

The NHAS Observer

and

Diffuse News



Newsletter of the New Hampshire Astronomical Society

Volume 2004 No. 6

"All the news that fits in print"

June 2004

Morning Star, Evening Comets

President's Message

By the time you read this, the Transit of Venus is done. I hope it was clear for the astronomers who attempted to witness it, including those at mountaintops and beach locations. It is good that we are not putting all our eyepieces in one basket. Part of the NHAS June meeting will be set aside to show photos. After June 8, Venus will be a morning object for rest of the year.

I have not seen Comet NEAT and LINEAR yet, what's wrong with me? (trees) NEAT is currently in Cancer, then moving into Ursa Major. LINEAR is in Hydra and moving to Sextant. Both comets are binocular objects in the western sky at dusk. They are both moving away from the sun now, not to return for thousands of years.

I got so over excited at the last meeting -- don't let me do that again. I should have only given the talk about the transit. There will always be bigger comets over the next hill (horizon?).

In my Looking Glass:

I see that Jupiter is under the moon on June 23. At noon, just look 4 degrees below the moon.

On July 10, it looks that Mars will be really close to Mercury. I hope they don't hit.

I got my Stellafane letter in the mail. Got to fill it out and send it in. I will explain more of it in the future.

Comet dust in my eyes -- or is it pollen?

* NHAS President Joel Harris.

Public Observing Highlights

On May 20th, **Barbara O'Connell** arranged a skywatch for the residents of Brookline at the Captain Samuel Douglass Academy. A handful of enthusiastic people showed up and were wowed by the sights of the moon, Venus, Saturn, and Jupiter.

* Ed Ting

Front Page News

At last month's meeting, **Bob Sletten** gave **Joe Derek** a souvenir of the *Concord Monitor* from Monday May 3rd. On the front page was a large color photo of a child at Astronomy Day looking through Joe's handcrafted 12.5-inch Newtonian scope.



Venus Transit

Anticipation is running high as the big Transit of Venus approaches. NHAS members have made their plans and selected viewing sites for this sunrise event. **Dave McDonald** and some CMP personnel are going to the Marine Memorial Statue at Hampton Beach on the seacoast. Several NHAS members will make an early morning journey to Pack Monadnock Mt. west of Milford. Others will use an elevated parking lot in South Nashua off D.W. Highway. Another contingent obtained permission to use a parking lot on the west side of Lake Massabesic near Bypass 28. At least this event will last longer than the ISS/Jupiter event of last month.

WARNING: Viewing the sun, especially with binoculars or a telescope, without proper filtering is dangerous and could cause blindness or other physical damage. Do not attempt to view the transit unless you have a proven filter from a reliable vendor of astronomical equipment. Contact NHAS for advice as to how to safely view the sun.

YFOS Site

Nils Wygant has been observed mowing the grass. A list of tasks is being compiled and will be distributed via e-mail.

* Larry Lopez

Noteworthy News
ATM True Grit.....Page 2

ATM True Grit

There is no meeting scheduled yet but the ATMs are involved in preparing a telescope for a special assignment in a very gritty environment, indeed.

Captain Mike Pelletier of the NH Army National Guard, formerly a member of NHAS and fighter of light pollution, recently sent **Barbara O'Connell** a request for us to try to scrounge up a telescope that he could use to show the stars and planets to fellow soldiers stationed with him – in the southern town of An Nasariyah, Iraq! Mike said his expectations were low, but is he going to be surprised!

Member **Tom Jacobs** of West Lebanon (NH, not the war-torn Middle East) has graciously offered to donate an Orion StarMax 127 telescope.

Larry Lopez made arrangements to pick up the scope and is working with **Don Ware** to inspect the scope and refurbish it if needed. A few other members have offered eyepieces. We may even try to get a vendor to donate some eyepieces.

Just think of it – with this project we are helping support one of our own soldiers stationed overseas, showing these soldiers that we care by donating to them something of long-lasting value, and promoting astronomy in the Middle East.

June Meeting

Due to a scheduling conflict at CMP, the dome will not be available until 8:30 p.m.

We will meet somewhere nearby for the business meeting, then relocate to the dome for the evening talk.

Astro 201 Course

The latest session of our Astro 201 series on “Double Star Observing” took place on May 21 during the YFOS Coffee House.

