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and
Comet Tales



Newsletter of the New Hampshire Astronomical Society

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"All the news that fits in print"

December 2004

Comets and Cold Nights

President's Message

Warning, Will Robinson! Danger! Danger! Winter is approaching! I am trying to find something good about this climate that we endure once a year. It is hard though, unless you ski or skate or snowshoe. [Snow does provide a highly reflective surface for a red laser spot, which the editor's dog will chase at night until she drops.]

As for the changing sky, by midevening I now see Gemini in the east, with Saturn under it. It gets dark so early now. This means that astronomers could actually use the observatory during a weeknights. Cold nights usually means less moisture in the air.

In another month we will be looking deep into the Orion nebula. While you are looking that way, start tracking Comet Machholz, C/2004 Q2, Don Machholz of Colfax, California on August 27, 2004. S&T has good information about it at

<http://skyandtelescope.com/observing/objects/comets/>

Personal note: I think my eyes are changing for the better for the first time in decades. Last week, I could see orange and reddish colors on some medium brightest stars. I usually see that only on the really bright stars. But still, they are all out of focus. Are my rods aging faster than my cones? Or is it the soy products and deep breathing?

As for us staying in New England, I guess we have many ties to the area. Some people move to better climates, or clearer weather, but come back. [Especially the ones who moved to Florida. --Editor]

Hope to see you at the December 17 meeting in Concord. Our business meeting will include final 2005 officer nominations and the election. Joe Derek is bringing a very large item for the Scope of the Month. After our break, we will enjoy a short star show under the big dome.

Happy holidays to all!

* Joel Harris
NHAS President 2004

Public Observing Highlights

Nov. 9th was only our first visit to Bow Elementary School, but what a night we had! Over 200 kids from the 4th grade (and their parents) showed up under dark, clear skies for a great observing session.

The Reed's Ferry skywatch on Dec 1st was postponed to Dec 2nd.

A skywatch was scheduled for Dec. 14 at the Project SEE Science Center on Clinton Street in Concord. Expected attendance was about 150.

* Ed Ting

Lunar Eclipse

The eye-catching photo 12-pack below was recently submitted by member **Carl Thunberg**, whose busy schedule as a Civil Engineer does not permit him to attend many NHAS events.

But we can see that he put his photographic skills to good use. Thanks for the great photo!

* Michael Frascinella

Noteworthy News
Editor Steps Down.....Page 2



Editor Steps Down

At the Nov. 19 club meeting, yours truly announced that he would not seek reelection as Secretary for 2005. After seven years of producing ever-improving monthly newsletters and probably raising the bar way too high in the process, I found that other projects and interests had required me to eliminate some activities, and the NHAS newsletter was put on the list for involuntary severance.



Photo by Bob Sletten

The new Secretary will have as a prime responsibility the creation of a newsletter to inform the membership of monthly events. With my technical writing expertise, I made the newsletter complicated enough for it to be a challenge to me and not just a knockoff. But the next Secretary is under no obligation to continue that effort. Your newsletter can include just a President's message and a list of dates. Then run your spell checker, and you are done. You can even make it a simple text file. This is a learn-as-you-go process, so keep it simple until you are ready to experiment. Remember, meeting the monthly deadline is the basic requirement.

Finally, I'm not going anywhere so I will be available as a resource to help the next Secretary get through those first several months.

* Michael Frascinella

Far Out Object of the Month

NGC2419 (Intergalactic Wanderer cluster)

Category: Globular cluster (possibly extragalactic)

Constellation: Lyn

Data: mag 10.4 size 4.1'

RA/Dec: 07h38m +38o53m

Date and UT of Observation: Midnight, December

Location: Miles Standish State Forest, MA, USA (41N, elev 30m)

Site classification: rural

Limiting magnitude: 6.6 (zenith)

Seeing: 9 of 10 - excellent

Moon up: no

Instrument: 8" f/10 Schmidt-Cassegrain, fork equatorial, 8x50mm finder

Magnification: 80x, 170x

Filters used: None

Description

The location of this famous escapee from our Milky Way was easy enough to find. Slewing the finder due N of Castor about 3 degrees, the pretty trio omicron1, omicron2, and 70 Geminorum swung into view. Continuing NE beyond these I hit a pretty pale-orange finder-pair of mag. 6 stars, PA 135 deg. (NW-SE). Just NW of the pair (and maybe only noticeable under a dark sky) were a pair of mag 8 stars pointing E.

Switching to a wide-field view (80x) in the 8-inch, I looked for n2419 immediately E of these. There was no sign of it at first, so I tried switching to 170x. Just visible to averted vision a few arc minutes E of the pair, the Wanderer was extremely easy to miss!

