



# Roanoke Valley Astronomical Society



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

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## A New Telescope in Your Future?

By Mike Overacker

Telescopes. We all love them. We all secretly wish for a bigger scope, with sharper optics, at an unbelievably low price. But reality sets in when we read the specs, and then the price, of the scopes that we wish to own. There is no way around it. If you want a big scope, you have to pay a big price. Right?

Not always. Many astronomers through the years have worked their way around this problem with sweat and ingenuity. That's right. They built their own scopes. A large portion of the telescope cost is the optics, but the other large portion of the cost is labor to build the scope. There is no way around the cost of optics, unless you wish to grind your own reflector mirror or refractor objectives. This is, indeed an option, and will save you a lot of money, but it is very labor and time intensive. Most people cannot dedicate the time needed to grind and figure their own optics, so for

most builders, the optics are purchased. Building the scope is the best option for most observers. That is the part of the cost that you can eliminate by doing the labor yourself. And, unlike the production workers for production scope manufacturers, this is a labor of love.

I recently have embarked on two telescope building

projects. One is a 15" f4.8 truss Dobsonian reflector. The second is a 600mm f6 apochromatic refractor. Granted, I have woodworking experience and a nice woodshop with my guitar building business, but most of the work I have done in building these scopes has been with common hand tools and hand power tools. Therefore it is in the realm of any of our

members to build a scope if they so desire. I am by no means an experienced telescope builder, but I am more than willing to offer help in any way I can to any member who decides they would like to build their own telescope. All you need to do is ask.

So, the offer is out there. Is there anyone in the club that would like to build a telescope? I am in the process of helping another member rebuild their Dobsonian reflector, but I can help others. Just let me know, and I will try to point you in the right direction, and help you along the way to the scope of your dreams.



## What You Missed

By Clark M. Thomas

On the evening of Tuesday, the 9th of November, there was the first hard freeze for many areas, and most people

were at home watching TV in warm quarters behind locked doors. But not all people.

I was out early at Cahas on this perfectly calm, perfectly clear evening. As usual, I was alone, except for deer grazing just feet from me and my telescope. Being dressed like an Eskimo, I was just as warm as people indoors. I got home early enough to get a good night's sleep before starting an early Wednesday work day.

Well, I missed some TV. Yeah, life is full of hard choices: TV, or the Universe in all its glory. I look forward to the season's long, cold nights. These are among our area's finest viewing opportunities. The crowds at Cahas on late summer nights typically suffer with steamy skies. No wonder they are disappointed with what they can never see.

Here's just some of what I saw in two and a half hours. How

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## Mystery Object

The NGC December Mystery Object is ONE of SIX things you could discover on a night or TWO of star gazing in Perseus. Go FOUR it with your nebula filter.

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

thomasde-ka8inl  
@worldnet.att.net



## Astro-Quiz

The term "dark matter" may seem like a recent addition to the astronomical lexicon, but its earliest usage actually dates back to an astronomer of the late 19th and early 20th Centuries. Who was this astronomer?

**Answer to Last Month's Astro-Quiz:** The Sun is surrounded by a vast disk-like cloud of dust that extends beyond the orbit of Mars. One observable effect of this cloud is a faint glow of reflected sunlight visible around the ecliptic. This glow, called the Zodiacal Light, is brightest near the Sun where the cloud is thickest. It's seen as a huge, softly radiant pyramid of white light, with its base at the horizon, centered on the ecliptic. For the Northern Hemisphere, the best views are had just after evening twilight in February and March or just before morning twilight in September and October. These are the times of the year when the ecliptic is steepest to the horizon and the skies darken most rapidly. The glow can only be seen by naked-eye.

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

Ah December...time to dig out that old holiday favorite as written by your Night Sky Network Coordinators many years ago:

## ***The Night of the Solstice***

'Twas the night of the solstice  
and all through the town,  
Valley Astronomers kept looking up and not down.  
Their stockings were hung by the chimney with care,  
In hopes that new telescopes soon would be there.

