

Astronomy Day

President's Message

There's a lot going on right now, where to start? Astronomy Day will be upon us by the time of our next meeting! Joel Harris is officially our "Astronomy Day Coordinator", so please get in touch with him for any Astronomy Day related ideas, suggestions, questions, etc. Hopefully we'll have good weather and a good turnout for this event! The Messier Marathon didn't happen, as the seeing would have been lousy anyway with all that snow falling! Finally, as you read this I am winging my way to sunny New Mexico! NASA was kind enough to pay for a travel voucher so I could attend "The 3rd High-Energy Astrophysics Workshop for Amateur Astronomers." Part of the conference message will be information to allow amateur astronomers to assist in discoveries of gamma-ray bursts and the like. I will be putting together a presentation to club after I get back (that's the condition under which I get the travel voucher!).

* Mathew Marulla
NHAS President 2005

Public Observing Highlights

No public observing since last publication. Next event is in April at Newfield Elementary School.

* Ed Ting

Astronomy Day

National Astronomy Day is Saturday, April 16, 2005. Our coordinator for this event is **Joel Harris**. Please use the mailing list, or contact him directly at jjad@comcast.net with your ideas, suggestions, questions, etc. It will be discussed at our March club meeting.

Pictures Galore

John Blackwell got a shot of the horse head Nebula. For details, please visit <http://www.regulusastro.com/regulus/photos/text/b33hargb.html>.

Rich DeMidio also got a picture of Saturn but the interesting story is how. For details, please visit

<http://home.adelphia.net/~rdemidio/Gallery/SaturnObby3.htm>



Photo by John Blackwell



Photo by Rich DeMidio

Field Notes

Finding astronomical objects has always been frustrating for me. There are so many, it is easy to be wrong, and having no sense of direction find it difficult to get orientated. My first telescope I had saved up babysitting money for was a department store off-the-shelf refractor. I looked at the moon, and only the moon because it had substance, big and recognizable.

For Christmas, I received a Sky Quest XL6 Dobsonian refractor with a focal length of 1200 mm from Rich. On one clear February night on the deck, Dobby saw its "first light". Rich explained how to sight in the finder and collimate the mirror, even getting a chair to make me comfy. After the instruction, he wandered over to his Pronto, but covertly looked for signs of frustration on my part (I know him well). Lo and behold, I was able to find the moon, *by myself*. Doesn't seem like a big deal to those who can find over a 100 Messier objects, but it is to me. The moon was very bright and full so we installed a moon filter to cut down the lunar glare. I looked at it for quite a while, because I found it! Saturn is something I can usually find with the naked eye. So feeling a bit bold with my recent success, using the finder, sighting in what I thought was Saturn, was pleased to find it was. The rings were defined, saw at least 4 moons, changed the magnification and enjoyed my increased confidence. Orion, the hunter, was my next stop. I located the middle star in Orion's belt that contains the Great Orion Nebula and Trapezium, the star Betelgeuse in Orion's upper reaches, and then like the baby I am, got cold and went in. With this success, I am encouraged to try to hunt for other astronomical objects. A manual scope worked better for me, a beginner, as it gave me more control and allowed me the joy of finding objects on my own. Now if they would just put those lines up in the sky it would make it much easier.

* Jean Buckley

Noteworthy News
Messier Marathon.....Page 2

Messier Marathon

The Messier Marathon has been rescheduled for April 8 Friday and April 9 Saturday. The Messier Marathon scheduled for Friday March 11 and Saturday March 12 was cancelled, at first reluctantly, and then with vigor. I didn't want anyone going up my driveway on Saturday. It was pretty interesting out. How interesting? Well, the transfer station was almost empty. The '93 Toyota Truck had just had its edge replaced and it did a fine job. I even brought out the JD950 tractor and its blade to help things along. I would like to thank the 35 people who signed up (including 4 kids), and all the offers of help and food. The question nagging at everyone's mind is will 'Death By Chocolate' make an appearance? Sunday was a rather nice day we had Mini Messier Marathon then. Linda got 3 objects I got 2 we were actually looking at the same 2 objects but I forgot that M42 is actually 2. I actually opened up the observatory and observed S CEP a lovely red star. Paul W. introduced me to it a few months ago.

* Larry Lopez

Pre-Messier Marathon

Several members went to YFOS on March 5th for practice run. We all had a great time and the highlights follow.