Mike Townsend, an experienced and enthusiastic double star observer, prepared an educational presentation regarding the challenges and techniques associated with splitting double stars.

* Bob Sletten

More of Astronomy Day

Rich DeMidio took some photos of this May 1st event. His online photo collection is available at this web site:

<http://albums.photo.epson.com/j/AlbumIndex?u=4211853&a=31243563&pw=yfos>



Gardner Gerry and John Blackwell



Joe Derek, Larry Lopez, Mike Stebbins

The next two photos came from **Ed Ting**.



The Main NHAS Camp



A sunburned Larry

Near-Earth Meteors

The shower of interest in June is the Bootids in Bootes, home of Arcturus. The radiant for this shower is near beta Bootes.

They reach a maximum on June 27th, at 01h 45m UT, Universal Time. The duration of the shower is from about June 26th until July 2nd.

The ZHR (Zenithal Hourly Rate) for the June Bootids is 'variable'. In recent times, in 1998, there was an outburst for this shower, and rates of from 50 to over 100 meteors per hour were observed for over half a day.

For more information, see the newsletter of the North American Meteor Network at

<http://www.nammeteors.org>.

* Lew Gramer

Cross-Country Field Trip

We went to Bryce Canyon where a ranger stated that the limiting magnitude at the visitor center was 7.2, and out 20 miles it was 0.2 darker. He was sorry that we missed the observing session the night before. They have only 18 or so cloudy nights.

True to form, I waited until our last night there to go observing, and then it clouded up. I called my brother, had him look up Bryce Canyon on the clear sky clock, and discovered that it was going to clear at 2 a.m. So that's when I got up. Do you know that the Milky Way casts a shadow?

We also went horseback riding in Red Canyon and on the Bryce Canyon rim. We went to the North Rim of the Grand Canyon and looked at comet NEAT from the visitors center.

The ranger had an old 10-inch Celestron that he was using big time. I started getting him people with questions like: "Want to see Jupiter?" We made many new friends. The rangers have really become educated on astronomy. Linda bought rocks from a rock shop -- 10 pounds.

At Salt Lake City, we went to Hill AFB. Did you know the ST71 had a star tracker?

On the last leg of our trip, we went to Norfolk to visit Linda's father. We

See Field Trip, p. 3

Field Trip (cont'd. from p. 2)

could see the moon really well some days. While we were there, we took out two trees, 10 hedges, and about 10 cubic yards of material.

All in all, it was a nice trip.

★ Larry Lopez

The Bottom Line

Cash Balance: \$3,329.26

Deposits: \$24 (Partial A-day t-shirt sales—the rest was saved for change and will be deposited later)

A/P: \$50 Handy House (Porta Pot)
\$46.67 Peerless Insurance
\$335.17 Facilitations, Ltd
(50 A-day t-shirts)

Net Balance: \$3,329.26

Membership: 146

Please welcome the following new members:

Jean Murray East Kingston, NH
Alan Larsson Waterville Valley, NH

★ Barbara O'Connell

Looking Back at Last Month

Welcome. Pres. **Joel Harris** welcomed new members.

Committees. Membership – **Bob Sletten** said they had a good session last month on Variable Stars; next session on Double Stars at YFOS on May 21.

Photo - **Chase McNiss** said next meeting would be May 22 at YFOS. **Don Ware** to discuss use of Gemini mount for photography.

Public Observing. One skywatch scheduled for Brookline on May 20.

Treasury. Not much change since last month. Don Ware had Astronomy Day t-shirts for sale.

Astronomy Day Review. We discussed various problems like poor location, failure to develop our own advertising, the need for better marketing of the concept of astronomy, and signage for each NHAS scope.

One suggestion was to decentralize from Fort NHAS and spread scopes around the grounds into Astronomy Zones and give each one an object or two to focus on. A handout would locate each scope and its object(s) of interest. Another idea was a handout identifying the best celestial objects to look at that night.

T-shirt sales were very poor making some wondering if it was worth trying to sell them to the public. One mention was made of another Astronomy Day just over the border in Mass.

It was decided to form a committee this summer to do advanced planning so that the burden of coordinating the event would not fall on one member.

ISS and Jupiter. **Chase McNiss** displayed a brief video (from his digital camera) of the ISS whizzing by Jupiter at 9:30 p.m. on May 13. It was over in a flash. **Nils Wygant** had a brief video via his 10-inch scope that was crisp but over before you knew it. Several other members reported similar experiences.

