



Stellafane and the Perseids

President's Message

Stellafane questions:

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- Did you get any sleep?
- Were you up all night?
- Did you enjoy the food?
- Did Stellafane wear you out?
- Did you get stuck in the mud?
- Did your raincoat have any leaks?
- Did you finally see the Milky Way?
- Did any UFO people convince you?
- Any blackouts at the evening talks?
- Did you win at the Monopoly game?
- Did any of your 100 raffle tickets win?
- Any speakers make you laugh too hard?
- Did you yell at the green laser people?
- Did any meteors make holes in your tent?
- Did your homemade scope win first prize?
- Were you able to get sell off that old scope?
- How many ice creams did you really have?
- Did you understand the Schupmann optics?
- Discover a comet through someone's scope?
- Did you get a astro bargain at the swap table?
- Did you get a good seat at the evening talks?
- Did any of TVs blow up at the evening talks?
- Wait in line at a large scope only to see clouds?
- So did you enjoy the weekend?

Hopefully, more good ones than bad ones of these happen to you. Some people remember that some of these things actually happened. Some people have grand stories that go with them.

As for the scope of the month, I request whoever got something at the Stellafane swap table to bring it to the Friday club meeting (August 20 at the planetarium).

Tell me a story.

* Joel Harris
NHAS President 2004

Public Observing Highlights

There were no skywatches that were not canceled for one reason or another. For example, the Goffstown skywatch on July 28 was canceled due to poor weather.

* Ed Ting

John Bishop had a neighborhood skywatch on Sunday July 11 in Nashua. Ten people showed up to see Jupiter. Many more bugs showed up to see the people.

The limited observing targets were due to the fact that it didn't get dark until after 9:30 p.m. and the location was in-town. As I was packing up, there were about five stars visible.

There was enough interest so that I plan to do another show in the fall, when the bugs will be gone and darkness will come sooner.

* John Bishop

Meteors Incoming

This is a great year to see the Perseid meteor shower. The peak night is Wednesday night/Thursday morning, August 11/12 with about 100/hr expected. Some researchers predict that on August 11 at about 21h UT,

there could be a meteor outburst of a few hundred per hour. But the night before (Tuesday, August 10/11), and especially the night after the peak (Thursday, August 12/13), should both be grand as well.

Remember that you only need to wait until it is good and dark, and the Perseid radiant point is high enough in the sky, before you can start to see Perseid meteors. 9:30-10 p.m. is a good time to start for people around 40-50 N latitude. And of course, the later the night gets, the higher that radiant gets, and the more meteors you are likely to see.

Just keep in mind that the Moon will be rising to spoil your fun around 1 a.m. on the morning of August 10/11, then by 2 a.m. on the morning of August 11/12, and 3 a.m. on the morning of August 12/13.

The August skies continue to display Aquarid meteors. there are four different showers active in Aquarius this month with varying peak numbers per hour:

North delta Aquarids (peak=4)

South delta Aquarids (peak=20)

North iota Aquarids (peak=3)

South iota Aquarids (peak=2).

Several other smaller showers occur in August. Go to the NAMN website (<http://www.namnmeters.org>) for in depth information about all of this month's meteor showers.

* Lew Gramer

Noteworthy News
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Scope in Use in Kuwait

Captain Mike, the recipient of the telescope that was shipped to Kuwait at the end of June, sent back this photo. Guns are required accessories.



Web Uploads

The web site is running and the calendar is being updated as needed.

* Barbara O'Connell

AstroPhotons

The Photo Committee meeting took place at YFOS on Saturday July 17th. In attendance were **Don Ware**, **Herb Bubert**, **Rich Flemming**, and **Chase McNiss**.

Don reviewed the workings of the Titan/Gemini mount with Richard who has used Meade GOTO mounts. Herb and I were there for a refresher course.

Don also demonstrated the C-14 Cradle he designed and masterfully built.



Photos by Chase McNiss

The cradle allows a single person [but not a married person? -Editor] to securely remove the C-14 scope and mount other scopes for the purpose of visual or astrophotography. There is a technique that should be reviewed before someone actually performs the procedure, but it is a tremendous improvement over removing the scope by using muscle and luck.



I have placed on loan to the observatory, a Losmandy tandem scope bracket that will allow an individual to mount two scopes on the Titan mount at once. Again this is something that astrophotographers may wish to do. There is already one universal plate in the observatory for mounting scopes onto the mount, if you plan to use the tandem mounting plate, you will need one more additional mounting plate.

The next meeting is scheduled for Aug. 21 at YFOS, probably to start at 6:30 p.m.

* Chase McNiss

The Bottom Line

Deposits: \$35.50 (memberships & NHAS T-shirts)

A/P: - (2) Peerless Insurance payments \$103.01
 - Expenses for YFOS and mailing \$23.64
 - Shipping StarMax scope to Kuwait \$48.25

Net Balance: 3,319.65

Membership: 153

Welcome New Members

NHAS welcomes the following new members into our club:

Stephen Forbes II

Barry Jensen Windham, NH

Leif Merryfield Mont Vernon, NH

Joshua Weinstein Nashua, NH

* Barbara O'Connell

Looking Back at Last Month

Opening. **Joel Harris** welcomed everyone to the meeting.

Public Observing. **Ed Ting** stated that just about all events were canceled due to poor weather conditions.

YFOS. **Larry Lopez** said YFOS is open and being maintained.

Scope for Iraq: The scope was received and the soldiers were thrilled to get it. **Captain Mike** promised to send us a written thank you when they get some downtime between patrols and other duties. (See photo this page)

Treasury. **Barbara O'Connell** reported a balance of \$3458.32 and minimal expenses. Membership is up to 148. Many donations have been received (see the July newsletter).

