



OBSERVER

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Newsletter of the New Hampshire Astronomical Society

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President's Message



Team,

As we wind down the year just past Thanksgiving, the word grateful tends to be at the top of one's vocabulary.

As for me, I am very grateful to be surrounded by great people who dedicate themselves to their passion effectively working hard making things happen. I've said it before and will say it again that what makes NHAS special is the membership and the core beliefs everyone has in promoting the science that we all love and enjoy.

We have had a very successful year and there is a lot to celebrate at our annual event on December 20th at MSDC. I want to remind everyone that I have started a forum entry for people to respond with their plans and what they are bringing. I can tell you from past events to eat light on that day because we have always a ton of great food to enjoy. For your convenience, the link to the forum entry can be found here:

<http://nhastro.com/member/forum/viewtopic.php?f=9&t=2472>

I have been ecstatic this year with the new meeting format which has encouraged membership participation. Many of you requested more informative meetings and I believe we have met that goal with the new format and programs such as "The Astronomer is In" sessions. We have also leveraged much of our internal talent for knowledge transfer and streamlined some of our operations procedures, making it easier for the officers and the board.

We have enjoyed success but challenges also await us in 2014. There is room to improve even more regarding in-reach events especially if we can get someone to lead the membership efforts. On the public facing end, we have done more Skywatches than ever and expanded our EOC efforts to more organizations to the point where they are coming to us for help. While this is great, it will test our limits in 2014. LTP continues to grow beyond anyone's wildest expectations.

A final note. In the time that I have served as President, many members have reached out to me with feedback and support in doing the job, for which I am extremely grateful. Some have even asked how one does it. For me, it is quite simple. Have a vision, effectively communicate that vision frequently, be approachable, surround yourself with great people who have a passion, let them do their job, get out of their way, and remove obstacles that prevent them from achieving their goal.

I will conclude the way I started. I'm grateful to have had the opportunity to serve and to be a member of this wonderful organization.

Clear Skies,

Rich DeMidio
NHAS President 2013

Hooksett Public Library, Hooksett NH, November 5

When Ted Blank, Gardner Gerry, Elaine Grantham-Buckley, and Bob Veilleux arrived in Hooksett, the sky was nothing but clouds. Steve Rand went ahead with his presentation and the 35 children and adults came out to clear skies.

The decent sky conditions lasted until about 8:30pm, and then it clouded up again. We had set up 4 telescopes and a pair of binoculars on a tripod. Venus had set by the time the skies cleared, so no planets were observed. We showed M13, M15, M31, M35, M37, M38, and Alberio, the double cluster, and the Pleiades. Also on hand was one of the library's two telescopes, that patrons were using to observe M31 and the Pleiades.

- *Bob Veilleux and Steve Rand*

Auburn Village School, Auburn NH, November 8

The Auburn Village School event is always well attended, with an enthusiastic group of young kids and a great open field for us to set up our scopes. This year we had around 70 or so students according to Wendy Smith, the organizer of the event. The other NHAS members in attendance were Ted Blank, Joe Derek, Elaine Grantham-Buckley, John Pappas, Ramaswamy, Ed Ting and Bob Veilleux (Wendy's Dad). My scope of choice lately has been my TV 101 on the G11 with which I managed to show Alberio, Double Cluster and the moon before the clouds came in and ruined the rest of the evening.

- *Gardner Gerry*



*Joe Derek explaining his telescope
(Photo: Ted Blank)*

The students for the Auburn HS event were extremely interested and well behaved. I showed folks M31, and then Albireo as the clouds came rolling in. I also set up binoculars on a tripod and left them pointed at the Pleiades, many students looked through them. Luckily Albireo was bright enough that about 15 of the students managed to see it through the clouds in my C8. Ramaswamy operated my Oak Classic showing people the Moon.

- *Ted Blank*

Gafney Library, Sanbornville NH, November 12, 2013

We had a very successful skywatch at Gafney Library, in the parking lot of the adjacent Turntable Park. Other NHAS members present were Elaine Grantham-Buckley, Ramaswamy and Bob Veilleux. Diane Cassidy (the librarian) brought over the Gafney library LTP scope and people enjoyed looking at M31 and the Moon with it.

It was bitterly cold and very windy, but people enjoyed the views so much they kept going back to their cars to get warm and then coming back out for more. Diane mentioned that many of the residents who had wanted to come were already down in Florida. Sanbornville goes down from 16,000 residents to 5,000 each winter.

One nice lady, Pat, said that the last skywatch was the first time she had seen the Moon in a scope, and she wanted to see it again so much that she left a Dinner Dance to come over; she had been ready all 3 times the skywatch had been postponed!

- *Ted Blank*



*A long awaited look at the Moon
(Photo: Ted Blank)*

It was a very cold night and we had early start at about 6pm and were nearly frozen by 7:30. I showed Vega, the double double and (as Paul would have done) T Lyrae, and later the very popular Pleiades. GLP tours occupied the rest of the time. I handed out some charts regarding comet Lovejoy but doubt anything came of it, but one never knows – the comet was going to be in a very easy-to-locate spot for binoculars the next morning, above Leo's mane.

- *Ramaswamy*



*The Library scope saw a lot of action
(Photo: Ted Blank)*

Thanks again for the wonderful Skywatch last night. 11 adults and 6 children braved the cold along with 4 members of NHAS. It was a clear and cold night and great for the viewing that we had. The Moon looked so close you could almost feel the texture of the craters! We saw the Andromeda Galaxy, a red star, star clusters, constellations, and more and received a lot of info about them. Your members explained how to use the library telescope and it was well used at the Skywatch along with the other wonderful telescopes. The NHAS members were very helpful and informative.

