



OBSERVER

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Newsletter of the New Hampshire Astronomical Society

July 2014

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President's Message



This month's message is about accessibility. I am truly pleased at how each of you makes the Universe accessible to the public through your membership and contributions to NHAS.

There are many ways that you contribute and all are valuable. Just answering a simple question from a member of the public opens up that person's awareness and makes their next step in understanding that much easier.

Many times at a Skywatch or Sidewalk activity I am asked a question like "Is there something special going on tonight?" I think this is a natural outcome of the news media skewing their astronomical reporting toward infrequent events like meteor showers and "Super Moons."

By explaining that there is something special going on in the sky every night, you can help correct the mistaken impression given by the current news cycle that nothing is predictable or foreseeable, implying that everyone better tune in to their channel every night to learn what is going on. The rhythms and cycles of the Cosmos are not the property of a TV reporter; they are available to be understood by anyone with an interest. I encourage you to explain even small, obvious details to the public, in order to keep encouraging them to take the "next step" in understanding.

Thanks for all you do!

Clear skies,

Ted Blank
NHAS President

North Hampton Library, North Hampton NH, July 8

Ted Blank gave the indoor presentation. Other NHAS members present were: **Gardner Gerry, Elaine Grantham-Buckley, Bob Veilleux and Paul Winalski.** We got excellent views of the Moon and Saturn (including the moon Titan for sure; I and some of the public saw a second moon through Mr. T. that I think was Rhea). The unfortunate reality of observing at this time of year with Daylight Savings Time is that everyone leaves just as it's getting decently dark. So there was no opportunity to observe deep-sky objects. The Library is planning to have us back in the fall, when we can do more justice to what is observable when it gets dark.

- **Paul Winalski**

Oscar Foss Memorial Library, Center Barnstead NH, July 10

I gave our standard presentation to the Library patrons and joined members **Herb Bubert, Bob Veilleux, Elaine Grantham-Buckley and John Bishop** to show off Saturn, Mars, the Moon, Alberio, M13 and M57.

- **Gardner Gerry**

Derry Public Library, Derry NH, July 21 and 22

Steve Rand gave an extended one-hour presentation at the Library on the first day, with some 30 people attending. The skywatch itself was held the next day at the nearby Broadview Farm (a couple of miles away), at which about 40 people showed up.

NHAS had a similarly big turnout: **Ted Blank, Herb Bubert, Gardner Gerry, Walt Jablonski, Bill Lincoln** (a new member), **Steve Rand, Bob Veilleux and Paul Winalski.**



*Things are looking up for Paul
(Photo: Steve Rand)*

Skies were clear and steady but hazy. The site has good accessibility and horizon view, and is free from artificial lighting. But unfortunately this is Derry, where there is a lot of light pollution. The haze carried the light domes from Manchester and Salem further than they would be normally. I showed off Saturn (Titan was also visible), Mizar, Albireo, Cor Caroli, WZ Cassiopeiae, M13, M3, M51, M81 and M82, NGC 457, and the Veil Nebula. It isn't often that one can show off M51 and the Veil at public sky watches.

- **Paul Winalski**

Merrimack Public Library, Merrimack NH, July 24



*Caught in the act: Joe Dechene snaps a shot of a youngster's first look through "Ian's scope" and the shot itself (right).
(Photos: Steve Rand and Joe Dechene)*

Skies were very steady but it was partly cloudy, with bands of passing clouds separated by wide areas of clear sky. We set up in the athletic fields behind Merrimack Middle School. This is at the top of a hill and offers horizon-to-horizon field of view. It is also very dark; there is no artificial lighting visible except for one small yellow light on one of the utility buildings that can be covered easily. The event was very well attended both by the public and by NHAS. Over 100 patrons of Merrimack Public Library turned up. I counted 14 telescopes on the field and the NHAS members present included: **John Bishop, Ted Blank, Don Byrne, Joe Dechene, John Pappas, Steve Rand, Curt Rude, Ed Ting and Paul Winalski.**

I showed Saturn (Titan was also visible) at dusk, and then as it got darker: Mizar, 61 Cygni, Polaris, Albireo, Cor Caroli, WZ Cassiopeiae, M13, M3, M51, M81 and M82, NGC 457, and the Veil Nebula. It isn't often that one can show off M51 and the Veil at public sky watches.

- **Paul Winalski**



I brought "Ian's scope" to the event; this is a new telescope that I made for my son Ian and then took to Stellafane the next day. I showed objects others in the area were not showing: Mars and Saturn before it got dark, then (not in order) the Owl Nebula, Veil Nebula (western and eastern), Alberio, M27 (the Dumbbell) and M92, M13, M11, M31. There was a good crowd, including several students eager to learn more about astronomy. It was a well-organized successful event.

- **Joe Dechene**

I was there at the school I had taught at for so many years and met up with a few former students. The sky got very nice later at night.

- **Steve Rand**

Gafney Library, Sanbornton NH, July 29

This was the first time we have had a presentation for Gafney Library, given in the Town Hall on the 3rd floor of Wakefield Opera House, a spacious hall with a raised stage and

a drop-down projection screen. I gave the standard "What's up in Tonight's Sky" talk to about 30 people. NHAS member **Curtiss Rude** was also there with a telescope as we showed off Mars, Saturn, M13, M57, Alberio and Double-Double.