Their families were nestled at home in warm beds,  
While visions of Cahas danced in their heads.  
And Frank in his parka and Bob Young in his car,  
Decided the mountain was not very far.

From the trunk of the car there arose such a clatter,  
Of loading telescopes and technical chatter.  
Away to the mountain they flew like a flash,  
Avoiding small animals as they made their dash.

The phase of the moon was 3 days past new,  
And the crisp dry air gave no hint of dew.  
When what in their cold finderscopes should appear,  
but a miniature sleigh and eight tiny reindeer.

It carried a driver so lively and jolly,  
They thought for a moment, it must be Vince Talley!  
More rapid than meteors his reindeer they came,  
And he whistled and shouted and called them by name:

Now Draco! Now Virgo! Now Leo and Taurus!  
On Lyra, On Hydra, On Libra and Corvus!  
To the crest of the parkway, To the top of the wall,  
Now dash away, dash away, dash away all!

The wind had died down, and they did not know why  
And Sirius was shining far south in the sky.

So on to the pavement the reindeer they flew  
With the sleigh full of gadgets and eyepieces too.

And with purpose of mind, he jumped to the ground  
Then checked in his sleigh to see what could be found.  
Out of the bag came a very big Dob,  
Setting it up was a very big job.

Decked out in PolarTek, from his head to his toe,  
He reminded them of one Donnie Grisso.  
In a red hat, black boots and only one glove,  
He peered up to see what was shining above.

A bundle of charts he had flung on his back,  
And he looked like a peddler, just opening his pack.  
He went to the scope with a list in his hand,  
'Twas from William Herschel, toughest of the land.

He spoke not a word but went straight to his work,  
Recorded his findings, then turned with a jerk,  
And raising his thumb, he gave them a sign,  
Letting them know that the viewing was fine.

His gear was all loaded with a wink of an eye  
And he sprang to the sleigh and flew off in the sky.  
But they heard him exclaim as he drove out of sight,  
"Happy viewing to all, and to all a clear night!"

## Last Month's Mystery Object

The November Mystery Object lies in Aquarius. Designated M 73, it is an open cluster of four stars ranging in magnitude from 10 to 12.

The cluster is located on the sky at RA 20:58.9 and Dec. -12:38. The cluster covers an area of 2.8 arc minutes and is 2000 light years distant. It is visible in a four inch scope.



In Celebration of William Herschel's 266th Birthday...

# RVAS November Meeting Report

By John Goss

## Our Night Sky: Observing and Learning

Early November clear weather coincided with no moon in the evening sky. **Clark Thomas** took the opportunity to investigate other dark sky sites than the familiar Cahas overlook.

One field trip took him to Droop Mountain State Park, in West Virginia. Clark managed to bag two elusive satellite galaxies of Andromeda's M31: NGCs 147 and 185. Clark also related his recent experience at Devil's Backbone on the Parkway. Under mag. six skies, which prompted him to renew observing the Caldwell list, he logged numerous galaxies and planetaries. Nights like that shouldn't be wasted indoors reading about astronomy, but living the hobby outside under the stars.

Almost directly above us after darkness falls is the constellation Cassiopeia. There are many attractive open clusters in this region. "The Deep Sky Object of the Month" found **John Goss** discussing a non-Messier cluster, NGC 457 (Caldwell 13) which is also called the "ET" or "Owl Cluster." To find it, simply extend the left stroke of Cassiopeia's "W" down about 1/2 its length to the 5th magnitude star Phi Cassiopeiae. The cluster is located in the same telescope field of view as Phi. There are about 40 members in NGC 457 with the brightest one being 8.6 magnitude.

Rare carbon stars are a sight to see. In his "Constellation of

the Month," RVAS Vice President **Mike Overacker** reviewed Lepus and discussed just such a star. R Leporis, otherwise known as Hind's Crimson Star, is a long term variable with a period of 432 days and shows a very ruddy color. Use binoculars to examine this beautiful star. Lepus also contains Mu Leporis, a double star whose primary is a 3rd magnitude yellow star positioned 96 seconds from its 6th magnitude orange secondary.