Again, thanks. I know NHAS members traveled some distance to be here and the program was enjoyed by those who were there. Perhaps, we could do this again next summer...

Diane Cassidy
Children's Librarian
Gafney Library, Sanbornville, NH

Pittsfield Public Library, Pittsfield NH, November 13

The original site (Drake's Field) had many lights, so we moved to Steve and Donna Keeley's farm about 2 miles away on True Road off Tilton Hill Road. The farm site has very good horizons, but this time the amount of cloud cover made the Moon the only good bet for the 15+ adults and 3 kids. I used the Library Telescope to show as many craters as possible. A young lady used the Zoom EP to see Mizar split as she rotated it. I also showed Alberio, Aldebaran, Vega and the Pleiades. Steve tried to show M31, but the clouds won out.

NHAS members present were Gardner Gerry, Elaine Grantham-Buckley, Steve Rand and Bob Veilleux, who also did the presentation earlier at the Library.

- *Ramaswamy*

North Hampton Public Library, North Hampton NH, November 14, 2013

Ted Blank's indoor presentation kicked off proceedings. Ted, Tom Cocchiario and I set up next to the Library, with Tom introducing folks to the night sky with a GLP tour. I started with Alberio, then Vega, the double-double, T Lyrae, 61 Cygni, and the Pleiades. And of course the Moon! There was thin cloud about, so that the Pleiades showed the bare minimum of bright stars. Ted had setup binoculars to point at them and it was well used.

At least there was no wind and it wasn't very cold, and the hot cocoa towards the end was most welcome! More than a dozen people showed up, including kids that were attentive and very well behaved.

- *Ramaswamy*

The Nashua Winter Stroll

For the fifth year running, NHAS participated in the [Nashua Winter Holiday Stroll](#) event held on Saturday, November 30th, the kick-off holiday season event in Nashua. The downtown section of Main St. was closed off by 4pm for about 6 hours, and one of the many events held was a skywatch at Bicentennial Park, next to the Nashua river.

The NHAS organizer was, as always, Ken Charles, with help from Elaine Grantham-Buckley, Joe Dechene, Joe Derek, Gardner Gerry, "Rags" Gilmore, Ramaswamy, April South and Mike Townsend. Rich Schueller and Ed Ting were on hand later in the evening, the former with welcome hot cocoa! While the Stroll revelers were very enthusiastic, the weather did not cooperate after a while.



Ken Charles setting up for the duration

Mike and I were the first to arrive (at about 2pm) and setup our scopes for solar observing, using white light filters. A few passers-by had a look at sunspots, which began to fade by about 4pm as a thin layer of cloud cover rolled in from the west. But Venus was brilliant at this time and everyone was able to get a



The 22° Sun Halo above Nashua River

and of course, Alberio. I had trouble locating the latter, so I showed Vega and the double double and a star-hop from one to the other, until both started fading away. By 6pm, with Venus gone and the Moon absent, there wasn't much to show in the skies.

I packed up my Zenithstar 80 and concentrated on informing folks about other NHAS Skywatches scheduled in the coming weeks for the southern NH region. I handed out dollar-bill sized 'wallet cards' with information about NHAS programs and the web-site calendar address, to give people a chance at another viewing, possibly under better conditions; some Hudson residents might show up at the Rodgers Memorial Library skywatch in mid-January!

Ken Charles disengaged tracking on his CPC1100 and showed the 'Clock Nebula' down the street, while Joe Dechene continued tracking Vega with his 6" Dobson as it faded well past magnitude 5, until that is "a kid knocks the telescope off target and then I am done!" Later Mike Townsend started showing the "Christmas Tree" cluster at the top end of Main St. It has to be said that the Jewel Box in the Crux couldn't match the brilliance of the cluster seen in his Stellarvue.



Observing the Christmas Tree cluster (Photo: Ed Ting)

view of the 30% crescent of the planet. Mike, Ken and others explained how the geometry of the orbits of Venus and Earth around the Sun leads to the phases of Venus. Then Gardner wondered if he had spotted "ashen light" at Venus, but Mike thought it was largely illusory (those interested might want to look up the term – it has been called a 400-year mystery). Meanwhile Mike pointed out a halo above the Sun, which looked to be the 22° halo caused by ice crystals suspended in the cirrus clouds high above. A very neat effect!

With the north almost completely overcast, there was no chance to sight Comet Lovejoy. Everyone concentrated on the very prominent Vega, Deneb and Altair triangle,



Joe Derek pointing out his binoculars setup, I think!

The Main Street festivities continued in full swing, but I left by about 7:30pm. Ken, Joe Derek and Mike stayed on until after 10pm, by which time some holes had opened up in the overcast to allow Jupiter, Aldebaran and the Pleiades to be observed. Some lucky latecomers were able to see part of the heavens at the tail end.

- *Ramaswamy*

Three Comets

This is a story of 3 mornings, November 19th to 21st inclusive. It is also the story of 3 comets. And finally it is an account of 3 gatherings on the morning of November 20th in search of the same objects.

