us

Finding sky objects can be frustrating and the RVAS would like to make it easier for the beginner to jump right in and find cool stuff. "The Deep Sky Object of the Month" is meant to do just that.

October's feature was M15, a superb globular cluster in southwestern Pegasus. How do you put this 6.4 magnitude cluster in your eyepiece? First locate Altair, one of the stars of the Summer Triangle and Alpha Pegasi, the 2nd magnitude star on the southwest corner of the Great Square. M15 is situated 1/2 between these two stars. Scan that area with your finder until you find M15's dim smudge.

Anticipating long winter nights, **Mike Overacker** presented Gemini as his "Constellation of the Month." Mike discussed its brightest star Castor, a great binary in small telescopes. But don't be fooled. It is actually a sextet. Gemini contains 2 contrasting open clusters that can be seen in the same field of view. M35 is a sky showpiece while

its neighbor NGC 2158 is a challenge. Last but not least, small telescopes can target the famous Eskimo Nebula, a bright planetary nebula about 3000 light years away.

Great Astronomy, Great Pictures

Just about everyone who has ventured into amateur astronomy has tried their hand at astrophotography. They learned quickly that it is not as easy as it may seem! That is one reason why the images gathered by Mike Good are so incredible. Mike shared his shots of M16, the Eagle Nebula and the source of the Hubble's stunning Pillars of Creation picture; the spiral galaxy NGC 7331 with its many attendant galaxies; and the Network Nebula showing its supernova shock wave. Mike, bring us more!

The Right Star Map for You

When it's finally clear and you're ready to observe what do you carry with you

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Search and See

By Clark M. Thomas

In this issue **Gary Hatfield** reports on his view of Supernova 2004et in NGC 6946. This star is one "ET" that is

Mystery Object

Messier messed up badly with some of his observations of comet-like objects. Which "all wet" one is this?

Send your best guess to Dave Thomas, our Mystery Object Columnist, at

thomasde-ka8inl
@worldnet.att.net



real, but it won't be on display for long as it rapidly fades.

I last saw it with my 16" from Cahas on Sunday evening, October 17. It was as amazing to contemplate with my mind's eye as it was to see with my eye itself. We are all children of supernovae, since they are the source of complex atoms in our bodies.

Seeing directly a solitary, seminal star 18 million light years distant gives an emotional experience that cannot be duplicated by any photo. I love

looking at glitzy, processed Hubble and Spitzer photos. But they are only computer enhanced images, not direct existential experiences.

If you have ever hunted or fished, or even gone out into the woods to find rare plants, you know that the searching is one with the acquisition.

Experiencing an end product without knowing its context is strangely alien. How odd it is that the so-called alien skies become less alien when we see them for ourselves.

Astro-Quiz

When are the best times of year for Northern Hemisphere stargazers to observe the "Zodiacal Light" and why is this so?

Answer to Last Month's Astro-Quiz: The name of Joseph Scaliger is not widely remembered. But in 1582, the year the Julian calendar gave way to the Gregorian, Scaliger proposed a measuring system that still receives some attention. Scaliger, a 16th Century Italian scholar, proposed a calendar replacing weeks, months and years with sequentially numbered days. He chose noon January 1, 4713 B.C.E. to begin Day 1. Noon on January 1, 2005, will begin Day 2,453,372. Thus, the interval between events is determined by subtraction, which is useful for astronomers. Scaliger called his method "Julian Dates," in honor of his father. The system is entirely unrelated to the Julian calendar.

The Roanoke Valley Astronomical Society is a membership organization of amateur astronomers dedicated to pursuit of observational and photographic activities. Meetings are held at 7:30 p.m. the third Monday of each month at Center in the Square Roanoke. 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 membership is \$25.00; student membership is \$10.00. For information, call the RVAS Message Line at 540-774-5651. Articles, quotes, etc. published in the newsletter do not necessarily reflect the views of the RVAS, its editor, officers, or individual members.