Once found though, it was an irregular blur, exhibiting a possible "lobe" of haze to the S. It appeared in the midst of a "Cancer box"-like asterism of four mag. 13(?) stars, looking intriguingly like a naked-eye view of the famous Praesepe or Beehive Cluster (M44). Certainly a less-than-thrilling object visually.

But as I mentioned in a previous observation with a 20-inch, this mysterious globular is worth the hunt, if only for knowledge of its vast

distance from us ... some 275,000 light years from Earth, well beyond our Milky Way galaxy's immediate neighborhood! No wonder Harlow Shapley called it an "Intergalactic Tramp".

* Lew Gramer

Looking Back at Last Month

Opening. Joel Harris opened the meeting and welcomed new members.

Committees. Membership - Bob Sletten reviewed the upcoming Astro Lab Course. Web: Barbara O'Connell noted ATMs: Larry Lopez said there were no active projects but told members that various ATM tools and equipment were available to members.

YFOS. Larry Lopez announced that YFOS has heat after much tinkering with the equipment. YFOS will be open during the winter as long as we can plow any snow.

Book of the Month. Ed Ting offered "The Year in Space" a weekly planner with lots of good information.

Scope of the Month. Mike Townsend described his Vixen 80 mm f/5 short tube, which had pretty good mechanical features, like a dual-port two-inch focuser. Optical quality was typical for this size. Color aberration became noticeable above 80x.



Photos by Bob Sletten

Public Observing. Ed Ting stated that we had a pretty good observing month. The big Reed's Ferry skywatch in Merrimack was scheduled for Dec. 1st.

(See Looking Back on p. 3)

The Bottom Line

Starting Balance: \$3,826.65
 November Deposits: \$222.00
 (Astronomy Calendars, Members dues)
 November A/P: 0.00
 Net Balance: 4,048.65
 Cash Balance: 4,048.65
 Membership: 86

Welcome New Members

NHAS welcomes the following new members into our club:

- Dorothy Larsson** Waterville Valley, NH
- G. Petur Nielsen** Belmont, MA
- Pedro Pinto** Campton, NH
- John Rose** Amherst, NH

Donations

NHAS offers its thanks for the following generous donations:
 \$100 from Smyth Public Library, Candia, NH

Ed Los Hubble photo signed by astronaut Story Musgrave
 * Barbara O'Connell

Looking Back (from p. 2)

Public Observing. Ed Ting stated that we had a pretty good observing month. The big Reed's Ferry skywatch in Merrimack was to be on Dec. 1st.

Astro Events: There was some discussion of the recent aurora and the occultation of Jupiter. **Matt Marulla** gave a hilarious account of the experience that **Nils Wygant** and he had trying to photograph the occultation From Matt's store.

Treasury. **Barbara O'Connell** reported a \$3826.65 balance and distributed a preliminary year end report. She noted that 3/4 of the club's income came from dues. In answer to a question, she reviewed the dues (\$15), the dues year (starts in Oct.), and costs of the optional magazines.

Eyepieces: **Matt Marulla** described the amazing performance of some sample Pentax XO Orthoscopic eyepieces (over \$300) from his store.

2005 Officer Nominations: **Joel Harris** opened the floor for nominations. For President, **Joel Harris** and **Todd Miller** were

nominated. Several others were named but quickly declined. **John Bishop** was nominated for VP. **Barbara O'Connell** was nominated for Treasurer. For Secretary, **Michael Frascinella** announced that he was decided not to run and said he appreciated the support and encouragement he had received during his seven years in office. **Joel Harris** was nominated for that position. Michael was nominated for the open Board position.



Donation: Ed Los donated a great photo of the Hubble repair mission autographed by legendary NASA astronaut Story Musgrave.



Evening Program.

The November Lunar Eclipse

Jim McCarthy brought a series of excellent photos of the entire eclipse. Of all the eclipses he has observed from 1996 to present, this was one of the darker ones.

To take the photos, he used prime focus on a Celestron C8 with ASA 400 film (yes, a mechanical camera). His exposures ranged from 1/500th for the full moon up to two seconds during totality.

He suggested that you bracket each view by taking slightly longer and shorter exposures and trying the "hat trick." The camera's light meter should also aid in getting the right exposure.

The next meeting was to be Dec. 17 at the Planetarium.

* Michael Frascinella

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Galactic Surprise

by Patrick L. Barry and Dr. Tony Phillips

Open an old astronomy textbook. The basic sketch you'll find there of galaxy formation is fairly simple: a vast cloud of diffuse hydrogen and helium gas condenses under gravity, and dense spots in the cloud collapse to form stars. Voila! A galaxy.