I had made ‘sightings’ of comet ISON in late October and early November from Milford, but could never claim to have seen it (Mike Townsend was the adjudicator). But by early morning of November 8th I had it in my 19mm Pan, as part of the blade of a bow-saw like asterism just 2° off β Virginis. I can still hear the whoops that echoed down empty Heron Pond road! Imagine my surprise later that morning when Paul Cezanne posted on NHAS Chat about a new discovery called comet Lovejoy. I had never heard of it before. But within a couple of days, I had located it between Cancer and Leo, an easy binoculars object and considerably better defined than ISON.

The last piece of information was supplied by Paul Winalski at the Epping HS skywatch. Comet LINEAR had had a sudden burst of activity, and having shot up by more than 5 magnitudes it was now within the reach of small scopes. I found finder charts for all 3 comets (and for the periodic comet 2P/Encke as well) and set to work in the mornings.

The morning of November 11th was memorable in more ways than one. Bundled up against the cold (but bearable) wind at the Milford site, I observed C/2013 R1 Lovejoy from about 3am to almost 4:45am. It was not a clear sky (and so it was not too cold), but clouds actually helped as the comet blinked out and was then etched back into place. It was magic. I marveled at how quickly it was moving – I have no experience at comet watching but it sped from the near the bottom of a wedge of stars toward the line stretching from the bottom of the wedge to kappa Leonis in that hour and a half.

A few miles away, Joe Dechene was imaging the comet at about the same time (4am). In his snapshot, Comet Lovejoy (in the center) has just exited the wedge and kappa Leonis is the bright star to the lower left; it had served as the fence star in my FOV. The movement of thin clouds had defined the tail for me, and Joe’s image has it too.



*Comet Lovejoy near κ Leo
(Image: Joe Dechene)*

Tracking Lovejoy became easier in the following days as it moved towards Leo Minor and became an early morning object from my backyard, well clear of the tree-tops to the ESE. But Comet C/2012 X1 (LINEAR) was an entirely different kettle of fish. It was in the vicinity of Arcturus and η Boötis for most of the month, but I just couldn’t spot it. Bad weather set in for a few days, and then came a window of 3 days that would be reasonably clear. I needed a spot with clear eastern horizons and Steve Rand suggested one in Mont Vernon, not much farther a drive than to the Milford site Mike Townsend and I frequent.

The First Morning

The outdoor sign at the County Stores in Milford signaled 41°F as I drove past, which was surprising. I understood when I got to the top of Grand Hill – it was partly cloudy. Steve couldn’t join me that morning and I didn’t bother setting up; I stuck to binoculars and could spot Lovejoy up above, well past Leo Minor. Arcturus was in the clear but Spica was not. I spent the next hour figuring out where things would be in 24 hours in relation to the few tree-tops in the field of view. Spica finally shone through and it was to be the upper pointer star in locating ISON. The lower pointer would be Mercury, and sure enough it managed to wink through cloud cover. The job was done, but the odd moment of the morning was the passing of the ISS low across the northern sky at about 5:10am. As I stood watching, it simply disappeared, well clear of the horizon. “Ah,” I said to self, “it has been eclipsed!” Then a shake of the head – “but it was heading east!” The obvious answer: the ISS had vanished behind clouds I couldn’t see.

The Second Morning

The County Stores flashed 26°F and the sky was clear, so I knew it would be a slog. Steve was to join me at 4am.

The wind was practically howling at the hill-top. But I was trying on a new parka with a hoodie and I tried to use my car as a shield (unsuccessfully). Setting up the Z80 on the Porta II was a major effort, and I was afraid the tripod would topple over, so I lowered it as far as it would go. A van drove up but it was a stranger, who turned out to be Steve's neighbor Eric. A few minutes later Steve showed up and we used his SUV as additional windbreak.

Using identical 15x70 Skymasters, I navigated Steve to Lovejoy, now north of the Alulas in Ursa Major. After a few minutes in the warming hut (car), I tried to draw the imaginary line from Spica to where Mercury would rise at 5am, but it didn't get us to ISON. That happened at 5:08 – half way along the Mercury-Spica line and a short step at right-angle toward the horizon. Eric was first to spot it and it was a magical moment a second time around for me.

It took a while but I managed to get the Z80 trained on ISON and switched to the 9mm Expanse. The nucleus looked bluish to me, and the tail was more obvious; Steve termed it grey-blue, and both of us were at variance with reports of a green nucleus. But looking through the scope was a major knee-ache.

I tried again for LINEAR, and this time hit the jackpot. A dull blob, nothing more. I could actually star-hop to it from Arcturus; 4 stars in a line to 22 BOO and there was the comet, just above it. I had trouble lining up the Z80 because of OTA obstruction and I didn't want to move it. I settled for binoculars and Steve spotted it as well.

3 for 3. Encke didn't pan out. 3 for 4. But by this time, it was well past 5:30 and the warming hut was not keeping the cold at bay. One more look at ISON and we packed up. Steve snapped the dawn with his phone and we headed down to Milford for a hearty breakfast. Heading home after 7am, I fought the Sun all the way back. It mattered little.



*Breaking dawn from Grand Hill
(Photos: Steve Rand)*



At the 24-hour Red Arrow, Milford

The Third Morning

The County Stores warned of 18°F, but there was a surprise. No wind atop Grand Hill, not even a breeze. It makes a huge difference – 18° without wind is no big deal when you had been in terrible wind-chill conditions 24 hours earlier. I decided to go back for a last look and had the premises to myself. But soon clouds were spoiling the show. Lovejoy was up above, free and clear, and in a second case of coincidence, Joe Dechene was imaging it (shown next to the Contact Information box on Page 12). As I waited for Mercury again, LINEAR was next on the list, this time below 22 BOO. But I couldn't spot it. Almost in exasperation, I switched to the 9mm again, and voila! I was looking at a comet. It made no sense until I talked it over with Mike Townsend. Increasing magnification also darkens the field. Mike also recommended tapping the OTA gently to generate vibration, which lets the brain spot dim objects.