RVAS web page: <http://www.roavas.org>

Officers/Executive Committee: **Katherine Hix**, President (334-2443); **Mike Overacker**, Vice President (776-3092); **Mark Hodges**, Secretary (774-5039); **Lynn Slonaker**, Treasurer (774-5695); **Bruce Jones**, Executive Committee Member-At-Large (774-3844); **Paul Caffrey**, Immediate Past President (345-2847); **Dave Godman**, Past President / New Member Coordinator (774-3337); **John Goss** and **Genevieve Goss**, Outreach Coordinators (966-4606); **Frank Baratta**, Membership and Public Viewing Coordinator (774-5651); **Mahesh Tailor**, Web Master (776-5472); **Clark M. Thomas**, Newsletter Editor (427-1873, clarkt7@cox.net).

The local Group

By Genevieve Goss

As was mentioned in last month's installment of The Local Group, plans are under way for RVAS members to provide some astronomical support to **Lucy Addison Aerospace Magnet School**.

Since our club participates in the **Night Sky Network**, we have access to kits and lesson plans appropriate for this age group. Therefore, no teaching or parenting experience is necessary to participate. We will be giving short presentations and conducting solar observing and evening sky

watches on an occasional or as-needed basis.

Even if you are only available to help out one time, your assistance will be valuable in this effort. Some visits will take place during school hours or immediately after school and others will be in the evening. So far, **Mike Overacker, David Thaler, Dave Godman, Clark Thomas, John Goss,** and **Genevieve Goss** have signed up to participate. If you are interested in taking part, please contact John Goss.

If this project takes hold, RVAS might consider "adopting" the **Addison Space Exploration Club**. The possibility exists of admitting the club to the RVAS/Astronomical League as a group, so that the students could participate in observing clubs such as Sky Puppies and the Universe Sampler and be eligible for the certificates and pins that accompany them.

If the project is a raging success, we might follow the lead of the Sonoma (CA) Astronomical Society whose Striking Sparks program builds ten inexpensive Dobsonian telescopes each year, and offers them to budding young astronomers who write the best essays on why they'd like to have a telescope. As an initial effort, RVAS could start with one or two 'scopes!

If the attendees at VAAS (RVAS members excluded, of course!!) were an indication

of the average age of amateur astronomers, then ours is indeed a greying hobby. All the more reason to entice younger members into the fold.

Please consider volunteering your time in the most worthy pursuit of sharing your special knowledge with the amateur astronomers of the future.

Last Month's Mystery Object

The Mystery Object for the month of October is NGC 7023, also known as the Iris Nebula.

Iris is a reflection nebula that is illuminated by a hot star that is passing in front. The nebula is located in Cepheus at R.A. 21h 0m 30s and Dec. +68 deg 10' 0". The nebula shines at a magnitude 7.0.



Moon Eats Jupiter!

Look for the daytime occultation of Jupiter by the Moon on November 9. This will occur at approximately 10:10 a.m., when Jupiter will disappear behind the leading, bright crescent limb of the Moon. The planet will reappear somewhat over an hour later from behind the dark limb. According to the *Sky & Telescope* online events calendar, it will only take about a minute for Jupiter to slide (and reappear later) behind the Moon, so timing will be important if you would like to watch or photograph this event. The Moon will be located approximately 38 degrees from the sun, "mostly to the right and, for most locations, slightly higher." For the full article and related drawings, go to this link on the Web: http://skyandtelescope.com/observing/objects/occultations/article_1365_1.asp.

We're the hosts next year...

VAAS 2004 Meets in Charlottesville

By Katherine Hix

About ten members of the Roanoke Valley Astronomical Society attended the **Virginia Association of Astronomical Societies' convention** in Charlottesville Saturday, October 16. About 15 clubs in total were there, which speaks well for the future of amateur astronomy in Virginia. Roanoke is hosting this event next year, and I have to say, Charlottesville is the team to beat. They put on an excellent show, and 2004 will be a tough act to follow!

The event was held at St. Anne's-Belfield School, which is private, and quite nice. We were in the gym all day - for speakers, lunch, everything but observing - and although it was chilly at times, it was enormous, and cleaner than my house usually is.