- **Gardner Gerry**

Bedford Public Library, Bedford NH, July 30

About 50 people attended the indoor presentation at the Library, and nearly all of them also went to the skywatch at Benedictine Park. NHAS members attending were: **Ted Blank, John Bishop, Herb Bubert, Gardner Gerry, Stu May, Todd Nelson (and his son Nate), John Pappas, Ed Ting, Mike Townsend and Paul Winalski.**

The Library staff also brought 2 of their four (!) Library Telescopes to the observing field. The LTP has been very successful in Bedford. The librarians told me that despite having four scopes, there is still a months-long waiting list for them.

I showed Mizar, Albireo, M57, M27, M81, M82, and M13. M13 was showing particularly well this evening, as the seeing was excellent. Skies were clear, but with a bit of summer haze.

- **Paul Winalski**

We had a night of great seeing. **Gardner Gerry's** C9.25 was soaking up magnification and we caught glimpses of Encke's minima on Saturn – it was a great view. The library had brought out two of their four LTPs and I ran back and forth between my 8" Portaball and the LTP to show the differences in the views.

- **Ed Ting**



Divergent looks from Mike and John, with the Portaball in the foreground.
(Photo: Ed Ting)

Society Activities

Sidewalk Astronomy, Portsmouth NH, July 5

Gardner Gerry, Tom Cocchiaro and Ted Blank enjoyed warm weather and clear skies until midnight for Sidewalk astronomy. We were also treated to fireworks (delayed from the 4th) and had great views of Saturn and the Moon. I even showed M13 to a few folks in the C8.

- **Ted Blank**



A spellbinding look at the Moon (left) and fireworks diverting attention from Saturn (right).
(Photos: Ted Blank)



First Rey

It was my first time at the Rey Center Stargazing event, and I was not the Primary – that was **Marc Stowbridge**. But I decided to go up to Waterville Valley on July 26 to check out the scene, and **Al Larsson**, the Rey Center liaison, pulled a rabbit out of the hat – he managed to get me complimentary accommodation at the Snowy Owl Inn.

Marc indicated that he would be doing some Solar observing at the Village Square, so I drove up to meet him earlier than originally planned. I was surprised that the Square and the Inn were next door to each other, but since all the parking is on the other side of the street, a dolly would be required to transport equipment by oneself. As it was, I helped Marc with the setup and break-down of his Lunt and witnessed a Man at Work. For 2 hours (from 4pm), we must have had 50+ people stop by for a look, including a charming family from Israel that was staying at the resort. The first spot-free Sun in recent times had happened 2 days prior, but we at least had one spot to show, along with small prominences that came and went. The 9pm Main Event was also publicized as the afternoon wore on.



Mount the Lunt 60T on the iOptron Mini Tower Pro (left), get it tracking the Sun, add the shade up front and call out: “Come disobey your mother! Look at the Sun!” (center) and you’ll get many wows (right). The tracking mount keeps the Sun in the FOV for those that just want to look, while others with questions can be attended to in parallel. For all his hesitant aw-schucks manner, this Santa is a true multi-tasker.

After dinner we drove up to the Curious George Cottage parking lot. Marc went to his presumed ‘usual’ spot, near the basketball hoop next to the Recreation Center. I setup next to the Curious George sign. That was my first mistake of the evening. While waiting for Saturn, Mars and Arcturus to show, Vega materialized. I showed Saturn and Mars in between the clearing in the Pines and soon it was obvious to me – a non-tracking mount is a major drawback when a lot of questions are being asked. In the time it takes to explain the difference between a nova and a supernova, Saturn drifts away. Multi-tasking is a definite requirement here, much more so than at a regular skywatch where one has some backup. By 9:30pm a bright security light at the entrance to the Rec Center was blazing in my line of sight; Marc took care of it by wrapping a T-shirt over it.



Marc setting up his Celestron CPC-1100 Deluxe HD on its fork mount (left). Marc and Mike Conlon (who was filling in for Al Larsson) talking things over (right). My WO Zenithstar 80 on its alt-az Vixen Porta II mount is at extreme right.

The skies stayed cloud-free and the seeing was great. I showed Mars, Saturn, M13, Alberio and Mizar, and did a number of GLP tours. At the end of a mostly dew-free night, M31 was just splendid. A few feet away, Marc was showing as many DSOs as he could, all the way until 11:40pm. It was a hectic time; perhaps 75 people showed up, or so it seemed.

- **Ramaswamy**

Last year it was **April South's** eye-opening first trip to Stellafane (read her report on page 6 of the [August 2013 Observer](#)).

This year our President **Ted Blank** made his first pilgrimage and also gave a talk about **Henrietta Swan Leavitt**. His report:

I attended my first Stellafane this year, and it was indeed everything it was advertised to be. When I arrived on Friday afternoon, Larry, Linda, Joel and other members had already staked out the NHAS site, put up the tarp and tent, and loaded the tables with goodies. I delivered my contributions (cooler of drinks, ice, and munchies) and settled in to enjoy the company. I had dinner in the food tent with several folks and then went to the Pavilion where I gave a talk on Henrietta Leavitt's variable star accomplishments and her discovery of the Period-Luminosity relationship. Then we settled in for a nice night of observing on the lawn in front of the site. There were about a dozen scopes from NHAS and other folks and the views were fair to good, although the sky was very hazy. Sagittarius was almost invisible even though it was a good distance above the horizon. (Thursday night, I was told, had been beautiful though).