Evening Program. Comet Hunting

Joel Harris discussed shortcuts, stating that he did not want to spend hours and hours like the dedicated comet hunters.

- Use binoculars for comets close to the sun.
- Use rich-field scopes for general sky surveying. He noted that automated systems like NEAT and LINEAR have found several comets.
- As examples of equipment, **Joe Derek** discussed using large binoculars on his parallel frame mount for comet hunting. **Steve Dipirro** described his TeleVue MP101 540 mm rich-field refractor and Gibraltar mount.
- Work with maps that show more detail than your scope can detect (that's the hard part). Then you won't confuse faint galaxies as new comets.
- Find a convenient and dark observing location.
- Avoid the Milky Way.
- Check the weather forecast. Bad weather elsewhere is in your favor.
- Once you detect a likely candidate, check for movement during the night.
- Look in areas that have few deep sky objects.
- Use this scanning method: start at the horizon,

move horizontally, then work vertically, and overlap horizontal scans. This is useful for the western sky that is always setting.

- Verify the object before reporting it to the Center for Astrophysics at Harvard College Observatory.

Currently Comet NEAT was moving through Cancer. Comet LINEAR was moving from the morning to the evening sky. Joel finished with a display of famous recent comets and several photos by **Chase McNiss** of Comets Hale-Bopp and Hyakutake.

Transit of Venus

This will be in progress at sunrise on June 8 (5:06 a.m. EDT) with twilight starting at 4:30 a.m. Venus will be 1/30th the sun's diameter. The weather is likely to be cloudy but we can always hope. Several members plan to go to Hampton Beach, Lake Massabesic, and Pack Monadnock Mt., and So. Nashua.

Marion Hochuli wrapped up the meeting by presenting several slides of the 1973 Mercury Transit that she witnessed at Jones Beach on Long Island, NY. She photographed the transit through a 4.25-inch reflector.

It was nearly 10 p.m. before the meeting adjourned.

★ Michael Frascinella

NASA Space Place

Far-Out Ideas

by Patrick L. Barry

Ever had a great idea for a new spacecraft propulsion system, or for a new kind of Mars rover? Have you ever wondered how such "dinner napkin sketches" evolve into real hardware flying real missions out in the cold blackness of space?

(See Space Place p. 4)

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NASA Space Place (from p. 3)

The road to reality for each idea is a unique story, but NASA has defined some common steps and stages that all fledgling space technologies must go through as they are nursed from infancy to ignition and liftoff.

Suppose, for example, that you have thought of a new way to shield astronauts from harmful radiation during long space missions. In the first stage, you would simply "flesh out" the idea: Write it down, check the physics, and do some quick experiments to test your assumptions.

If the idea still looks good, the next step is to build a "proof of concept." This is the "science fair project" stage, where you put together a nifty demonstration on a low budget – just to show that the idea can work.

For your radiation-shielding idea, for example, you might show how a Geiger counter inside a miniature mock-up doesn't start clicking when some radioactive cobalt-60 is held nearby. The shielding really works!

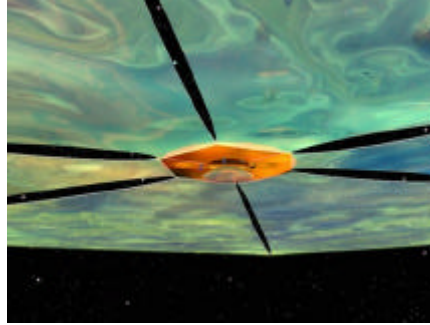
Once that hurdle is cleared, development shifts into a higher gear. In this stage, explains Dr. Christopher Stevens of JPL, the challenge isn't just making it work, but making it work in space.

"Some conditions of space flight cannot be adequately simulated here on Earth," Stevens says. Cobalt-60 doesn't truly mimic the diverse mixture of radiation in space, for example, and the true microgravity of orbit is needed to test some technologies, such as the delicate unfolding of a vast, gossamer solar sail. Other technologies, such as artificial intelligence control systems, must be flight tested because they are so radically new that mission commanders won't trust them based just on lab tests.

Stevens is the manager of NASA's New Millennium Program (NMP), which does this sort of testing: Sending things to space and seeing if they work. In recent years the NMP has tested ion engines and autonomous navigation on the Deep Space 1 spacecraft, a new "hyperspectral" imager on the Earth Observing 1 satellite, and dozens of other "high risk" technologies.