The gym was decorated with a backdrop of numerous, well-done astrophotographs taken by members of the Charlottesville club. We were greeted by Ken Harker, President of the CAS, who talked about his club's activities and encouraged us all to get involved with each other's groups and events. **Mark Klosinski**, who is also a member of the RVAS, organized this year's event and introduced each speaker.

The first speaker was **Dr. Steven J. Dick**, Director of the History Office and Chief Historian for NASA. Dr. Dick discussed **the emerging science of astrobiology** and the biological universe. He addressed whether the

physical universe necessarily progresses to the evolution of life (the biological universe), and whether that, in turn, will progress to a post-biological universe, which he called cultural evolution. This is the idea that biological humans such as ourselves might evolve into beings with artificial intelligence. Will that be the world discovered by extraterrestrials someday, rather than the human beings who inhabit the Earth now? What if AI is the type of extraterrestrial intelligence we discover with SETI, rather than biological beings like ourselves? The study of astrobiology, with its implications for a post-biological, culturally evolved universe, is an evolving science in itself.



The Charlottesville club set up solar telescopes for use by attendees during breaks between speakers.
Photo: M. Overacker

Next up was **Dr. Kathryn C. Thornton**, a UVA Professor of Technology, Culture and Communication, who was an **astronaut** at the Johnson Space Center and, among many things, **serviced the Hubble telescope**. Before telling about her missions, she talked about the telescope itself. Although there are four Great Observatories, Hubble was the only one that maintained its capability to be serviced by humans post-launch.

Dr. Thornton discussed in detail the sorts of training and preparations that were made by the astronauts. Her first repair mission took place in 1993, when the solar array panels were replaced. Each time they stepped outside to make a repair, they took 150 tools with them, and they had to be very careful not to allow their bodies to spin around while using the tools. On the third of her four missions, they installed the wide-field planetary camera that sends back the beautiful pictures we see coming from Hubble.

Dr. Thornton managed to do some observing in orbit. She said it took only 45 minutes to see an entire star chart in the sky from the Space Shuttle. She said that to use the charts, she would have to fix on one object first, because everything would move by so quickly. If the shuttle ever goes up again, one of the astronauts definitely should undertake the world's fastest Messier Marathon!

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HAVE YOU SEEN et?

By Gary Hatfield

No, I'm not referring to the lovable little extra-terrestrial from the movie. I'm talking about **Supernova 2004 et**.

Discovered on September 27 by Stefano Moretti of Ravenna, Italy, SN2004et has been the second brightest supernova discovered this year. It is the sixth observed in galaxy **NGC 6946**, also known as **Caldwell 12**, making it the highest producer of observed supernova to date. It resides at **RA 20 35 25.4 DC +60 07 18** near the border of Cepheus and Cygnus. When discovered, it was shining at mag. 12.7, so to see it you will need a good night to observe, some fairly dark skies, and at least a 8" scope. Now...let's get hopping!

While NGC 6946 is on the Cepheus/Cygnus border, I found it easier to hop from Cassiopeia. Draw a line from gamma Cass. to beta Cass. (Caph), and extend it straight out about 20 degrees (2 fists at arm's length). There you will find 3 stars that, to me, look like two-thirds of a slingshot, or Y. The brightest is alpha Ceph. (Alderamin), which is the bottom of my slingshot. Next is eta Ceph., the base of the "V" of our slingshot. Take a 45 degree turn north and

you'll find theta Ceph., the left arm of the slingshot. Go back to eta Ceph., and take a 45 degree turn south this time. About where the other end of the slingshot would be is where you'll find NGC 6946.

Using my 10" Dob (1200mm f/4.5) and a 25mm (48X), mag. 9.6 galaxy NGC 6946 appears as a fuzzy blob. Just outside my field of view I could see another faint fuzzy, which is a small open cluster, **NGC 6939**.

I then put in my 14mm and 2X Barlow to pump it up to 171X. Now NGC 6946 filled my field of view.