Clouds were obscuring the ISON region and it was past 5:30 when I saw Spica and Mercury again. Comet ISON had moved a lot closer to Mercury in 24 hours and suddenly I saw a cigar-shaped cloud above Mercury that was at a 45° angle, with λ Virginis at its tip. Once I figured that out, it was an equal distance horizontally to ISON. It was barely visible, but it was a good enough sighting. I packed up and drove home. Encke will be back in 3 years and 4 months. My current quest was over.

A note about the site: The Grand Hotel on the hill-top burned down in 1930 in a blaze that was visible from Boston, according to a former Fire Chief of Mont Vernon named Steve Rand. The house now on the land sold this week.

- *Ramaswamy*

An Impromptu Observing Session

Ed Ting and John Pappas organized a morning observing session in Bedford at Joppa Hill Road for November 20th. Other NHAS members joining them were Melinde Byrne, Larry LaForge, Mike O'Shaughnessy, Rich Schueller, April South and Bob Veilleux.

All eight braved single digit wind-chills to see "the comet of the century." Rich Schueller commented on the green nucleus, but preferred Lovejoy, while the last word on comet ISON belonged to Bob Veilleux:

"We all felt the compulsion to see what all the hype has been about. Unfortunately, that is all there is to say – it's hype! Much ado about nothing (so very little to see). Yes we did see ISON, through binoculars. It is still not naked eye visible. It was a good binocular field (15x30 Canon IS) below Spica. None of the eight brave souls could make out anything but a "faint fuzzy." Clearly not anything near to the sight of comet Lovejoy that was also visible, and much more prominent in the constellation of Ursa Major below the two inner stars of the bowl of the dipper. So until ISON successfully comes out from its fate with the Sun. I will have to say ISON is I-GONE. I will venture out no more."



(Photo: Ed Ting)

The Third Observing Session

On the same morning, Joe Derek decided to haul up to Lowe's off Daniel Webster Highway in Nashua to look for comet ISON from the east 'overlook.' Out of the dark, Kerry Heard from Milford showed up and the pair of them spotted their quarry using Mercury and Spica as pointers. Presumably, comet Lovejoy was also viewed.

Comet Nomenclature

The four comets in the morning skies this month are known officially as C/2012 S1 (ISON), C/2012 X1 (LINEAR), C/2013 R1 (Lovejoy) and 2P/Encke. This format is used on Stellarium for search and identification, so the following information might be useful. Here's how the decoding goes (for the most part these days):

The letter C before the '/' indicates a long period or non-periodic Comet (200 years or more).

The letter P before the '/' indicates a short-period or Periodic comet (less than 200 years).

The letter D (for destroyed), X (for lost due to lack of observation/position) or A (for a minor planet mistakenly identified as a comet) is seen infrequently. Comet Shoemaker-Levy 9 of Jovian fame is known as D/1993 F2.

For C category comets, the year of discovery follows the '/' and a space separates it from the next coded bit.

This is a single block Letter, to indicate the half-month in which the comet was discovered. The 12 months of the year are split into 24 halves. Letters I and Z are not used to avoid confusion with numerals 1 and 2. The other 24 block letters indicate the half-months, starting with A for January 1-15 and ending with Y for December 16-31.

The next Digit (or digits) is the order of discovery within the half-month; usually it is only one digit.

The name of the Discoverer follows in parentheses. Up to 3 co-discoverers are recognized, separated by hyphens. Names like ISON and LINEAR are acronyms of the sites or organizations where the discoveries were made.

For P category comets, the year of discovery is largely irrelevant since they keep returning, usually "on time."

About 300 Numbered P comets are known, and 1P/Halley holds the pre-eminent position.

The Name associated with the comet is usually of the person who calculated its orbit and predicted the next perihelion. Thus, even though Pierre Méchain (yes, *that* Pierre Méchain, Charles Messier's assistant) discovered it, 2P/Encke is named after Johann Franz Encke, who first computed its orbit accurately.

- *Ramaswamy*

Naming Stars

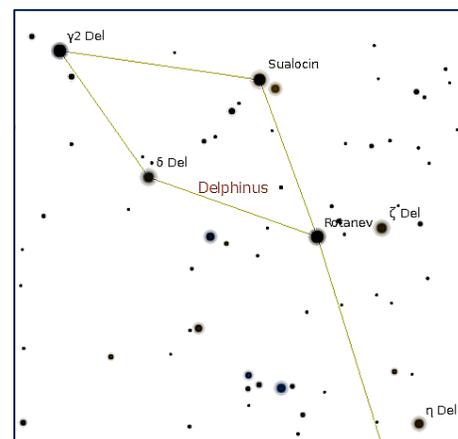
Biology, Geology, Physiology, Zoology... so why Astronomy?

Unfortunately, Astrology got there first and claimed the word, so “the science of the stars” had to settle for being “the naming of the stars” – hence the “-nomy” in Astronomy.