It was with great anticipation that I packed up Mr. T the 14" Telescope for a trip to YFOS on Saturday 5 March to do a dry run of the Messier Marathon. I came prepared with dress and food and drink to last the whole night. Saturn was the first object sighted, and then in short order Sirius, Rigel, Capella, Betelgeuse, and Orion's belt stars. The first Messier object sighted was M42 (the Trapezium only). Mr. T. and I were the first to announce viewing both the Trapezium with the surrounding nebulosity. I've never done a Messier Marathon before. In fact, I've never even seen about 2/3 of the Messier objects before. Over the past two weeks I've spent a lot of time at CalSky preparing finder charts with circles and arrows and a paragraph on the back explaining each one to be used as evidence in favor of my having seen any particular Messier object. Of

course, I left the key page at home, the list of M objects, and the order in which to observe them. So here I was stuck with two notebooks full of photographs, descriptions, and finder charts in numerical order and with no clue as to what's important to observe when. Fortunately, there were enough panicked shouts of "I can't find Mxx!" to clue me into what I ought to be trying to find. I ended up bagging M74, M77, and a few of the other critical sunset objects before they went below the horizon. Then, someone said, "Hey, that's Mercury just a degree or two over the observatory building!" And so it was. I'd been planning to look for Mercury next weekend, when it's near greatest elongation and only a few degrees from the 1-day-old Moon, but I hadn't expected to find it this weekend. But the gibbous planet was there in all its orange-pink, shimmering glory. This marks only the fourth time in my life that I've observed Mercury through a telescope. Next were trivial finds (such as the Pleiades, M44, M35-M38, M31/32/110) and cussedly difficult things I've never seen before. I was so busy panicking that I forgot to observe the Iridium flare predicted for 7:30 PM. About 8:30, Nils declares that he's observed everything that's around until the Virgo Cluster arises. He retires to the warming hut to pig out on fried chicken. Curse him :-)) while Rich and I are still trying to sort out which of the dim fuzzy blobs is M105 in Leo. The Crappy Sky Clock is as accurate as ever. As it predicted, haze starts assembling itself on the horizon, and at about 10 PM gradually moves across the sky from east to west. The Coma/Virgo galaxy cluster becomes impossibility. We all retreat to the warming hut to defrost and that was pretty much it as far as Messier Marathon practice goes. But there were enough clear sky patches for us to amuse ourselves with other activities, as we waited in (vain, as it turns out) hope of the sky clearing enough for us to continue the Marathon. Saturn was showing very well, especially as it culminated. I observed five moons, the Cassini division, the shadow of the planet on the rings, and sundry other details. I bagged several carbon stars, including R Leporis, S Cephei, Y Canum Venaticorum, and UU

Geminorum and a few doubles. Seeing was really spotty, sometimes it was rock-steady, then a few minutes later an absolute disaster. Nils and Rich had an H-beta filter. The Flame Nebula was easily visible without filtration (in both Obby and Mr. T). I was able to direct Rich to the vicinity of the Horsehead Nebula, and Rich bagged it naked eye! And better still, he was able to share it with us! That's a sight I never expected to see in my life. All hail Rich and Obby!! I found the Christmas Tree cluster and Hubble's Variable Nebula, but unfortunately the haze rolled over before I could get any decent magnification on it. Before we all packed it in to go home, just for grins we tried out my 3mm TeleVue Radian in Obby (700x magnification!) on Jupiter. Rich nudged Jupiter and the moons out of the field of view, and let me have a look-see. Wait, wait, wait . . . in come a couple of the Galilean moons and then suddenly this ENORMOUS BEACH BALL enters the field! It was very impressive, even if it won't come into proper focus because of the background haze and poor seeing. We've got to try this out again under better conditions. All said and done, a very fun and instructive evening!!

* Paul Winalski

As I packed with anticipation of a great evening, I was upset at leaving some of the beef jerky at Jean's. I know, it was the right decision to leave it there before the real marathon, but it would have been nice to share some during our practice run. Oh well, there was work to do and a sky to enjoy since it was clear. Gardner and I drove together and we planned some strategy on the way. I took some pictures after getting setup.