Book of the month: **Michael Frascinella** discussed a newspaper article about Timothy Ferris and his rolling-roof observatory in California. Ferris is author of *Seeing in the Dark*.

Scope of the month: **Mike Townsend** showed off a Coronado 40 mm PST (Personal Solar Telescope). It works well up to 80x then needs a shroud so you can see the dim image. The unit goes for \$429 plus shipping.

Saturn update: **Joel Harris** showed an image of Saturn's rings and told members to visit NASA's Cassini web site (see Space Place article).

Club logo: **Michael Frascinella** presented a proposal for a study committee for the club logo (and followed it with an e-mail). There was much discussion on both sides of the issue. **Pres. Joel Harris** asked members to contact him if they want to be part of the committee.

Stellafane: Aug. 13-14 in Springfield, Vt. NHAS cookout on Saturday.

Evening Program. **Matt Marulla**, "A History of Telescope Design."



Photo by Bob Sletten



Meeting photos by Chase McNiss

Evening Program (Cont'd)

Glass was invented in ancient Egypt about 3500 BC. But not until 1240 AD did Roger Bacon write the first treatise on convex lenses. In 1608 Hans Lippershey of the Netherlands invented a telescope but could not get a patent for it. In 1609 Galileo built a telescope based on Lippershey's design and used it to observe the Moon and Jupiter. Other designs by Zucchi and Kepler followed. The 1600s became the Golden Age of Discovery. For telescopes, spherical and chromatic aberration became problems to be overcome. Large metal mirror reflectors included the Gregorian, Newtonian, and Cassegrainian (Cassegrain of France). Achromatic refractors first appeared in the mid 1700s. The apochromatic refractor was invented in the late 1800s by Abbe, Schott, and Zeiss using natural fluorite.

Matt then covered unusual design like the Schuppman, Ritchey-Chretien, Maksutov, and Schmidt-Cassegrain. The newest ideas included the Tilted Compound Telescope (TCT), an unobstructed reflector with minimal distortion. One design, the Stevik-Paul (1993) used four mirrors. Matt concluded with a display of the Ten Commandments for Amateur Astronomers.

* Michael Frascinella

NASA Space Place

Waiting for Cassini's "Safe Arrival" Call

The evening of June 30, 2004, was nail-biting time at Cassini Mission Control. After a seven-year journey that included gravity-assisted flybys of Venus, Earth, and Jupiter, Cassini had

finally arrived at Saturn. A 96-minute burn of its main engine would slow it down enough to be captured into orbit by Saturn's powerful gravitational field. Too short a burn and Cassini would keep going toward the outer reaches of the solar system. Too long a burn and the orbit would be too close to correct.

Dave Doody, a Cassini Mission Controller at the Jet Propulsion Laboratory (JPL) in Pasadena, California, said there was a good chance the Earth-bound Cassini crew would have to wait hours to learn whether the burn was successful.

Of the three spacecraft-tracking Deep Space Network (DSN) complexes around the globe, the complex in Canberra, Australia, was in line to receive Cassini's signal shortly after the beginning of the burn. However, high winds had been forecast, requiring a lock down of the dish. "The winds never came," notes Doody. The DSN complex at Goldstone, California, was tracking the carrier signal from Cassini's low-gain antenna (LGA) when the telltale Doppler shift in the LGA signal was seen, indicating the sudden deceleration of the spacecraft from the successful ignition of the main engine.

After completion of the burn, Cassini was programmed to make a 20-second "call home" using its high-gain antenna (HGA). Although this HGA signal would contain detailed data on

the health of the spacecraft, mission controllers would consider it a bonus if any of that data were actually captured. Mostly, they wanted to see if the HGA was pointed toward Earth and to determine the spacecraft's speed from the Doppler data. They also wanted to try to lock onto the signal with DSN's closed-loop receiver, a necessary step for extracting engineering data.

Normally it takes around one minute to establish a lock on the HGA signal once a DSN station rotates into range. Having only 20 second's worth of signal to work with, the DSN not only locked on within just a few seconds, but also extracted a considerable amount of telemetry during the remaining seconds. "The DSN people bent over backwards to get a lock on that telemetry signal. And they weren't just depending on the technology. They really know how to get flawless performance out of it. They were awesome," remarks Doody.

Find out more about the DSN from JPL's popular training document for mission controllers, Basics of Space Flight (www.jpl.nasa.gov/basics) and the DSN website at <http://deepspace.jpl.nasa.gov/dsn>. For details of the Cassini orbit insertion, see <http://www.jpl.nasa.gov/basics/soi>. Kids can check out The Space Place at http://spaceplace.nasa.gov/en/kids/dsn_fact1.shtml to learn about the amazing ability of the DSN antennas to detect the tiniest spacecraft signals.

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

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This month's contributors:

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Barbara O'Connell, Lew Gramer, John Bishop, Chase
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Stellafane 2004, Aug. 20, CMP

NHAS Upcoming Events

Event	Date	Time	Location
Dunstable Skywatch	Aug. 11	8:30 p.m.	Public Library, Dunstable, Mass.
Stellafane Convention	Aug. 13-14	Fri.-Sat.	Springfield, Vt.
August business meeting	Aug. 20	7:30 p.m.	Planetarium, Concord, NH
Photo Comm. Meeting	Aug. 21	6:30 p.m.	YFOS
Brookline Skywatch	Aug. 24	7:30 p.m.	Captain Samuel Douglass Academy, Brookline, NH
CMP Skywatch	Sept. 3	7:00 p.m.	Planetarium, Concord, NH
Sept. business meeting	Sept. 10	7:30 p.m.	St. Anselm's College, Goffstown, NH