I visited the swap tables Saturday morning where I got a very hard-to-find focuser part for a friend (a lucky find in one of Gary Hand's boxes of junk). Then I went up to the (Pink) Clubhouse and reviewed all the scopes that were entered in the competition. It was quite an impressive assortment, including a mount made with a bowling ball, and a bug-free room that you sit in and rotate around while looking through an eyepiece that comes in through a hole. I then enjoyed the delicious cooking of our Stellafane Coordinator Joel Harris at the traditional Saturday noon cook-out. I attended talks all afternoon, then came back to the site to find that our guys and gals had already taken down the tent and tarp and cleaned up most of the site - what a great team! After dinner I went to the Amphitheater for the raffle drawings. (No winning tickets for me, unfortunately). It was a real treat though to see Joe Dechene's telescope win top prize for both craftsmanship and mechanical construction.

The weather report for Saturday night started out very gloomy, so most Stellafane attendees seemed to have packed up their scopes and left. But Saturday night turned out crystal clear and beautiful. I brought out the Oak Classic (now on an equatorial mount) and enjoyed views from dark until after midnight. Many people who were walking around looking for someone still observing stopped by; we shared many views, including some objects I had never seen before.

I camped both nights on the hill. There was a bit of rain early Sunday morning but I got everything packed up and into the car, and I was driving home before the big rain hit. I had a wonderful time and hope to be able to return next year.

Mike Townsend explains the problem with the Friday night sky:

Attendance was way down this year, the smallest I have seen. On Friday night the sky was smoke-polluted, but Dan Smith said that Thursday night had been very good. Saturday night was subject to conflicting reports, with 2 channels forecasting clouds and rain (which caused three-quarters of the scopes and their owners to pack up and leave), while Sky Clock predicted clear skies with clouding only after midnight. That turned out to be correct and the observing was excellent until after 1am. The swap table was also scarce, though Gary Hand was around as usual. Our own Bob Veilleux had a very good sample of meteorites on display.



Turn Left at... never mind!
(Photo: Ted Blank)



Stellafane Lights *(Image: Jason Paul)*
Canon 7D, 10-22mm, 30 sec on Saturday.

Rob Mack with his take on a Tale of Two Nights:

Saturday night was breathtakingly clear with minimal dew. The few of us left stayed up until about 2 AM when the first wisps of clouds started to drift in from the west, mingled with an occasional distant flash of lightning. The Milky Way image attests to the beauty of the skies (with exception of the glow from Brattleboro to the south). Seeing Pluto also came off a few folks' bucket lists, as it was pretty easy to locate in the 12-inch scope, being in the same low-power eyepiece field as a 5th mag star north of the Teapot.

Friday evening, on the other hand, offered a thick hazy atmosphere that dimmed the deep-orange setting sun enough to allow naked-eye views of the solar disk just before it winked out of sight a few degrees above the horizon.

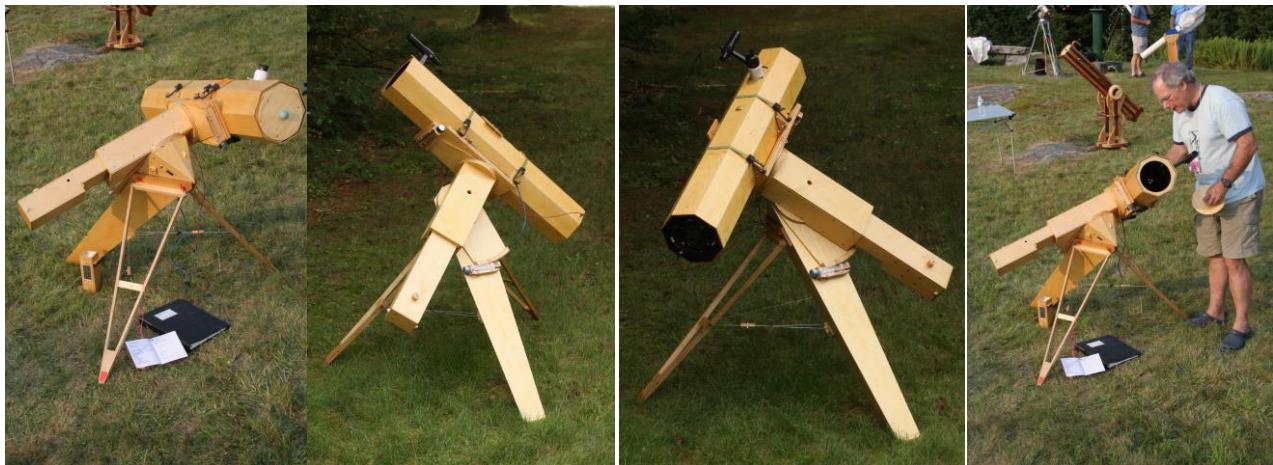
The deep-sky experience later that night, however, was somewhat challenged by the loss of a magnitude or two. The cornucopia of munchies under the club tarp did help mitigate things.