If your preference is deep sky objects, Lepus contains one object on Messier's famous list M79, a globular cluster that is



Owl Cluster (NGC 457) Image: DSS

40,000 light years distant.

## Digital Stellar Cartography

The world is going electronic and so are sky maps. This month's feature program explored what's available today in computer software that generate maps of the heavens.

RVAS President **Katherine Hix** showed the interactive basic night sky map from *Sky and Telescope*. To view it yourself, go to [http://skyandtelescope.com/observing/skychart/article\\_1220\\_1.asp](http://skyandtelescope.com/observing/skychart/article_1220_1.asp)

Katherine also mentioned one of her favorites, *Red Shift 3*. This program, in addition to mapping capability, contains movies with an astronomical bent.

Both **Rand Bowden** and **Mike Good** brought their copies of one of the most advanced programs available today, *TheSky* by Software Bisque. Mike demonstrated some of the features contained on this 2 DVD set. The program generates detailed star maps displaying a variety of deep sky objects that can have any number of parameters filtered. You can select magnitudes, object type, and catalogue to name a few. On the maps, overlays can be inserted showing the field of view as seen by many different popular eyepieces and ccd chips.

While at ALCon, **Genevieve Goss** was fortunate enough to win *Starry Night Pro*. Genevieve and John installed it a few hours earlier, and are just learning its operation. But what they have found is impressive: Along with the maps, there are movies, some contain real footage while others show speculative images. There are realistic flights to the planets and through deep space.

Items available for hand held computers were not left out. Mike Overacker demonstrated the program *PleiadAtlas* that was designed for the pda. This pocket sized wonder plots star maps with selected deep space targets in correct, inverted, or reverse orientations.

By the end of the meeting, members had new deep sky observing assignments — and new additions to their Christmas wish list.

# Awesome Auroras Visit Virginia

By Gary Hatfield

I got home from work on Sunday, November 7th, about 11:45 p.m. I had set my scope up Saturday night for some piggyback shots, so was planning on shooting more tonight, since I'd left the scope set up. When I got out of my Escape I looked north towards the Peaks of Otter. The sky was littered with stars...oh boy!

Just as I was about to turn around... something caught my eye. I realized my usually dark northern horizon was glowing as if there were a Sheetz station on the other side of The Peaks.

Then I started seeing a reddish hue in the sky. I ran into the house, and went online to see if there was any buzz going on about auroral activity. I had 23 emails from around the country about a major flare that was hitting us! I grabbed my camera and tripod, and headed outside.

What I saw when I got out there stopped me dead in my tracks. The sky was on fire! Not only was the horizon glowing brightly, but there were light pillars shooting straight up, some into Perseus at the zenith. Some of these pillars were so bright it looked like there were searchlights on the horizon pointing straight up into the sky. It was the most amazing thing I've ever seen. The "storm" seemed to

be centered between 10 and 20 degrees east of Polaris but I could see pillars and colors from about 30 degrees west of Polaris to about 60 degrees east it. The movement and changing intensity of the pillars and curtains just blew me away.



Then, at 12:20, as suddenly as it had started, it stopped. No more pillars or curtains, but the horizon was still glowing. I loaded the camera in the Escape, and headed to the back of my property where my scope was set up. I was so overwhelmed with what I had seen I didn't even consider taking any astrophotos. I wanted to see some more auroras!

Over the next two hours the bluish glow on the horizon would ebb and flow, sometimes bright, sometimes dim, but always there. At times I thought I could barely make out a faint reddish hue, but I wasn't sure. Then about 2:30 it all fired back up! More bright pillars, and this time the curtains were a little brighter. At one time there were probably 12-15 pillars across a 40 degree stretch of the horizon. It was truly an amazing sight! This burst of activity lasted about twelve minutes, and then died.