We all revel in showing off the Galilean moons at Skywatches in the winter. I have been trying to follow Paul Winalski’s lead with views of Father Angelo Secchi’s La Superba (more of a morning effort these days), while Paul himself never misses an opportunity to showcase 61 Cygni, Giuseppe Piazzi’s Flying Star. But not many have heard of Piazzi’s able assistant (and successor) at the famous Palermo Observatory – Niccolò Cacciatore, also known by the latinized version of his name: Nicolaus Venator.

When star-hopping to Nova Delphini 2013 in August, I started at α Delphini, the curiously named “Sualocin” (alongside “Rotanev” – the equally strangely named β Delphini). A little digging unearthed the origin of these seemingly non-Arabic and non-Latin names, which first appeared in the Palermo Catalogue of Stars issued in 1814. Look at the star names carefully, backwards.

Although a scholarly account pointing to an Arabic origin of the two names exists, I prefer the way of the latter-day editor of *The Shinbone Star* in “The Man Who Shot Liberty Valance” – when the legend becomes fact, print the legend. There are many clever ways to get one’s name up in the skies, and this legend spells out one of the cleverer ones.



(Chart by Stellarium 12.2)

And since Paul also likes to show the yet-to-be-properly-named double star γ Delphini, “Iksłaniw” anyone? Some of us are, after all, familiar with the reverse Polish notation.

- *Ramaswamy*

A Factoid and a Hold-over



(Photo: Amy & Sarah Lovejoy)
Discoverer of:

- C/2007 E2
- C/2007 K5
- C/2011 W3
- C/2013 R1

Terry Lovejoy, Comet Hunter

From his backyard in Thornlands, QLD, some 30kms from Brisbane, Australia, Terry has discovered four comets so far, including the Kreutz sun-grazing comet C/2011 W3 that survived its perihelion pass on December 16, 2011 (and attracted Paul Winalski’s attention).

On the Nashua Public Library Skywatch, September 24

A belated thank you for holding a skywatch at the Nashua Public Library in September. The audience was so enthusiastic about learning what to look for in the night sky! They were fortunate to be able to see it through such high-quality telescopes. The telescope that Ramaswamy donated to the Library is getting good use; there is a long waiting list to take it out, which is a good thing!

On behalf of the director of the library and the board of trustees, thanks to all of you for contributing your time to the community.

Carol Luers Eyman
Outreach and Community Services Coordinator
Nashua Public Library, Nashua NH 03060

The Monthly Events

The First Friday Skywatch at MSDC was held on November 1st under good conditions, but the turnout was rather poor. NHAS members present were Ted Blank, new member Elaine Grantham-Buckley, Gardner Gerry, John Rose, Marc Stowbridge and Mike Townsend.

Coffee House Night at YFOS had to be cancelled the next day due to overcast, as was the Sidewalk Astronomy event at Portsmouth the following week on November 9th. However the Rey Center skywatch in Waterville Valley went ahead as scheduled on November 2nd, with Ted Blank managing about 90 minutes of observing before clouds rolled in.

While on the matter of cancellations, three regularly scheduled Skywatches could not take place due to inclement weather in the last quarter of the month: at Pease Library in Plymouth on the 22nd, at Goffstown High School in Goffstown on the 26th, and at Rodgers Memorial Library in Hudson, also on the 26th, but rescheduled since for mid-January, 2014.

LTP Scope Delivery

Usually a solitary delivery won't make news, but this was a holdover from last month and became the very last LTP unit delivered in 2013. The Salisbury Free Library took possession of their telescope on November 19th and will likely sign up for an inaugural Skywatch in the Spring of 2014. Their locale has a sizeable back-lot with very good horizons to the south and west. The Library building itself is capable of screening any street lights and all nearby lighting appears to be under their control.

Then there's an item well suited to the holiday season. The LTP Modification parties at MSDC are always a blast, and the father and son team of Scott and Liam McCartney provides its fair share of moments. He can deal with changes to the primary mirror housing as readily as he can engage Marc Stowbridge in a serious discussion, and here are both sides of the Liam McCartney coin:



(Photo: Ramaswamy)



(Photo: Ted Blank)

About the Club Loaner Scopes

Perhaps one of the most valuable and also the most overlooked membership benefit in the Society is the Loaner Scope Program. It is aimed almost exclusively at new members, and is geared to let them feel their way into the world of amateur astronomy without having to buy equipment up front.

Think of it as the Library Telescope Program for NHAS members. The period of the loan is not 2 weeks, but 2 months, and within limits and as conditions permit, is extensible. The loans are usually processed at the monthly Business meetings by the custodian of each telescope.

The objective is to help new members get to know what will suit them personally, to experiment with options, and to understand what will work in the time available to them to pursue their new hobby and equally, what may not. To a beginner, a suitable telescope is invariably one that is easy to transport to the observing site and easy to setup, and not necessarily the one with the most aperture or sophistication.

At present the Club has 4 scopes available as loaners. Consult the *Club Loaner Scopes* section later in this newsletter (page 14) for details on the individual scopes in the program. All are reflectors on a Dobson mount, and come with a Telrad sight and an assortment of eyepieces and other accessories.

My own use of a ‘loaner’ began tentatively about 18 months ago with the XT6. It did not have a Telrad finder then, but it showed me that Mizar was a binary star all its own, and also let me discover an asterism called Cr 399 that looked like a Civil War cannon, and at times like a World War II Anti-aircraft Artillery piece, but is known as the “Coathanger.” Every time I come across it now, I still see an Ack-Ack!