I did not know this, but when there is not much color on the horizon, it means low transparency, which is great for our night observing. I also used the time to practice my collimation with Obby since the back adjustment screws were completely screwed in. Nils and Gardner showed me how to back them off and apply some strategies which worked great. Thanks Guys! I used Saturn to align my telrad and finder scope. It was beautiful of course and noted that I could see it better at this time versus complete darkness. I also got to look at Mercury through Gardner's scope since Obby was too close to the observatory to see just below the roof. I had never seen Mercury through a scope before that was cool. By this time, the sky was dark enough to see M42 with Nebulosity and six stars of the Trapezium with the 17" Nagler. I decided not to use the comma corrector and got better focus throughout the evening. Then, I started on my various hunt for objects. After finding the Flame Nebula in Orion and sharing that with the group, Nils asked if I wanted to try his H-Beta on the Horse Head knowing my mine was still on order since January. So, I took out the holy hand grenade (translation, Nagler 31mm eyepiece) and we tried it. Paul had instructed me where to position Obby with the telrad so I did. I gazed into the eyepiece not really sure what to look for but when I did, I immediately saw nebulosity! I was shocked and remember blurting something out along the lines of "Holy" omitting the rest for this publication. After disturbing everyone and focusing on the nebulosity, I followed the trail until I saw something black and a faint outline of a horse head shape! I found it and we all enjoyed viewing it. Amazing, that I found it that fast and on the first try. My thanks to Paul with his guidance and Nil's for his filter. That was definitely the highlight of the

evening despite leaving the dried beef behind. Oh yeah, I got several Messier objects to

* Rich DeMidio

Fireball in the Sky

Several observers recently reported a strange object in the sky and Lew Gramer provided a comprehensive analysis. In case you were not aware of that, here is a sample posting and Lew's explanation. I found it very interesting

Bill LeComte wrote: Subject: (NSAAC) Great balls of fire
To: nsaac@nsaac.org This past Saturday evening around 8:15 PM I saw the coolest shooting star or meteor or piece of space junk streak through the sky just to the right of Orion from my vacation home in the dark skies of Lempster, NH (next town over from Washington, NH). I often see shooting stars while observing there but nothing like this one. It started out as a bright white dot, then turned to yellow, then orange just before it burned out and left a long trail behind it that was white with a bit of yellow coloring. It was stunning yet so peacefully quite. You would expect to hear something that looks so spectacular. Did anybody else see this? I observed it naked-eye as I was getting ready to position my scope towards M50. It was lucky timing to catch this. Being somewhat new to astronomy I still don't understand the term shooting star. I thought when a star burns out it either dies peacefully or developments into a black hole. Does a star really take off and shoot across the sky or is this really a meteor that is falsely described as a shooting star? Also, I suppose what I saw could of even been an old satellite burning up in the atmosphere.

Why, Bill, I'm glad you asked me that. :) Meteors are in fact, caused when a usually very small particle of dust (and actually, more often a sparse little "dust bunny" from interplanetary space), impacts earth's atmosphere at a speed between 25,000 and 150,000 miles per hour! Naturally, this results in the release of a great deal of energy - so much so, in fact, that you can see the fiery results of the atmospheric entry down on the ground, at a distant of between 50 and 600 miles from the event. Now, the event you saw may

have been a "celestial" meteor - caused by an unusually large and/or unusually dense blob of interplanetary dust. Or, as you suspected, you may actually have seen reentering artificial space junk. In any case, lucky you! Fireballs (as bright meteors are officially called) are some of the most spectacular visions that the night sky has to offer. Either way, though, please consider filling out an eyewitness Fireball Report Form, describing what you saw while the details are still fresh in your mind <http://www.nammeteors.org/fireball/report.html> and to anyone else who has seen this or any similar events in the region, please take the time to report your sighting details! Believe it or not, these witness reports really do help scientists (both pros and amateurs) quite a bit, both to identify these events, and even to understand them a little better. To read more about all of this fascinating stuff, try browsing a web site that I run, and following some of the many links on there to additional information: <http://www.meteorobs.org>

* Lew Gramer

AstroPhotons

Chase McNiss reported that the last meetings have been covering image processing and labs with Adobe and focusing schemes. Meetings will move back to YFOS during warmer months so that they may occur in the daylight hours followed by a nighttime imaging session. Next meeting will be posted via email. **Joel Harris** mentioned that some new CCD technology will soon be available that will enhance imaging even more. Stay tuned for those details in subsequent publications.