The moon had risen by now, so I called it a night and reluctantly packed everything up, all the while glancing to the north in hopes of catching one more look at one of nature's most beautiful sights, The Northern Lights!

You can see the picture at left, and all the other pictures I took, at full size, on my website: [www.starrystateobservatory.com](http://www.starrystateobservatory.com)

## The Astronomical Calendars Have Arrived...

For those of you who ordered the *Astronomical Calendar* by Guy Ottewill at the November RVAS meeting, be sure to pick them up at the December meeting. *Sky and Telescope* gave us an even better deal than they originally offered. Now, you'll not only get a calendar, but a refund of \$2.50!

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## What You Missed

many of these things have you ever seen, except in publications? I started out with the Ring Nebula, and managed to look at it with 593x. At this power the ring looks more like the huge Helix Nebula (which I saw earlier in the week).

After the Ring I visited the double-double, still in Lyra. Imagine filling up your entire field of view with two opposing double stars, all four elements clearly separated.

I then visited Cygnus before it too sunk too low in the West. My first priority was the Crescent Nebula. Have you ever seen it? Many never have, and I too didn't see it at first, even while directly looking at it. But then I popped in a Sky Glow filter, and I got an indication of the crescent. Next I used an OIII filter... and WOW!... I nearly lost my breath. I saw the ENTIRE Crescent Nebula, not just the bright crescent portion. This

thing is huge like the Helix. The NGC 6992/6995 portion of the Veil showed amazingly well with my OIII, with intricate detail I had only seen before in photos. The NGC 6960 portion I visited was shorter, but fun to follow from end to end.

My last stop in Cygnus was the so-called Blinking Planetary. It is small, on the order of the Saturn Nebula, which I saw earlier in the week. Unlike the Saturn, this one is typically round, but with little detail. Using the OIII makes it plenty bright, so no blinking is needed.

I worked my way across the sky to check on everybody's Messier nemesis, M74. Seeing this object at any power from 56 to over 250 is always

challenging when trying to see much more than the core. Unlike emission nebulae, filters do not enhance galaxies. So the wasted light from "civilization" below reduced contrast.



Crescent Nebula

Image: DSS (blue)

I checked out some more galaxies, and then signed off with The Outer Limits Galaxy, NGC 891, in Andromeda. It was featured on that TV show, because it is a very impressive edge-on spiral galaxy with a distinct dust lane dividing its thin profile. I saw in awe both the galaxy and its dust lane.

I packed up and said goodbye to my deer friends. Too bad no dear friends were there to share... but we all live forever, and if we are busy today there is always another tomorrow to behold the glories of the starry firmament.

Driving home, I unavoidably ran over a running raccoon, who instantly moved from life to afterlife. He too thought he would live forever.



NGC 891...The Outer Limits Galaxy

Image by Michael Good

# Jupiter Occultation in the Day

By Katherine Hix

**Mike Overacker** and I took our telescopes to work on Tuesday, November 9th, to view the Jupiter occultation by the Moon. It was a very cool thing to see during the day.

Mike set up his new 15" truss Dobsonian at the fire station and initially used a 55mm TeleVue Plössl to locate the Moon and Jupiter during ingress. Once he got centered on that, he switched to a 12mm TeleVue Radian. He could see detail on Jupiter, which was surprising to him. He could also see two of Jupiter's moons, which was very surprising, because he didn't think these could be seen during the day. He saw the moons for a while before Jupiter was occulted, but once that happened, he couldn't see the moons anymore.

Because he was at work, he had to take down his scope after ingress. He was mostly amazed by seeing two of Jupiter's moons

and also to see band details on Jupiter as it went behind the Moon. Some of the other firemen wanted to look at this event, so Mike didn't get to see quite as much of it as he would have liked. Although he tried to set up his camera, he didn't have time to do this properly, and photographs he took of the occultation did not turn out.