- *Ramaswamy*

New member Jeffrey Dionne was an NHAS volunteer at NEFAF in September, and has used his XT10 Loaner scope both at YFOS and in his backyard. His interests are in astrophotography, and the very first small step for him in the process was an afocal shot of the Moon. His experience with the scope led him to make some modifications that suited him better. As remarked to Ted Blank:

“What I have learned by having the scope? A lot. I am able to find several objects fairly quickly now just by looking at a star or constellation. For instance: the Andromeda galaxy and its satellite, dumbbell nebula, ring nebula and a globular cluster that I cannot remember the name of at this moment. I did this with the help of the Stellarium app on my phone and the telrad I put on the scope, and of course some people at YFOS. I have also learned how wonderful a telrad is and how I dislike finderscopes.



“I have also learned about light pollution and how it affects astronomers, because my neighbors seem to like leaving floodlights on all night! Also that the moon is not an astronomer’s friend. I also have a better understanding of scope optics and what different eyepieces do to the image.

“I have learned more that I just cannot put to words at this moment in an email composed on my phone at work, except that the universe is amazing and it is very humbling looking at it through a metal tube in my backyard.”

The November business meeting was held at St. Anselm College, Manchester on November 15th, with 33 members present and our President Rich DeMidio presiding. The Treasurer's report by "Rags" follows (although this report was not presented with the slide-show; last month's report was repeated instead).

President's Report

The December pot-luck will be on Dec 20th and a swap table has been arranged (at the suggestion of a member). In 2014, we will meet on the 2nd Friday of each month for business meetings at both venues. More "clinic" type events will be held for the evening program, starting with an Eyepiece Cleaning clinic in January.

The Q4 Officers' Meeting analyzed 40 activities and discussed burnout. Rich DeMidio will be focusing on membership chair, as it was felt that lack of leadership there was a barrier to adopting many ideas.

2014 Officer nominations were proposed and seconded. Rich DeMidio is not seeking a 2nd term as President. The nominations submitted at the meeting were:

President: Tom Cocchiaro
Vice President:
 Tom Cocchiaro, John Bishop
Secretary: Paul Winalski
Treasurer: David Gilmore
Jr. Director: Peter Smith

[Note: Tom Cocchiaro has since withdrawn from consideration as President for 2014. There is yet no candidate for that office. – Editor]

The next round of nominations and voting will take place at the Dec. 20th meeting. Paul Winalski can act as proxy for those who are unable to attend and wish to nominate or second a nomination. Only those members attending the Dec. 20th meeting are allowed to vote for a candidate for any office.

What's on Your Mind?

Herb Bubert presented astro images: (Astro Gallery selections marked '*')
 Flaming Star nebula in H- α – H. Bubert
 Lunar Eclipse of Oct. 18 – Ed Ting
 *Helix Nebula – Gardner Gerry
 *Elephant's Trunk nebula – H. Bubert
 *Heart Nebula (sh2-190) – Herb Bubert
 Pelican nebula – John Buonomo
 Last Quarter Moon – Ed Ting
 M31+M32+M110 in H- α – J. Buonomo
 Milky Way – Pat Bourque
 Afocal shot of Lunar X – Ted Blank
 Afocal Moon terminator – R. DeMidio
 Crescent nebula – Herb Bubert
 Orion M42 – Shane Cross
 Pacman nebula – John Buonomo
 *Rosette nebula – John Buonomo
 *Tulip nebula (sh2-101) – Herb Bubert
 sh2-171 in Cepheus – Herb Bubert

Ed Ting related his [Walmart experience](#) when trying to print a Lunar image that was too good not to be a pirated copy, according to the store manager.

Astro Shorts

Rich DeMidio was amazed at how easy it was to do afocal photography on his Orion XT8.

Paul Winalski talked of SOHO and SDO images of recent vintage, especially of comets diving into the Sun, and the sun-grazing comet Lovejoy (of 2011).

Ted Blank mentioned the Cassini picture of Earth and Moon taken on July 19th. He also read aloud Jeffrey Dionne's comments about his Loaner Scope (see the previous page in *Society Activities*).

Bob Veilleux showed off a Namibian meteorite that is 91% Iron and 8% Nickel. Iron meteorites are 8-9% of all found, and have fine bands.

The Evening Presentation

NHAS member John Blackwell discussed some of his latest research involving both standard quasars and their slightly fainter relatives, Seyfert galaxies.



John Blackwell framing the topic

Data from the Galaxy Evolution Explorer (GALEX), the Wide-Field Infrared Survey Explorer (WISE), and the Sloan Digital Sky Survey (SDSS) was used to construct color-magnitude diagrams (CMDs) for Type I quasars at redshift values between 0.1 and 0.5. This effort improved upon previous ones by increasing the sample size to more than 400 objects and by increasing the covered wavelength span from 0.25 microns to 22 microns.

Color was plotted against absolute magnitude at a variety of wavelengths, from near ultraviolet to infrared. The range of magnitudes covered by the quasars studied, however, was narrow compared to the range of magnitudes in a typical HR diagram for stars. No tight correlations were found when comparing any of the UV or optical colors to the various infrared absolute magnitudes.

[The lecture concludes with Part 2 at the February 2014 Business Mtg.]