But real galaxies are much more complex than that. A galaxy is a swirling "soup" of billions of stars and roaming black holes, scattered clouds of gas and dust, random flashes of star birth and exploding supernovas, and an unseen and mysterious substance called "dark matter." Over time, all these ingredients mix and interact-pulling and compressing and colliding-and somehow that interplay leads to the galaxies we see today. No wonder it's such a hard problem to solve!

Just over one year into its three-year mission, GALEX is already shedding some new light on the problem.

"Some of the discoveries GALEX has made will change our understanding of how galaxies develop and when, where, and why stars form in galaxies," says Peter Friedman, a researcher at Caltech and Project Scientist for GALEX.

This small space telescope, called the Galaxy Evolution Explorer (GALEX for short), makes its discoveries by taking pictures of millions of galaxies scattered over the whole sky. Some of these galaxies are close by (at least by astronomical standards of "close"), while others are as much as 10 billion light-years away. Because light takes time to travel through space, we see these distant galaxies as they appeared billions of years ago. Comparing young galaxies from the distant past with older, modern galaxies will teach scientists about how galaxies change over time.

Looking at these pictures, scientists were surprised to find many newborn stars in the outer parts of old, mature galaxies. Scientists had assumed that as a galaxy ages, the clouds of gas needed to form new stars in these outer reaches either got used up or blown away. Finding so many new stars in these

regions of old galaxies (such as Centaurus A, Messier 101, and Messier 81) shows that, apparently, they were wrong.

Friedman says that astronomers don't know yet how to explain these new findings. Rethinking and improving theories to explain unexpected discoveries has always been the way science makes progress-and GALEX is certainly making progress.

One thing is certain: It's time to re-write some old textbooks.

For more information, see <http://www.galex.caltech.edu/>. Kids can do a galaxy art project and learn more about galaxies and GALEX at <http://spaceplace.nasa.gov/en/kids/galex/art.shtml>.



M81 is 10 million light years away. The image on the left half was made from GALEX data and shows UV light from hot, new stars. These star forming regions are not detectable in the visible light image on the right (McGraw-Hill Observatory, Kitt Peak, Arizona, Greg Bothum, University of Oregon).



Merry Christmas

Happy New Year

From the Editor to you

DEADLINE for Jan. 2004 Issue: 5 PM Dec. 31

E-mail articles to the Editor.

CHANGE OF ADDRESS – Notify the Treasurer of changes to postal or e-mail address.

How to Join N.H.A.S.

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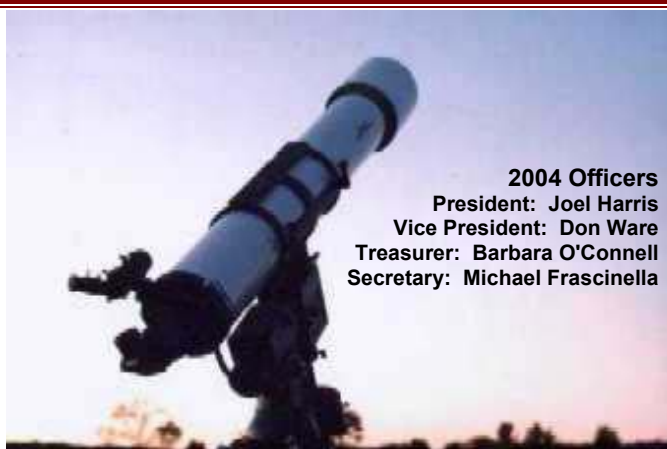
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Use our web site:

<http://www.nhastro.com/>

This month's contributors:

Joel Harris, Ed Ting, Larry Lopez, Bob Sletten,
Barbara O'Connell, Lew Gramer, Carl Thunberg



2004 Officers
President: Joel Harris
Vice President: Don Ware
Treasurer: Barbara O'Connell
Secretary: Michael Frascinella

New Hampshire Astronomical Society
P.O. Box 5823
Manchester, NH 03108-5823



Elections, Sky Show, Dec. 17, CMP

NHAS Upcoming Events

Event	Date	Time	Location
Dec. Business Meeting	Dec. 17	7:30 p.m.	Planetarium, Concord, NH
CMP Skywatch	Jan. 7	7:00 p.m.	Planetarium, Concord, NH
Coffee House	Jan. 14	dusk	YFOS
Jan. meeting	Jan. 21	7:30 p.m.	St. Anselm's College, Goffstown, NH
CMP Skywatch	Feb. 4	7:00 p.m.	Planetarium, Concord, NH