And finally, on how **Joe Dechene** and his last “kid’s scope” fared at this year’s ATM competition:

In 2007 and 2008, Joe Dechene entered his first 2 kids’ scopes in the ATM competition and won optical awards (see a report in the [January 2014 Observer](#), pages 4 and 13). Both were Newtonian Dobs. His son Ian had picked up a half-finished mirror at the 2006 swap table, but wanted a scope on an Equatorial mount. Joe was still working on it earlier this year; indeed an image of the Moon taken with this uncoated mirror was **Image of the Month** in January 2014 (page 13). In the intervening months, the project that was “Ian’s scope” was almost done. The Springfield Telescope Maker judges awarded Joe and his scope in every possible category in the competition (mechanical, craftsmanship and optics):

- **first place mechanical**
- **first place craftsmanship**
- **third place small optical (tie)**

The many facets of Ian’s scope (that is still being improved upon):



(All Photos: Joe Dechene)



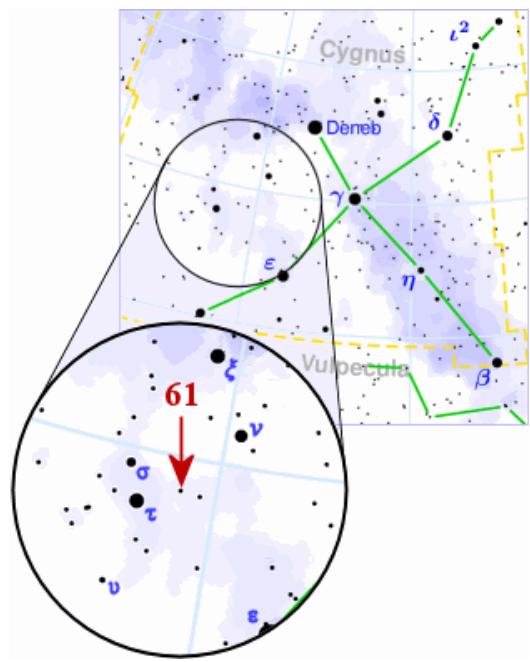
The NHAS Tent: munchies & munchers
(Photo: Ted Blank)



Joe Dechene and the new scope
(Photo: Ted Blank)

61 Cygni – Double Star in Cygnus

by Glenn Chaple



Saint Louis Science Center (www.slsc.org)

61 Cygni is an easy split, but not an easy find. The accompanying chart (above) shows its location relative to a trapezium formed by xi (ξ), nu (ν), sigma (σ), and tau (τ) Cygni. There's no need for high magnification. The same low power (25 – 50X) normally used to locate sky objects will easily bridge the 31.6 arc-seconds gap separating its magnitude 5.2 and 6.1 components. Both sport K-type spectra and appear golden yellow in the eyepiece. They complete an orbit in a little over 650 years.

I could write more about this celebrated system, but an article on 61 Cygni, written by Alan MacRobert coincidentally appears on pages 50-51 of the current (August 2014) issue of *Sky and Telescope*, wherein MacRobert includes a simple observing project to document 61 Cygni's proper motion against the background stars.

Our August "Sky Object of the Month" takes us on an 11.4 light year journey to the binary star 61 Cygni. Discovered in 1753 by the English astronomer James Bradley, 61 Cygni has historical significance as the first star (besides the sun) whose distance was accurately determined.

In 1792, the Italian astronomer Giuseppe Piazzi observed 61 Cygni and noted that its location was noticeably different from what James Bradley had recorded. "Piazzi's Flying Star" was zipping across the sky at a rate of 5 seconds of arc per year – fast enough to cross a distance equal to a moon diameter in just 360 years! Reasoning that 61 Cygni must be a relative neighbor to Earth, astronomers began an earnest effort to calculate its distance through an accurate parallax determination. The feat, finally accomplished by the German astronomer Friedrich Wilhelm Bessel in 1832, is one of the greatest in modern astronomy.



Double Star 61 Cygni



32 years later

The binary photographed in 1916 and 1948 at Lowell Observatory (www.windows2universe.org)



*Imaged with a modified Canon EOS Digital Rebel XSi, 9 seconds, 800 ISO,
Unguided. July 5, 2014 11:15pm*

If one didn't know what it was all about, one couldn't begin to guess – just a non-descript and sparse star-field shot over the tops of some pine trees from **Joe Dechene's** backyard.

The objects at top-center are **Vesta** and **Ceres**, about 10 arc-minutes apart, that were imaged on July 5 using Ian Dechene's telescope, itself a star attraction this month at the Merrimack Public Library skywatch and Stellafane. This is the closest these two asteroids (or dwarf planets) have been observed by anyone since their discovery more than

two centuries ago – Ceres was discovered on January 1, 1801 by Giuseppe Piazzi, after whom the “Flying Star” 61 Cygni is often named (*see previous page*); Vesta was discovered 6 years later.

There is now another connection between the pair: NASA's *Dawn* spacecraft rendezvoused with Vesta, entering orbit on July 16, 2011. After a year's exploration, it de-orbited on September 5, 2012 to head for Ceres. It will arrive in that neighborhood in March/April, 2015 and orbit Ceres for about a year.

- **Ramaswamy**

Editor's note: And now for something completely different...

Consider it degeneration brought about by years of mimicking the antics of Monty Python's Flying Circus – or just whimsy for whimsy's sake.