On the east side of this visibly fairly large galaxy, you'll see what appears to be a double star. SN 2004et is just west of this double. For a detailed finder chart and numerous images go to <http://www.rochesterastronomy.org/sn2004/sn2004et.html>

While this distant star is not a showstopper to look at, SN 2004et is what it is, the violent death of a star 18 million l.y. away. If you take the time to hunt this rare object down, you will be one of a small percentage of amateur astronomers who can honestly say they have seen "et", SN 2004et that is!

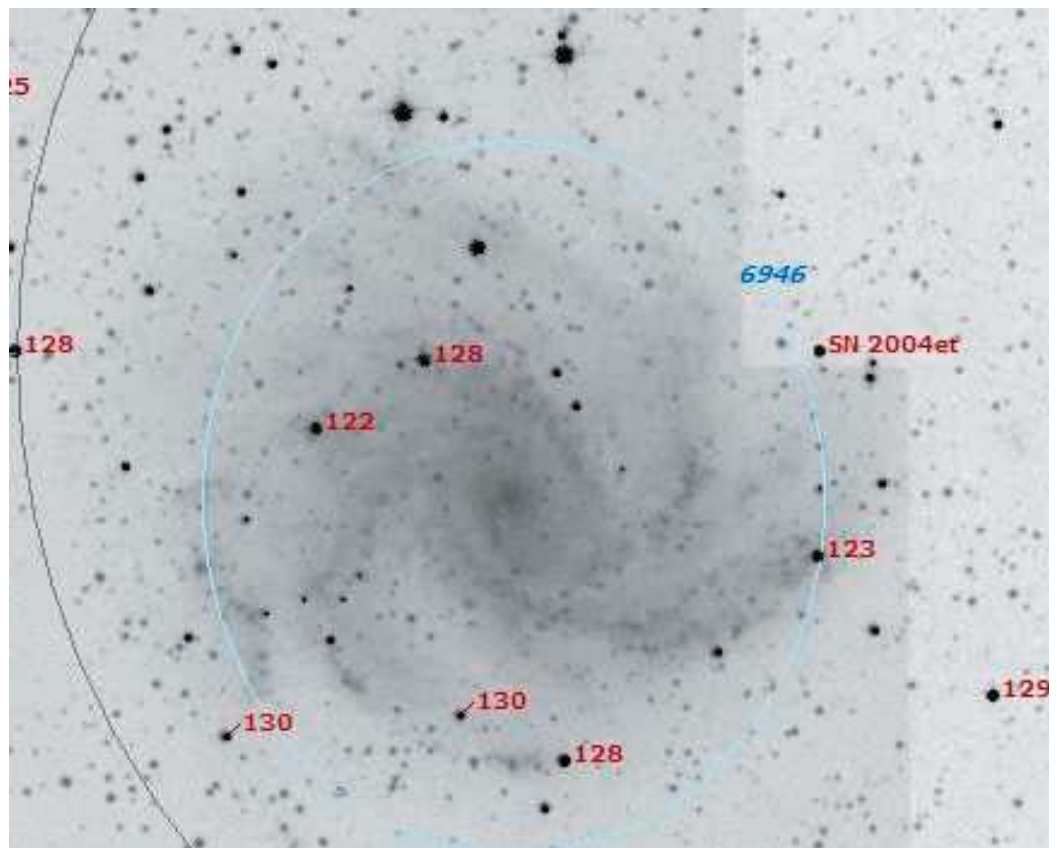


Image source: <http://www.skyhound.com/sh/SN2004et.gif>

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Maps, Charts, and Atlases

besides your telescope and eyepiece box? Unless you're a committed go-to fan, you are bound to have a star map. If you've been observing for a number of years, it will be a well-worn star map.

How do you select a map? **John Goss** showed his first 1962 chart. John recommends that a novice use maps that aren't too detailed - maps that have stars brighter than 7th magnitude, plot all the Messier objects and a few NGC attractions. **Katherine Hix** briefly discussed the standard planisphere and emphasized that it is an essential tool even to experienced amateurs. She brought out her copy of the *Cambridge Star Atlas*, a great compendium of useful information for observing the sky,

which includes a moon map, star lists and 20 maps in book form that plot stars to magnitude 6.5. This is a great piece for someone who already has a basic knowledge of the sky.