NHAS Treasurer's Report*(as of October 30, 2013)***Starting Balance:** \$12,150.08**Deposits:**

Membership	1,403.22
Donations	329.14
Calendar sales	28.00
Interest	0.50
Total:	\$1,760.86

Expenses Paid:

Joe Derek (Start YFOS repairs)	1,300.00
Joe Derek (Finish YFOS repairs)	1,575.50
Rackspace Cloud (web site)	22.56
Total:	\$2,898.06

Current Checking Balance: \$11,012.88**Petty Cash:** \$100.00**Current Cash Balance:** \$11,112.88**EOC Share:** \$6,349.79**Membership**

Cash Renewals:	39x30.00	1170.00
Cash New Members:	2x30.00	60.00
PayPal Renewals:	5x28.87	144.35
PayPal New Members:	1x28.87	28.87
Total:	47	1403.22

Current Members: 78**New Members**

Elaine Grantham-Buckley	Alton Bay, NH
Audrey Hite	New London, NH
Matt Miller	Goffstown, NH
John Buonomo	North Billerica, MA

Donations

David Rickey	GEN	20.00
Eugene Solod	EOC	45.00
Rich DeMidio	YFOS	50.00
Marc Stowbridge	EOC	20.00
Elaine Grantham-Buckley	EOC	20.00
John Shonle	YFOS	10.00
Tim Saguear	YFOS	20.00
Reed's Ferry School	GEN	100.00
Pete & Gerry Smith	LTP	39.14
Tom Cocchiaro	GEN	5.00
Total:		329.14

Contact Information[How to join NHAS](#)

Write to us: **NHAS**
P. O. Box 5823
Manchester, NH 03108-5823

Send Email to: info@nhastro.com

Visit our web site: <http://www.nhastro.com>

[How to contribute to the Observer](#)

Email articles and snapshots to the Editor:

ramax.astro@yahoo.com



Comet C/2013 R1 (Image: Joe Dechene)

The ample separation from the Sun enjoyed by Comet Lovejoy (of 2013) made for easier viewing, and excellent imaging. Discovered only on September 7th, C/2013 R1 is shown here in a star field in Ursa Major, very close to the boundary with Canes Venatici, on the morning of Nov. 21st.

Unlike the sun-grazing comet C/2011 W3, also known as Lovejoy, this one will come no closer to the Sun than about 0.81AU at perihelion on December 22, 2013.



*Helix Nebula (NGC 7293) in Aquarius – by Gardner Gerry
Planetary nebula imaged on Sept. 28 at Coffee House Night*



Tulip Nebula (sh2-101) in Cygnus – by Herb Bubert



Heart Nebula (IC 1805) in Cassiopeia – by Herb Bubert



Elephant's Trunk Nebula (IC 1396) in Cepheus – H. Bubert



Rosette Nebula (NGC 2237) in Monoceros – John Buonomo



Rosette Nebula in Hubble palette colors – John Buonomo



Orion XT6 – 6” Newtonian on a Dobson mount

(custodian: Tom Cocchiaro contact: tomcocchiaro@comcast.net)

Equipped with:

- Telrad finder with a dew shield
- 32mm, 25mm and 10mm Plössl EPs in a case
- A Planisphere, a Moon map, and a red light
- Richard Berry’s “Discover the Stars”
- Orion XT6 user manual



Meade 8” Newtonian on a Dobson mount

(custodian: Ken Charles contact: starnek2550@gmail.com)

Equipped with:

- Telrad finder with a dew shield
- 25mm and 10mm EPs
- Custom-built base (a Joe Derek original)



Coulter Odyssey 10” Newtonian on a Dobson mount

(custodian: “Rags” Gilmore contact: nhas@ragnorok.net)

Equipped with:

- Telrad finder with a dew shield
- 26mm TeleVue Plössl and 15mm Celestron Plössl in a case
- A Planisphere and a Moon map
- Richard Berry’s “Discover the Stars”

Also available on loan, independent of the telescope, and in a separate slip-case:

- Sky Atlas 2000.0 by Wil Tirion and Roger Sinnott
- Sky Atlas 2000.0 Companion by Robert Strong and Roger Sinnott



Orion XT10 on a Dobson mount

(custodian: Ted Blank contact: tedblank@gmail.com)

Equipped with:

- Telrad finder (replacing the original finderscope)
- Assorted EPs: 35mm, 25mm wide-angle, 17mm and 10mm.
- An EP case will be available in the near future.

Regional Astronomy Clubs

New Hampshire Astronomical Society [NHAS]
Skywatches around the State
Sidewalk Astronomy in Portsmouth
www.nhastro.com

Amateur Telescope Makers of Boston
(Westford, Mass.)
www.atmob.org

Astronomy Society of Northern New England (Kennebunk, Maine)
www.asnne.org

McAuliffe-Shepard Discovery Center [MSDC] (Concord, NH)
Planetarium and Observatory
First Friday Observing Event
www.starhop.com