On **July 1**, the surviving 5 members of the troupe (**Graham Chapman** died in 1989) started a series of 10 shows in London, with the promise that there will be no more. [The 3-hour finale was on July 20](#), seen live on TV in the UK and in cinemas worldwide. The next day was the 45th anniversary of the Moon Landing, the pinnacle of man's achievement in space so far. **Ted Blank, Andy Jaffe, Rich Schueller** and **Bob Gillette** have [shared their memories of Apollo 11](#) (in the Kitchen Sink forum – and that bit of oddity fits right in!), but here we will only look at what came before – spaceflights by man's best friend.

July 31 is a date well known to **Harry Potter** fans, so we will look at his testing times with the science of astronomy. For the record, Harry managed only an ‘A’ in Astronomy, which is the lowest passing grade at Hogwarts (‘A’ is for Acceptable). Read on to find out why...

Happy Birthday, Harry Potter!

On July 31, Harry James Potter turned 34. Yes, it was the fictitious birthday of a fictitious character, and not a round number at that, but bear with me! We are not going to discuss him; we'll only deal with the one astronomy-related evening described in the *O.W.L.s* chapter of the fifth book: "*Harry Potter and The Order of the Phoenix.*"

To establish the date of the Astronomy examination that fifth year Hogwartians of his class had to endure, we start at the beginning. Harry was born on July 31, 1980 and entered Hogwarts on the first day of September 1991, shortly after his eleventh birthday. Thus his fifth year began in September 1995, with the 2-week stretch of the Ordinary Wizarding Level (OWL) exams set for June 1996. Since the last Quidditch match of the season between Gryffindor and Ravenclaw houses took place on the last Saturday of May (May 25 to be precise), and OWLs began on a Monday at least a week later, the earliest start date for the examinations would have been June 3, with June 10 as another possibility. The Astronomy examination occurred on the second Wednesday, most likely on June 12, 1996 (and possibly on June 19). The practical examination took place from 11pm that night atop the Astronomy Tower.

As for the location of the fictitious Hogwarts School (near Hogsmeade), we will substitute York; it too is reached by train from King's Cross station in London (from platforms bearing whole numbers) in a journey of similar duration. The skies above the real York can pass for the skies atop the Astronomy Tower in question. York has its Minster, city walls well worth 'hiking' (clockwise or counter-clockwise) from Bootham Bar, but above all, York is known for having streets that are known as Gates, gates that are called Bars and bars that are, well, Pubs.

The Trouble with Harry's Evening

"When they reached the top of the Astronomy Tower at eleven o'clock they found a perfect night for stargazing, cloudless and still. The grounds were bathed in silvery moonlight..."

We all know how well moonlight and stargazing mix, but presumably celestial configurations are the same in the magical world of Harry Potter as in the real world. If so, sunset was at about 9:30pm in mid-June, New Moon occurred on June 16, and Venus was in inferior conjunction (with the Sun) on June 10. Therefore the examination was properly scheduled to begin after astronomical twilight in the moonless skies of June 12; even the thin sliver of a Moon would have set before 11pm on June 19.

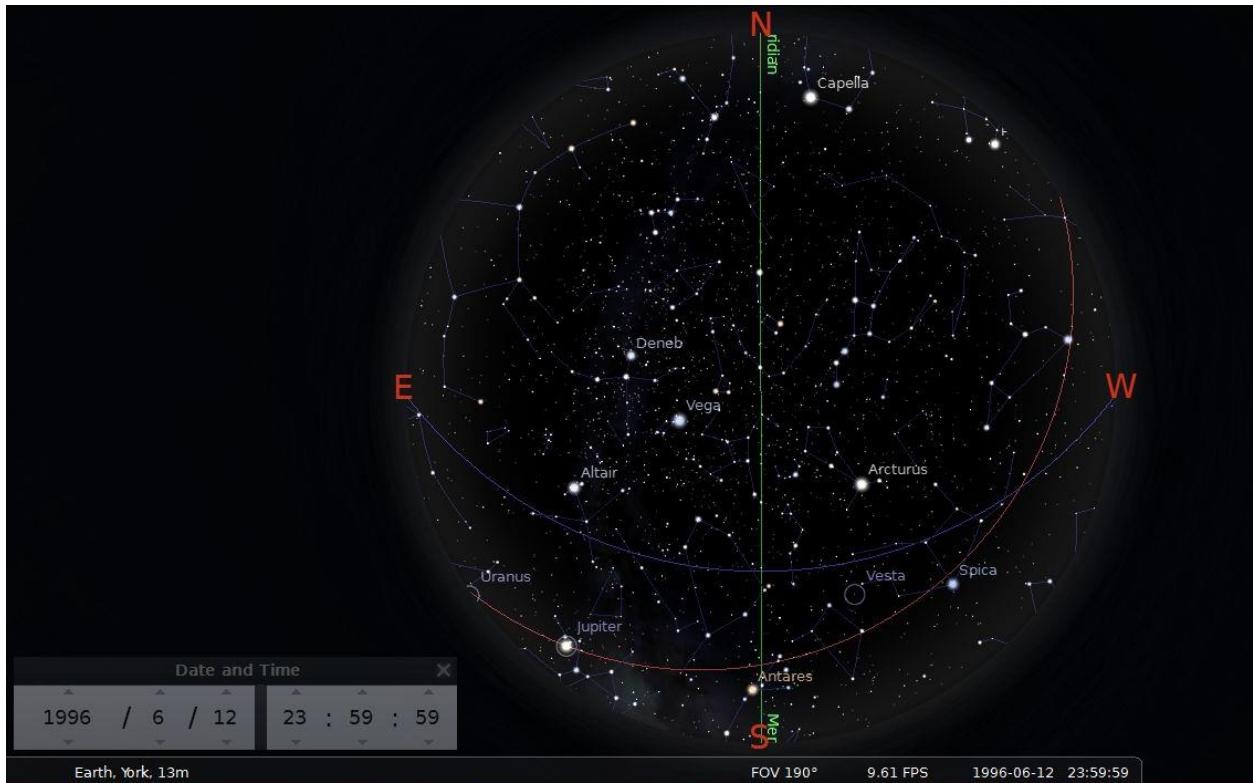
"Each of them set up his or her telescope and ... proceeded to fill in the blank star chart he or she had been given."