Intermediate and experienced amateurs will want a more finely detailed atlas still. Over the past ten years, the volume of preference has become *Uranometria*, a two-book set with over 600 pages. Every thing you can imagine is plotted. If you're interested in 14th magnitude galaxies in Lynx, it has them. If your quarry is obscure planetary nebula, these books are for you. Of course, the downside is that you get what you pay for. In this case, you get a lot, so you need to pay a lot! But these hard cover works will last a lifetime.

Probably the most common star atlas on amateur's shelves is Wil Tirion's *Sky Atlas 2000*. These spiral bound charts contains 26 maps showing

stars down to magnitude 8.5. In addition to all the Messier objects, it contains over 2000 deep sky objects. Its multicolored charts are truly magnificent. Even though RVAS Vice President **Mike Overacker** enthusiastically recommends it, he pointed out a few drawbacks. When you're in the dark, its many charts leads to a lot of fumbling. And it doesn't store in any convenient container such as your eyepiece box. Mike's answer was Orion's *Deep Sky 600*. This plastic all-sky map is folded like a road map for easy storage. It's one of the least expensive charts on the market, so it's hard to go wrong with this one!

At November's meeting RVAS members will demonstrate the new computer software used to generate star maps. If you have a favorite planetarium program please share it with the pre-Christmas (hint) RVAS crowd!

Nuggets of News to Use...

- On the hopefully clear mornings of November 4th and 5th pre-dawn risers will be treated to **Jupiter and Venus** being less than one degree apart. Your wide angle eyepiece can be filled with views of these bright objects, and with the Galilean moons.
- At the November meeting the RVAS will be taking orders for the **2005 Astronomical Calendar** for \$19.95 plus shipping. Members can save \$5 by doing this through the club.

- **Lost and found** - one white cloth hat left at the picnic in September. Let us know if it's yours!

- The **November meeting** of the RVAS will feature presentations about various computer programs for sky charts. TheSky, Redshift3, and others will be covered. If you have a computer program that you like to use, including any freeware you've downloaded, we'd love to hear from you at this meeting. You might bring a printed chart, or simply

discuss what you like or dislike about the program.

- On October 26 **Genevieve and John Goss** brought some of the many facets of astronomy to the 6th, 7th, and 8th grade students in **Addison's** after school **Science Club**. During this high-energy, one-hour classroom session, everybody learned more about near earth space, our solar system, and the incredible distances to the stars. The RVAS would like to thank Lucy Addison teacher **Kim Lowe** for arranging this event. More fun events will be scheduled. Help us help inspire these young future astronomers.

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VAAS 2004 in C'ville

Bob Gent, the president of the **Astronomical League**, was there to say a few words, as was **John Goss**, the Mid-Atlantic Region chairperson. They talked about the benefits of membership in the AL; light pollution; and about the different observing awards available to amateurs through the League.

After lunch, we heard from **Zola Levay**, the person who is mainly responsible for **processing the images from Hubble**. He discussed, among other things, the FOV of the Hubble's different cameras, and its unprecedented ability to lock on the same object repeatedly. The Hubble's fine guidance sensors can point within .007", and it can do this over and over again on the same target, which can be used for very accurate astrometric measurements.

He admitted that some photos are processed just for public presentation – all are not taken necessarily for a scientific purpose. He stated that although the images sent back to the Space Telescope Science Institute are initially black and white, the colors shown in the final images we see represent processes that are physically taking place in the objects. Although the actual objects, such as the Christmas colors of the Ring Nebula, aren't necessarily the exact colors of the objects imaged, the colors we see are not "made up" by those who process them.

Mr. Levay showed many images during his presentation, the most interesting of which was the Ultra Deep Field. This image is always good for a lively discussion and speculation, and it made a fitting final picture for this talk.

The last speaker was **Dr. Ed Murphy**, Assistant Professor at UVA's Department of Astronomy, who talked about the **history of the study of astronomy at the University of Virginia** from its inception to the present.