YFOS Log Book

Larry Lopez reported that YFOS is in good shape and should be fine for the Messier Marathon if people want to go there

* Larry Lopez

Deep Sky Object of the Month

*This month, our contributing author **Lew Gramer** provides a great summary of many deep sky objects.*

What Am I Looking At? (A Brief Guide to Observing Deep-Sky Objects) One of the things I enjoy most about astronomy, is actually being able to look through an eyepiece (or up from my lawn chair), to see the physical universe 'in action' for my very own self! Nothing is a keener or more satisfying thrill, than to have read about some amazing bit of physics or chemistry out in the vastness of space - and then to actually be able to glimpse its effects directly, under the gorgeous night sky. Unfortunately, nebulae and galaxies are shy creatures - only sharing a faint glimmer of their true beauty with the naked-eye observer. Still, a trained eye and a patient mind can glean a great deal of the amazing nature of these denizens of deep space: "You can see a lot just by looking," as the saying goes. To inspire (or irritate) others into trying to see some of these fascinating features for themselves, here is a summary list of the things that I try to look for (and to log) in different objects, when I'm at the eyepiece:

Multiple star - How many stars appear to be together? Is it just the primary (brightest or "A" star) and then comes ("B" or secondary star, pronounced "koh-meez")? Or is there a third-

brightest companion ("C"), and even a fourth ("D")? What is the separation of each companion from the primary star? (How far apart are they in arcseconds, arcmins, or "fractions of your eyepiece field")? What Position Angle does each make with the primary - PA tells a companion star's orientation in the field, with PA 00 meaning a companion lies due North of its primary, PA 90 meaning due East, etc. (Remember, you can always tell due north by "nudging" your telescope in the direction of Polaris: where ever you see new stars entering the field, that's north!) Lastly, do you see any colors or contrast effects between the primary and its brightest companions?

Variable star and "carbon star" - these are individual stars that are mostly interesting because of either their color, and/or the fact that their brightness can change. Estimating the star's magnitude (using one of the AAVSO's approved methods, or just by "kentucky winding") is always interesting. Estimating color or spectral type can be tougher - but appreciating the beauty of a bright red "blood drop" carbon star is easy! And always remember -understanding the physics of what you see, and therefore also of what you might be able to see, is a big part of the fun!

Planetary nebula - Can you see a central star or "core nebula" (central star is fuzzy)? Is the PN annular (darker or "empty" toward the center), and/or bipolar (two or more lobes or brighter areas are visible on opposing sides)? How many rings or outer shells can be glimpsed? (Remember, some PNe have an extremely faint outer halo, which may extend to 2, 3 or even 4 times the published extent of the object!) Can you glimpse any internal structure within the inner or outer nebula - any brighter parts, irregularities, "striations", unusual darkenings, etc.? What Position Angle (see Multiple stars above) does each of these features make with the center of the nebula? Finally, how does the nebula as a whole, and each feature you have noted (above), respond to different nebular filters? (Every PN is different - a few kinds respond best to no filter, or a broad-band or "DeepSky" filter. Many more respond better to a narrower-band or "Ultra-High Contrast/UHC" filter.

And probably most will respond best to an Oxygen-III ("OIII" or "O3") filter - try them all, including a "Hydrogen-Beta line" or "Hbeta" filter, or color filters if you have them! And remember, different filter responses mean different physics within that particular object... Amazing! :) **"Diffuse" or "Galactic"** (non-planetary) nebula - Like Baskin-Robbins, these nebulae come in many flavors: emission, reflection, dark nebula, supernova remnant, "Wolf-Rayet" object, "proto-planetary" nebula, etc. Thanks to their radically different origins, and their differing mechanisms and wavelengths of illumination or excitation, each of these types responds differently to nebular filters (see Planetary nebula above), and will also show its own characteristic features or structure. And of course, many of the most interesting GNe are a mix of two, three, or even four of these different "flavors"! For instance, it is not uncommon for one "object" to include an emission component, a reflection component, and also dark nebulae involved or in front of it. For these fascinating "smoosh-in" nebulae, you may be able to spend hours just exploring the way different regions and features of the GN respond to different kinds of filters and magnifications... Now THAT is good fun. :)