We won't even go there! Forget polar alignment and setting circles, magical or otherwise, and certainly forget the alt-az view that would change with the Earth's rotation over the course of the 90-minute examination. We will just move on, assuming that simple sketches of star fields are being undertaken.

"Half an hour passed, then an hour;"

It is now Midnight. Dolores Umbridge and her cohorts are heading for Hagrid's cottage and Harry Potter has just completed the constellation Orion on his chart... Orion? Late on a mid-summer evening? Orion would have set alongside the Sun by about 9:30pm, lost in its glare.

Harry then examines Venus. It too would have set with the Sun two and half hours prior, with Mercury and Mars preceding it by another couple of hours. But after the distraction of watching the Umbridge party enter Hagrid's cottage, Harry finds it again. When he enters it on his chart, he mislabels it as Mars, but corrects his error in the nick of time. Finally, at about ten minutes past midnight, he looks at the Moon again (which had set well before the start of the examination). Enough said.



A representation of the stars at Harry Potter's Astronomy practical examination, just before midnight. York, England stands in for Hogwarts. The skies of June 19 would be only slightly different, with the pre-FQ Moon setting before eleven o'clock. By that time (on both nights) Jupiter would have been rising, with all Galilean moons visible. (Chart courtesy: Stellarium)

Perhaps the talk should have been about the Summer Triangle, of the Big Dipper (or the Plough) arcing to Arcturus and speeding on to Spica, of the Jovian moons. A simple sketch of the quartet would have looked good on any chart. Talk of Leo about to set, Regulus leading the way – heralding a name that would feature in the books to come. If the seeing was really as good that night as stated, the talk should have been of Milky Way light, not moonlight. Alas, Saturn had no part to play, having set by mid-afternoon.

A post- midnight Venus sighting following a 9:30pm sunset would have been possible only if Venus had been close to maximum eastern elongation. In 1996 that maximum happened to be 46° on April 1. Of course the Sun set at about 7:30pm that day, making a midnight evening star an impossibility. But in mid-June 1999, stargazers in northern England would have witnessed to a post-midnight Venus low in the west (due to an almost 45° elongation). They can look for it again in the summer of 2015.

Talking of Birthdays

That Harry was born on a July 31 is the result of the creator of the incomparable Harry Potter saga having been born on a July 31. That much is not fiction. **Happy Birthday, J. K. Rowling!**

- **Paul Winalski and Ramaswamy**

Do You Know This Dog?

Look deeply into her eyes. Do you see that very special look? Pride? Determination? Accomplishment? Eyes that say "I've seen things that you can only imagine." These are the eyes of a dog that has been in outer space thrice. Her name is Kometa and she was an early Russian cosmonaut.

Little is known of Cosmonaut Kometa's early years since she grew up as a tough street dog in Moscow in the late 1950s. With proven ability to survive on her own, it was felt that she could handle the stress and hazard of space flight, and so Kometa was drafted into the Soviet space program. 29 launches took place with dogs on board before Yuri Gagarin's single orbit in Vostok I on April 12, 1961.

Kometa's training was rigorous, consisting of long hours of confinement to simulate conditions in the capsule. Spins in a centrifuge while wearing a specially designed space-suit equipped her to handle the rigors of extreme acceleration experienced during launch. Her training would probably have driven ordinary dogs to madness, or worse.

Cosmonaut Kometa had made two flights in 1959 without any problem; however, on December 22, 1960 the third launch did not go well. A test flight for the Vostok program, the spacecraft had reached an altitude of 214km when the third stage failed to ignite; the capsule could only manage a sub-orbital flight before ending up in snowy Siberian wilderness, 3500km from the launch site. An ejection mechanism also failed, and the occupants remained in the capsule for the hard landing. Amazingly Kometa and her companion (named Shutka) not only survived the impact but also four days of the bitter Siberian cold before being rescued. Had they been ejected from the craft as planned, the dogs might not have survived.

After her recovery, Kometa retired from the space program but did not return to the streets of Moscow. She was adopted by Oleg Gazenko, a Soviet scientist working on space medicine. She spent the last 14 years of her life as the pampered pet of his family and had many puppies. The Soviet canine space program ended shortly after Kometa's aborted last flight, and so in spite of her successful career as a space pioneer, none of her puppies could follow in her paw-steps.