One of the most interesting stories he told about the history of the University is that of McCormick Observatory. Leander McCormick, its founder, was the brother of Cyrus McCormick, who is credited in history books as having invented the reaper. Actually, the reaper was invented by their father. Although he was an inventor, he wasn't much of a marketer. Therefore, he gave the invention to Cyrus upon his reaching majority; Cyrus patented the invention, which made the McCormick family one of the wealthiest in the country. Their family business later became International Harvester, and is now Navistar.

With some of their accumulated wealth, Leander McCormick intended to give money to Washington & Lee University to fund an observatory, but that college did not have enough staff to run such a facility, so on April 14, 1885, he gave the money to UVA instead.

The Alvan Clark refractor was built, and its objective glass is 26.25" in diameter. The extra 1/4 inch was added to make it larger than the U.S. Naval Observatory telescope, which the Clarks also built. The scope at McCormick Observatory is considered to be one of the best-preserved Clark telescopes in the world.

From 1914 until the 1990s, the telescope was put to use measuring stellar parallax, and 144,000 photographic plates have been compiled that document the distance to nearby stars.

Toward the end of the formal session Mark Klosinski moderated a lively **round-table discussion concerning light pollution**. The consensus seemed to be that amateur astronomers have the most to lose if they do not get involved in the fight against light pollution.

Being a member of the International Dark-Sky Association, and informing local government leaders about ways to avoid polluting the night skies were the two most prevalent solutions. **Genevieve Goss** spoke about her work in Botetourt County to have an ordinance enacted; most of those who approached their county boards of supervisors felt that having proposed solutions was much more effective than simply complaining about the problem.

After the indoor portion of the program concluded, the Charlottesville club hosted a **cookout and observing at Fan Mountain Observatory**. This observatory, also owned by the University of Virginia, is located about 25 minutes south of Charlottesville, off of Route 29, and has several large telescopes.

Mike Good, Mike Overacker, Clark Thomas, and Paul Caffrey all stopped by for the jumbo hamburgers and clear skies. They did some observing through the 30" reflector, and a 20" Obsession Dob set up outside in the challenging wind.

If any of you have an idea you'd like to share for next year's VAAS convention, which we will schedule in October, please feel free to let us know about it.

We'd like to make 2005 as exciting and informative as we can, and we welcome your thoughts. Volunteers of all sorts will soon be needed. Step right up!

Society Events and Activities for November 2004

NOVEMBER MEETING: Monday, November 15th, 7:30 p.m. fifth floor meeting room, Center In The Square, Roanoke.

The program for the evening will be computer generated astronomy programs.

"MEMBERS ONLY" WEEKEND OBSERVING SESSIONS: Unless otherwise noted, observing sessions are held at Cahas Mountain Overlook, milepost 139 on the Blue Ridge Parkway.

* **Friday and Saturday, November 5th and 6th.** Sunset is at 5:17 p.m. Astronomical twilight ends at 6:46 p.m. The Moon rises at 12:16 and 1:19 a.m., respectively

* **Friday and Saturday, November 12th and 13th.** Sunset is at 5:11 p.m. Astronomical twilight ends at 6:41 p.m. The Moon sets at 5:11 and 5:55 p.m., respectively.

* **December Sessions:** 3rd and 4th; 10th and 11th; 31st and (Jan.) 1st.

FRANKLIN CO. PARKS DEPT./RVAS PUBLIC STARGAZE: Saturday, November 6th, 6:00 p.m., Franklin Co. Recreational Park. For County residents; RVAS members welcome to participate. Call the RVAS Message Line, 540-774-5651, for information. (Next session: TBD.)

ROANOKE CITY PARKS DEPT./RVAS PUBLIC STARGAZE: Saturday, November 13th, 5:45 p.m., Cahas Overlook, milepost 139, Blue Ridge Parkway. For City, County and other area residents; RVAS members welcome to participate. Call the RVAS Message Line, 540-774-5651, for information. (Next session: December 11th, 5:45 p.m., Cahas Overlook.)

RVAS EXECUTIVE COMMITTEE MEETING: Meetings are now held as needed; contact one of the officers regarding specific location and time information.

Roanoke Valley Astronomical Society
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