North Shore Astronomy Club
(Groveland, Mass.)
www.nsaac.org

Penobscot Valley Star Gazers
(Bangor, Maine)
www.gazers.org

Online Live Observatories

Astronomy Live (broadcasts)
www.astronomylive.com

SLOOH (Tenerife, Canary Is.)
www.slooh.com/about.php

Worldwide Telescope
www.worldwidetelescope.org

Magazines

Astronomy
www.astronomy.com

Sky & Telescope
www.skyandtelescope.com

Sky at Night
www.skyatnightmagazine.com

Astronomy Gear

Agena AstroProducts
www.agenaastro.com

Astromart
(Used equipment and advice)
www.astromart.com

Astronomy-Shoppe
(in Plaistow, NH 03865)
www.astronomy-shoppe.com

Celestron
www.celestron.com

Cloudynights
(Used equipment, Articles, Forums and Reviews)
www.cloudynights.com

Explore Scientific
www.explorescientific.com

High Point Scientific
www.highpointscientific.com

Kendrick Astro Instruments
www.kendrickastro.com

Lunt Solar Systems
www.luntsolarsystems.com

Meade Instruments
www.meade.com

Oceanside Photo & Telescope
www.optcorp.com

Orion Telescopes
www.telescope.com

ScopeStuff
www.scopestuff.com

TeleVue
www.televue.com

Vixen Optics
www.vixenoptics.com

William Optics
www.williamoptics.com

Astronomy Web Sites

CalSky
(Sky Calendar to plan Observing)
www.calsky.com

Heavens Above
(on Satellites, Spacecraft, Planets)
www.heavens-above.com

NASA
www.nasa.gov

ScopeReviews
(Reviews by Ed Ting, NHAS)
www.scopereviews.com

SpaceWeather
(Solar activity, Asteroid passes)
www.spaceweather.com

Computer Software

Cartes du Ciel (*aka Skychart*) (Free)
www.ap-i.net/skychart/

Celestia
www.shatters.net/celestia

Computer Aided Astronomy (Free)
www.astrosurf.com/c2a/english/

Earth Sky Tonight
www.earthsky.org/tonight

Google Sky (Free, online use only)
www.google.com/sky

SkyMap Online
www.skymaponline.net

Starry Night
(many versions, Novice to Expert)
www.starrynight.com

Stellarium (Free)
www.stellarium.org

WinStars (Free)
www.winstars.net/english/

Event	Date	Time	Location
Campbell High School Skywatch	Wednesday, December 4	6:30pm	Campbell High School, Litchfield NH
Concord Schools (3) Skywatch	Thursday, December 5	6:30pm	near White Farm, Concord NH
First Friday Skywatch for MSDC	Friday, December 6	7:00pm	MSDC, Concord NH
Coffee House Night at YFOS	Saturday, December 7	5:00pm	YFOS
Sidewalk Astronomy Skywatch	Saturday, December 7	6:00pm	Market Square, Portsmouth NH
Campbell High School Skywatch (backup date)	Tuesday, December 10	6:30pm	Campbell High School, Litchfield NH
Concord Schools (3) Skywatch (backup date)	Thursday, December 12	6:30pm	near White Farm, Concord NH
Educ. Outreach Committee Meeting	Thursday, December 19	6:30pm	Manchester City Library, Manchester NH
NHAS Business Meeting (Pot-luck)	Friday, December 20	7:30pm	MSDC, Concord NH
Rey Center Skywatch	Saturday, December 28	6:00pm	Rey Center, Waterville Valley NH
Portsmouth First Night Skywatch	Tuesday, December 31	4:00pm	Market Square, Portsmouth NH
First Friday Skywatch for MSDC	Friday, January 3, 2014	7:00pm	MSDC, Concord NH
Coffee House Night at YFOS	Saturday, January 4, 2014	5:00pm	YFOS
Rey Center Skywatch	Saturday, January 4, 2014	6:00pm	Rey Center, Waterville Valley NH
Heronfield Academy Skywatch	Thursday, January 9, 2014	6:30pm	Heronfield Academy, Hampton Falls NH
NHAS Business Meeting	Friday, January 10, 2014	7:30pm	St. Anselm College, Manchester NH
Sidewalk Astronomy Skywatch	Saturday, January 11, 2014	6:00pm	Market Square, Portsmouth NH
Rodgers Memorial Library Skywatch	Tuesday, January 14, 2014	6:30pm	Rodgers Memorial Library, Hudson NH
West Manchester Library Skywatch	Wednesday, January 22, 2014	6:00pm	West Manchester Community Library, Manchester NH
Rindge Town Skywatch	Friday, January 24, 2014	6:30pm	Rindge Recreation Dept., Rindge NH
West Manchester Library Skywatch (backup date)	Wednesday, January 29, 2014	6:00pm	West Manchester Community Library, Manchester NH
Bethlehem Public Library Skywatch	Thursday, January 30, 2014	6:00pm	Bethlehem Public Library, Bethlehem NH
Bethlehem Public Library Skywatch (backup date)	Friday, January 31, 2014	6:00pm	Bethlehem Public Library, Bethlehem NH

Note: Please check [Calendar] at www.nhastro.com for up-to-date information on upcoming events.

Date

Tuesday, December 3
 Monday, December 9
 Tuesday, December 17
 Wednesday, December 25
 Wednesday, January 1, 2014
 Wednesday, January 8, 2014
 Thursday, January 16, 2014
 Friday, January 24, 2014
 Thursday, January 30, 2014

Lunar Phase

 New moon 12:22am
 First quarter 3:12pm
 Full moon 9:28am
 Last quarter 1:48pm
 New moon 11:14am
 First quarter 3:39am
 Full moon 4:52am
 Last quarter 5:19am
 New moon 9:39pm

Credits

Contributors to this month's **Observer**:

Matt Amar, John Bishop, John Blackwell, Ted Blank, Herb Bubert, John Buonomo, Diane Cassidy (*Gafney Library*), Ken Charles, Tom Cocchiaro, Joe Dechene, Joe Derek, Rich DeMidio, Jeffrey Dionne, Carol Luers Eyman (*Nashua Public Library*), Gardner Gerry, "Rags" Gilmore, Glenn Meyers, Steve Rand, John Rose, Pete Smith, April South, Ed Ting, Mike Townsend, Bob Veilleux, Paul Winalski and Peter Wolczko.