Galaxy - Can you see hints of the morphology (shape and gross features) of this galaxy: spiral, barred-spiral, Seyfert, spindle, elliptical, irregular? How many different gradations or "brightness steps" can you see in the galaxy? Is there a broader "outer halo"? A core - and maybe even a smaller "inner core"? A tiny or even "stellar" nucleus? If it has arms, how many can you untangle with your eye? Are they loose, or tightly wound around the core? Do they even form a complete outer or inner ring? Can you see dark features or mottling along the arms or in the core? Brighter spots or stellarings - or even tiny nebulae - in or near the visible extent of the galaxy? Remember, nebular filters - and even color filters - can sometimes be used to bring out unique features even in the brighter galaxies! What orientation (position angle) do each of the features you see make? Finally, does the galaxy have any companion galaxies, or does it

seem to be interacting with any other nearby galaxy (interactors sometimes have a number in the "Arp" catalog of galaxies)? Is it part of a galaxy group – an informal "NGC group", or a compact "Hickson" or "Shakhbazian" group? And/or is it part of a larger galaxy cluster, like an "Abell cluster" (AGC)? What other tiny, faint nearby members of that group or cluster can you glimpse? Don't forget to try averted vision, field "jiggling", concentrated vision, and even deep breathing if it helps! :)

Globular star cluster - These are some of the brightest and prettiest – and also some of the faintest and most elusive deep-sky objects. The basics of logging a GC include: Is it tight (mostly core and little halo), or loose (a smaller core, and then many stragglers on the periphery)? Can you resolve its stars? Just at the edges, or right down to the center? (Some globulars, even a few brighter ones, will not resolve at any power, because their constituent stars are too faint to be individually visible!) How many stars would you estimate are resolvable total? (A trick for counting stars is to choose just one wedge or "quadrant" of the GC in the field, to count the stars in that quadrant, and then multiply by four!) Finally, does the GC show any unusual features - in particular, can you see any blank areas, "cuts", or indentations in the core of the cluster? (These may or may not be actual physical phenomena... Whether they are due to some trick of the eye in a crowded field, or to some obscure orbital dynamics, or possibly even to dark material in the GC core, I have never heard a convincing explanation - but a surprising number of GCs will show "dark features" like this, at one power or another, and at different contrasts. For example, sometimes these features are most visible when observing a GC in some twilight or moonlight... Who knew! :))

Open star cluster - I don't often turn my attention to open clusters - but they are by far the most numerous of the objects that appear bright in a small telescope... When logging an OC, how many stars do you estimate are definitely visible? How many are just on the edge of visibility? Are there any clumps of fainter, unresolved stars in or near the OC - and what Position Angle

do they make with the cluster central area? Is this OC more or less rich (many bright stars), and more or less concentrated (stars close together)? Also, remember that OCs are sometimes associated or involved with a galactic nebula of one kind or another - can you see any hints of this nebula or nebulae? Finally, do you note any particularly pretty double stars, or strikingly colored stars in the cluster? (Many OCs of all types, for some reason I have never understood, seem to have a nice orange or red star near their center! And some clusters are populated mostly by very young, "blue-white" members, while others are clearly older clusters - because many of their stars are on the yellow or orange end of the range of spectral types.)

To learn more about deep-sky observing techniques, or about a particular deep-sky object, or to archive your own observing log of any object for posterity, visit the Internet Amateur Astronomers Catalog of Visual Deep Sky Observations (IAAC or 'netastrocatalog'), online at: <http://www.visualdeepsky.org> Clear skies!

* Lew Gramer
dedalus@alum.mit.edu

The Bottom Line

Starting Balance: 4,347.74
 February Deposits: \$182.95
 February A/P: 346.67 (Insurance,
 Plowing YFOS, PO Box rental)
 Net Balance: 4,184.84 Cash
 Balance: 4,184.84
 Membership: 108
 New members:
 Robert Nick Pepperell, MA
 Celestron Vtima II
 Chris Kujawa Rochester, NH
 Meade LX50, Magellan II

Looking Back at Last Month

Opening. Matt Marulla provided an update to his work on the new web site. The front page and calendar in the works and hopes to have a demonstration within the next few meetings. Matt also showed some of the books that Chase McNiss brought in beginner books that he wishes to get rid of. See chase for details. Finally, Mike Townsend also has posted a number of scopes for sale.

Book of the Month. Matt Marulla brought a portable atlas named Uranography, the constellations visible in the United States dated 1899 2nd printing, unknown author. A Pastor from late 1800s, wrote this book, infused with flowery prose.

Scope of the Month. Provided by Joe Derek who brought in his latest creation. It is a Truss tube Dobsonian utilizing a primary and secondary mirror from the late Ed Dougherty.