- **Walter Jablonski**

NHAS July 2014 Business Meeting Report

The monthly business meeting was held at St. Anselm College, Manchester NH on July 11th, with our Vice-President **Tom Cocchiaro** presiding. The Treasurer's report by "Rags" follows on the next page.

Vice-President's Report

Recent public out-reach events were reviewed, including Skywatches, the AerospaceFest at MSDC and the Market Square Day and Sidewalk Astronomy session in Portsmouth -- the latter was almost as crowded as the annual Market Square Day.

On August 14, the Red River Theatre in Concord NH will screen **Mark Levinson's** film "*Particle Fever*" – it documents the discovery of the Higgs Particle at the Large Hadron Collider. Mark has a PhD in Particle Physics from UC Berkeley, and will be available by Skype to answer questions after the film.

Joel Harris spoke up about the upcoming Stellafane 2014 jamboree. NHAS will have a tent and a Saturday barbecue event as usual.

The Top 3 News items of the past month, in reverse order:

* HD video is transmitted by OPALS Laser from the ISS to Earth

* Saturn's moon Titan is now known to possess a very salty water ocean under the crust, with salinity equal to that of the Dead Sea.

* Voyager 1 is confirmed to be in interstellar space. Analysis of a CME from the Sun in 2012 that had finally caught up with the spacecraft in 2013 showed it is beyond the heliosphere.

Committee Reports

Pete Smith (LTP): posed a question to the club: should we have a LTP-type scope for new members? The offer was accepted by unanimous vote of members present.

Gardner Gerry (Public Observing): The Star Island event in June was a success. The people were great, food was great, and they want to do it again next year. 35 people attended the talk and at least 60 were at the observing session over several hours.

Astronomy Shorts

Elaine Grantham-Buckley: John Bishop, Herb Bubert and Gardner Gerry fixed loose nuts inside her scope; the job required taking off the primary mirror and (of course) re-collimating the telescope.

Mike Townsend: did a solar presentation and evening observing for Family Day in Milford on July 5.

Bob Veilleux: showed off a 10 pound iron meteorite from Campo del Cielo in Argentina, and a slice from another showing the inner structure.

Ramaswamy: saw Vesta and Ceres for the first time in late June.

John Bishop: visited Maes Howe in the Orkneys in far northern Scotland, where a tomb with a tunnel is aligned to the capture rays of a setting Sun on the eve of the winter solstice.

[The cover story of the August 2014 issue of the National Geographic Magazine is "The First Stonehenge – Scotland's Master Builders." It is a well-illustrated look at Neolithic Orkney and the 5000-year old structures of Ness of Brodgar, Skara Brae, Maes Howe and the Stones of Stenness. –Ed.]

The Evening Presentation

Dr. David Kipping, a NASA Carl Sagan fellow at Harvard University and principal investigator of the Hunt for Exomoons with the Kepler (HEK) project spoke for more than an hour and fielded many questions.

His talk covered why exomoons are so fascinating to astronomers, how they offer a potentially huge number of additional habitats for life in the cosmos and how they could provide deep insights into how planetary systems form. He explained ways in which exomoons reveal their presence and summarized results to date and the outlook for this emerging field.

Dr. Kipping also devised several of the techniques used to look for exomoons, which formed the basis of his PhD thesis at University College London in 2011. Since that time, he has been leading the observational efforts with NASA's Kepler Mission to try and detect moons outside of our solar system.

Look for a Featured Article on David Kipping's work, findings and the HEK Project in a future edition of the **Observer**.



David Kipping shares a laugh with members in the audience..
(Photo: Tom Cocchiaro)

NHAS Treasurer's Report
(as of July 9, 2014)

Starting Checking Balance:	\$10,031.32	Membership:	138
Deposits:		Single + Family	
Membership	88.83	Cash Renewals:	0x30.00+0x10.00 0.00
Donations	345.27	Cash New Members	2x30.00+0x10.00 60.00
Interest	0.00	PayPal Renewals:	1x28.83+0x 9.61 28.83
Total:	\$434.10	PayPal New Members:	0x28.83+0x 9.61 0.00
		Total:	3 \$88.83
Expenses Paid:		Current Members:	141
Total:	\$0.00	New Members:	
Current Checking Balance:	\$10,465.42	R. P. Hale	Concord NH
Petty Cash:	\$100.00	Martha McIntyre	Gilford NH
Current Cash Balance:	\$10,565.42		
EOC Share:	\$6,521.02	Donations:	
		Martha McIntyre	LTP 30.00
		Joan Salemy (Concord Library)	LTP 315.27
		Total:	\$345.27

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

NHAS Officers:

President:	<u>Ted Blank</u>
Vice-President:	<u>Tom Cocchiaro</u>
Secretary:	<u>Paul Winalski</u>
Treasurer:	<u>David "Rags" Gilmore</u>

Board of Directors:

<u>Ken Charles</u>
<u>Pete Smith</u>
<u>Steve Rand</u>



Orion XT6 – 6" Newtonian on a Dobson mount
(custodian: Ted Blank contact: tedblank@gmail.com)

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/Chase McNiss 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: Pete Smith contact: psastro60@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 Astronomical Society of Rhode Island (North Scituate, RI)
www.theskyscrapers.org