Thanks to the NMP, lots of dinner napkin sketches have become real, and they are heading for space. You can

learn more at the NMP website, <http://nmp.nasa.gov/>.



Above is just one idea of how a solar sail could be used to power an interstellar probe. A solar sail is one possible type of new technology that NASA's New Millennium Program would test in space before it would be risked on a scientific mission.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Observing the Eight-Day Old Moon

May 28, 2004

As soon as I set the scope up, it started to cloud up. And this was one hour before sunset! You can observe the moon during the day, not much contrast, but when you have cabin fever this late in the spring, you will try anything.

I also learned that it is a good exercise setting up this early, especially for those who are trying to do more lunar observing. Get out there early before the Sun sets and familiarize yourself with some of those craters and mare, at least the big ones.

The one thing that became really obvious was how much the terminator advanced during the time between when I took my first casual look and almost an hour later when it got dark enough to see some fine details. In that time period, Tycho turned from a black hole with only its upper rim reflecting any light, to a black hole with a central peak. And only one hour after that, the western rim of Tycho started to show detail in its terraced wall.

At 160x the crater was isolated enough to allow you the opportunity to really explore the details in the side wall. You can easily imagine the wall

avalanching down in slow motion and leaving the terraced affect.

Remember Tycho and Clavius are two of my favorite craters, so don't be surprised that I move to Clavius next. Talk about a big black hole. Clavius was just inside the terminator and it looked even bigger than usual because all you could see was the plain on the eastern side and a half dozen highlights on the upper part of the rim to the west.

An hour later the crater had changed enough so that you could see the outlines of Porter and Rutherford on the north and south rims of Clavius as well as Clavius "C" and "D" deep down inside Clavius' crater. It's like they appeared there like magic.

About this time the clouds started to cause even the Moon's bright image to fade in and out and the seeing was noticeably worsened. But that didn't deter me, instead I traded a high power eyepiece for wide field images of the lunar surface.

A few images are posted in the files section of the NHAS Yahoo site, but by the time it got dark enough to start seeing stars, even the Moon had dimmed out of the visible realm.

Clear skies!

* Chase McNiss

DEADLINE for July 2004 Issue: 5 PM June 29

E-mail articles to the Editor.

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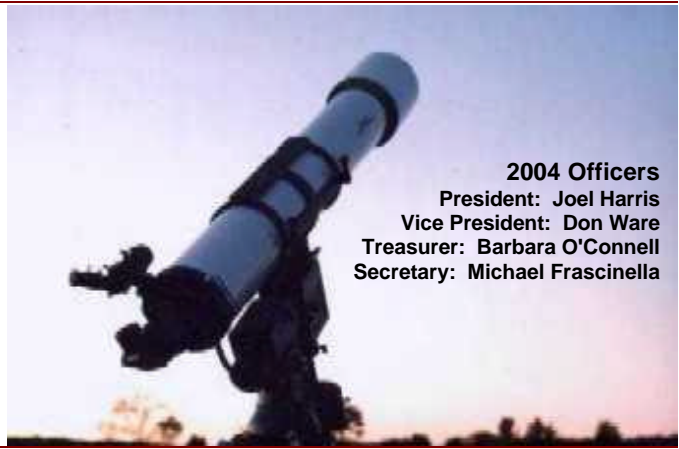
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This month's contributors:

Joel Harris, Ed Ting, Larry Lopez, Bob Sletten,
Barbara O'Connell, Chase McNiss, Lew Gramer



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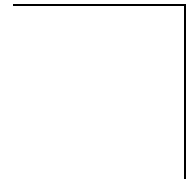
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Transit Photo Fest, June 11, CMP

NHAS Upcoming Events

Event	Date	Time	Location
June meeting	June 11	7:30 p.m.	Planetarium, Concord, NH
Coffee House	June 18	6 p.m.	YFOS
Photography Meeting	June 19	6:30 p.m.	YFOS
New Boston Skywatch	June 19	6:30 p.m.	New Boston Library, New Boston, NH
VA Hospital Skywatch	June 29	8 p.m.	VA Hospital, Manchester, NH
CMP Skywatch	July 2	7:00 p.m.	Planetarium, Concord, NH
July meeting	July 9	7:30 p.m.	St. Anselm's College, Goffstown, NH