Don Ware helped with testing of the mirrors. Joe described the use of a mirror design from a sky and telescope article. It uses rubber and foam for support. The article spoke about apertures no greater than 12", so Joe had to chart new territory his mirror is a 17", F/4.5. The linear focal test was first and was very good at 14th wave. The scope was taken to YFOS for first light and got football shapes at first. After some diagnosis it was determined that the foam was not solid enough to support the mirror once settling occurred. Joe's ingenious solution was to apply some pink dense Styrofoam, milled out and placed onto a plate. He also came up with perimeter screw adjustments to correct for stigmatism.

Another try at observing yielded much better results. The images were sharper. The design allows for mirror collimation from the top. Another feature for cooling utilizes a fan system that pulls air down from the glass. The Baffle system helps form air uniformly around mirror consisting of four fans. The idea is that all the heat is pulled through the back instead of rising up from the mirror, which interferes with viewing. Thus, the traditional cool down associated with large dobs is minimized. Joe plans on improving this design as he learns more from the field. Other notes regarding the design is the use of rubberized plywood that is 3/8th thick (wacky plywood), walnut and oak (in the interior). A 6 volt battery system for fans lasts all night. Everyone was extremely impressed and is wondering if Joe will take first place at Stellafane.



Photo by Matt Marulla

Public Observing. No updates

Committees. Web: No report ATMs: Larry Lopez No report Membership: Bob Sletten said that classes are being planned for Spring semester. Please contact him if you have any suggestions or wish to teach a class.

YFOS. Larry Lopez said that the coffee house occurred in December. Place is plowed and usable but make sure that you spread sand but not in clubhouse. Make sure snow is moved off the deck and do not make piles. Might want to bring a shovel. In fact, it is a good idea to have one anyways.
Treasury. Barbara O'Connell was unable to make the meeting so refer to the newsletter for updates.

Evening Program. Two topics were done at this meeting. First, Matt Marulla presented the Latest from Cassini. He shared some very impressive images showing a Panorama of Rings. Matt also provided a picture of Mimas in the ring as shown below



Photo by NASA from JPL Website
 Please visit the JPL Website
<http://saturn.jpl.nasa.gov/home/index.cfm>
 for Cassini and latest images. The second part of the evening event was a discussion of the Messier Marathon by Rich DeMidio. Rich facilitated a group session that highlighted the key strategies for doing the Marathon. Many technical tips were provided with the group sharing their ideas. One note is that some of the discussion involved health issues in maintaining your stamina, fluid intake, and warmth in order to make it the entire night. The discussion was very lively with much information exchanged. Rich has a PowerPoint if anyone is interested.

* Rich DeMidio

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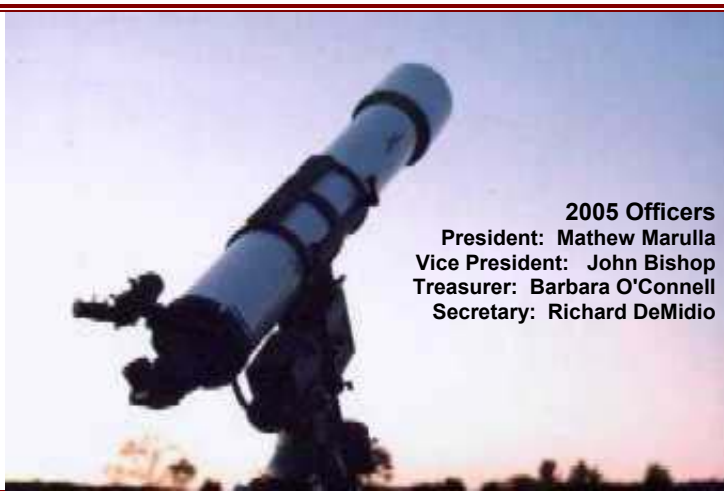
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TBD 3/18, St. Anselm's

NHAS Upcoming Events

Event	Date	Time	Location
Mar. Business Meeting	Mar. 18	7:30 p.m.	St. Anselm's College, Goffstown, NH (John Bishop Hosting)
CMP Skywatch	Apr. 1	7:30 p.m.	Planetarium, Concord, NH
Coffee House	Apr. 8	7:00 p.m.	YFOS – Alternate Messier Marathon Location
Messier Marathon	Apr. 8	Check Email	Lopez Residence – New Boston, NH (rescheduled from Mar)
Apr. Business Meeting	Apr. 15	7:30 p.m.	Planetarium, Concord, NH