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

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

Gloucester Area Astronomy Club (Gloucester, Mass.)
www.gaac.us

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

Northeast Kingdom Astronomy Foundation (Peacham, VT)
www.nkaf.org

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

Astronomy Gear

Agena AstroProducts
www.agenastro.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

Sky at Night
www.skyatnightmagazine.com

Astronomy Web Sites

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

Free Star Charts
(Star Charts for MM, Planets etc.)
www.freestarcharts.com

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

NASA
www.nasa.gov

Dark skies Observing Sites
(Horizons and Clear Sky information)
www.observingsites.com

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

Sloan Digital Sky Survey DR10
<http://skyserver.sdss3.org/>

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

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
First Friday Skywatch for MSDC	Friday, August 1	7:00pm	MSDC, Concord NH
Sidewalk Astronomy Skywatch	Saturday, August 2	6:00pm	Market Square, Portsmouth NH
Madison Old Home Week Skywatch	Tuesday, August 5	8:00pm	1381 Village Road, Silver Lake NH
Nesmith Library Teen Skywatch	Thursday, August 7	7:30pm	8 Fellows Rd, Windham NH
Madison Old Home Week Skywatch (backup date)	Thursday, August 7	8:00pm	1381 Village Road, Silver Lake NH
NHAS Business Meeting	Friday, August 8	7:30pm	MSDC, Concord NH
Nesmith Library Teen Skywatch (backup date)	Monday, August 11	7:30pm	8 Fellows Rd, Windham NH
Whipple Free Library Skywatch	Tuesday, August 12	7:30pm	67 Mont Vernon Rd, New Boston NH
Whipple Free Library Skywatch (backup date)	Thursday, August 14	7:30pm	67 Mont Vernon Rd, New Boston NH
Hill Library Skywatch	Saturday, August 16	9:00pm	National Guard site, Parker Mtn Rd, Center Strafford NH
Goffstown Public Library Skywatch	Monday, August 18	8:00pm	Waterworks Property, North Mast Rd, Goffstown NH
Pease Public Library Skywatch	Tuesday, August 19	7:30pm	1 Russell Street, Plymouth NH
Skywatch for Goffstown Public Library (backup date)	Wednesday, August 20	8:00pm	Waterworks Property, North Mast Rd, Goffstown NH
Pease Public Library Skywatch (backup date)	Friday, August 22	7:30pm	1 Russell Street, Plymouth NH
Coffee House Night at YFOS	Saturday, August 23	5:00pm	YFOS
Star Island Skywatch	Saturday, August 23	8:00pm	Star Island (an Isles of Shoals)
Rey Center Skywatch	Saturday, August 23	9:00pm	Waterville Valley NH
Aaron Cutler Mem. Library Skywatch	Tuesday, August 26	7:30pm	19 McElwain Drive, Litchfield NH
Hooksett Library Skywatch	Wednesday, August 27	7:00pm	31 Mt Saint Mary's Way, Hooksett NH
Hooksett Library Skywatch (backup date)	Thursday, August 28	7:00pm	31 Mt Saint Mary's Way, Hooksett NH
First Friday Skywatch for MSDC	Friday, September 5	7:00pm	MSDC, Concord NH
Sidewalk Astronomy Skywatch	Saturday, September 6	6:00pm	Market Square, Portsmouth NH
Owls Landing Campground Skywatch	Saturday, September 6	7:00pm	245 US 3, Holderness NH
NHAS Business Meeting	Friday, September 12	7:30pm	St. Anselm, Manchester NH
Owls Landing Campground Skywatch (backup date)	Saturday, September 13	7:00pm	245 US 3, Holderness NH
Gordon Nash Library Skywatch	Sunday, September 14	7:30pm	(?) 69 Main St, New Hampton NH
J A Tarbell Library Skywatch	Thursday, September 18	6:30pm	(?) Citizen Hall, Lyndeborough NH
Gordon Nash Library Skywatch (backup date)	Friday, September 19	7:30pm	(?) 69 Main St, New Hampton NH
Septemberfest Camp Runels Skywatch	Saturday, September 20	7:30pm	Camp Runels, Pelham NH
J A Tarbell Library Skywatch (backup date)	Thursday, September 25	6:30pm	(?) Citizen Hall, Lyndeborough NH
Kensington Library Skywatch	Friday, September 26	7:00pm	(?) Sawyer Park, Kensington NH
Coffee House Night at YFOS	Saturday, September 27	5:00pm	YFOS
Rey Center Skywatch	Saturday, September 27	8:00pm	Waterville Valley NH

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

Upcoming Events

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Date	Lunar Phase	Credits
Monday, August 4	 First quarter 12:50am	
Sunday, August 10	 Full moon 6:09pm	
Sunday, August 17	 Last quarter 12:26pm	
Monday, August 25	 New moon 2:13pm	
Tuesday, September 2	 First quarter 11:11am	
Tuesday, September 9	 Full moon 1:38am	
Tuesday, September 16	 Last quarter 2:05am	
Wednesday, September 24	 New moon 6:14am	

Credits

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

Ted Blank, *Glenn Chaple*, Tom Cocchiaro, Joe Dechene, Gardner Gerry, "Rags" Gilmore, Walter Jablonski, Andy Jaffe, Larry Lopez, Rob Mack, Jason Paul, Steve Rand, Ed Ting, Mike Townsend and Paul Winalski.