I put my 8" Dobsonian on the top floor of my parking garage. I was afraid people would think I was crazy, but nobody bothered me.

The Moon was relatively easy to find and quite beautiful. The sky was rather a pale blue, while we were hoping for a hard blue to make the crescent moon stand out better. However, I followed *Sky & Telescope's* directions & used my fists to measure how far away the Moon was from the Sun. I held up a CD case over the Sun so the glare wouldn't keep me from finding the Moon. Once I had it in sight - it was

wee little! - I aimed the telescope at it just in time for ingress. I was using the 25mm that came with my scope, because that's usually the best one for finding things. I didn't see any detail on Jupiter, and I didn't notice any of its moons, but I was probably using too low a power for that.

The Moon was a pale white thin crescent, and the unlit part looked the same color as the sky - there was no Earthshine at all. You could even see a few craters, which also looked pale blue. The Moon edged toward Jupiter a little at a time, as though it were sneaking up on it, until it finally reached it and slid right in front.

Afterward, I took the scope down and put it back in my trunk. However, some people at my office wanted to know what I had been doing, so I took two ladies with me to view egress. By the time I got the scope back up, Jupiter had already egressed, but my friends were amazed, anyhow. Jupiter during the day!

## News to Use in December

\* Once again, Jupiter and the moon are going at it. This time you can see the occultation during darkness, but you have to be outdoors before 4 a.m. on the morning of **December 7th**. Fresh coffee anybody?

\* The strongest meteor shower of the year peaks **Dec. 13/14**. Dress like an Eskimo to enjoy the Geminids after midnight. More coffee?

\* Start planning for your **New Year's resolutions**. Throw in some astronomical resolutions. For example, if

you have always dreamed of doing the Messier list, why not resolve to do it in 2005? Or at least make a serious start on this or another quest.

\* Check out the recently *enhanced* **Clark Sky Clock**. This free service is a true treasure for astronomers. Here, for example, is the clock for our Cahas Overlook site: <http://cleardarksky.com/c/ChsMtnOvVAkey.html?1>

\* **Explore Park** has asked us to come to their Holiday Traditions celebration on **Saturday, Dec. 4**, and to

set up at our usual Spur spot from 5:00 to 9:00 p.m. They will be giving public tours and having other seasonal activities at the park. About 400 people attend on a typical Holiday Traditions evening, which would provide great exposure for the astronomy club. We are being added to their list of activities, so we need members to volunteer to help with telescopes.

If you can participate the evening of December 4th, from 5 to 9 p.m., please let Frank Baratta know as soon as possible: 540-774-5651.

# *Society Events and Activities for December 2004*

**DECEMBER MEETING: Monday, December 20th, 7:30 p.m. fifth floor meeting room, Center In The Square, Roanoke.** The evening will be devoted to our December social, so bring a snack to share and plan to spend a fun, casual evening talking astronomy with your friends!

**"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, December 3rd and 4th.** Sunset is at 5:02 p.m. Astronomical twilight ends at 6:35 p.m. The Moon rises at 11:05 and 12:06 a.m., respectively.

\* **Friday and Saturday, December 10th and 11th.** Sunset is at 5:03 p.m. Astronomical twilight ends at 6:36 p.m. The Moon sets at 3:42 and 4:31 p.m., respectively.

\* **Friday and Saturday, December 31st and January 1st.** Sunset is at 5:13 p.m. Astronomical twilight ends at 6:47 p.m. The Moon rises at 9:57 and 10:57 p.m., respectively.

**FRANKLIN CO. PARKS DEPT./RVAS PUBLIC STARGAZE:** Next session March 12th, 7:00 p.m.

**ROANOKE CITY PARKS DEPT./RVAS PUBLIC STARGAZE:** Saturday, December 11th, 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: January 8th, 6:00 p.m., Cahas Overlook.)

**RVAS EXECUTIVE COMMITTEE MEETING:** To be announced.

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