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THE NHAS OBSERVER AND MARTIAN CHRONICLE

Newsletter of the New Hampshire Astronomical Society

Volume 2003 No. 7 **"All the news that fits in print"** **July 2003**

Secondary Mirror on the Side

At this Friday's meeting, the telescope of interest will be an off-axis Newtonian from DGM Optics.

It's a 6.5-inch mirror, one of four cut from the "sides" of a much larger standard parabolic mirror. The parent mirror was about f/4; the child mirrors (and thus my telescope) are f/10.4.

As a result of this design, the secondary mirror is not in the optical path nor is there a spider – the secondary is on the side of the tube. The tube is mounted in a yoke on a standard Dobsonian alt-azimuth base.

I've written a review which has been posted in "Cloudy Nights." See http://www.cloudynights.com/reviews4/OTA6.htm.

★ John Bishop

President's Message

Hello Fellow NHAS Members,

My, my, how this year is flying by. We are already half-way through the year! I want to thank **Herb Bubert** for bringing in that finely crafted telescope and motorized equatorial base to our last meeting. This whole system is impressive in that with a Dobsonian mount, one can track the stars and use higher magnification. I understand he has taken some photographs with this set up as well. Thanks again, Herb.

We were also privileged to have **Bob Veilleux** bring to the second half of our meeting a genuine Clark Refractor. How exciting it was to hear about its past, see photographs of the people responsible for building this instrument, and to have a piece of history in our mist. Thank you for that great presentation. It was well received.

At our next meeting, **John Bishop** will be bringing in his telescope with a unique design. You won't want to miss this.

Another special event, scheduled for August 1st and 2nd, is when amateur astronomers and telescope makers converge on Springfield, Vermont for an event known as **Stellafane**. This is one of the oldest, if not the oldest, gathering of amateur astronomers in the world and it takes place virtually in our back yard! Plans our being made for this event and many from our group will be attending. More Stellafane details will be discussed at our July 11 meeting.

Regards,
Joe Derek
2003 President NHAS

Public Observing Highlights

Four NHAS club members showed up at the skywatch in Eastman, NH, on the evening of July 3rd. It was nice to see so many members showing up at an event so far north, and on the evening of a major holiday no less.

Special thanks go out to **Gardiner Gerry**, who showed up almost two hours early to help me unload the 83 lb. 12.5-inch Discovery Dob scope from my car (I am nursing a fractured rib from a bicycling accident.)

Almost 100 people arrived for the slide show and skywatch, which took place at one of the most beautiful locations I've ever seen for a star party. We were set up along a narrow spit of sand on the edge of a lake. The location is impressively dark. Through the high thin clouds, we saw the 4-day old moon, Albireo, Mizar, M13, M3, and the Ring.

We're already talking to them about another event in November. Details are sketchy at this point, but it may involve snowshoeing out to the golf course at dusk!

★ Ed Ting

Skywatch at Gorham, NH

We had about 25 participants at the Interpretive Training Institute (ITI) held at the AMC Pinkham Notch facility on June 17th. The folks there were learning how to present nature with a heavy dose of culture upon visitors to parks and campgrounds in the state and federal systems.

The agreed-upon agenda was:

- Learn how to introduce folks to the summer sky with star charts and navigation tricks.
- Find out how to access some of the mythology and history of the constellations and planets using web links and periodicals.
- Since Mars will be the closest to earth in 60,000 years this August, know when and where to find it.
- Weather permitting, look through some telescopes and get a sense of their powers and limitations, and why just looking up is a good idea.

My younger daughter, **Jenny**, and I provided an hour or so of where to find resources on the web, skywatch manners, sky charts and what books seemed to be well suited to their needs.

(see **Skywatch** on p. 2)

Noteworthy News

Mars Dust in a Small Scope.....Page 2

Skywatch (from p. 1)

We discussed how to find north, arcing to Arcturus, spiking to Spica, and "doobie-ing" to Polaris (go from Merak to Dubhe, then "Doobie-Doobie-Doobie-Doobie-Doo" to Polaris, since the distance from the pointers to the North Star is about five times the distance between the pointers).

We provided each participant with a CD of Web based astronomical material including two books on African Mythology. (Copies are available to anyone interested.)

Feedback was good and folks went out afterwards to find a clear patch of sky and put their skills to work.

★ Marc Stowbridge

Mars Dust

Chase McNiss sent e-mail about a story he thought we would be of interest from Science@NASA:

"Something is happening on Mars and it's so big you can see it through an ordinary backyard telescope. Go to

http://science.nasa.gov/headlines/y2003/09jul_marsdust.htm?friend "

The article reported that on July 1st a bright dust cloud was observed moving out of Hellas Basin. Photos taken with a 16-inch scope by **Donald Parker**, executive director of the Association of Lunar and Planetary Observers (ALPO) [I thought ALPO was a brand of dog food?], revealed the dust cloud at over 1100 miles wide by the 4th of July. Parker stated that scopes as small as 6 inches should be able to see the dust cloud.

As soon as this much needed rain moves out of New Hampshire, we may have a good chance to observe Mars through some clean air. Let's hope this dust cloud doesn't spread over the whole planet just as it's nearing the closest approach in years.

★ Michael Frascinella

Membership Notes

There seems to be interest in doing an "ASTRO 201" series. Several people suggested topics and quasi-volunteered to give a session. The Membership Committee is still soliciting you for suggestions.

The last class of ASTRO 101, "Using the Dark Sky Site," will likely be postponed until August because the new observing hardware is not anticipated until the end of July.

★ Bob Sletten

YFOS Coffee House

How many people were at the YFOS Coffee House on June 27? Perhaps a dozen all together. It was a beautiful evening. Lots of lightning bugs (and mosquitoes). Nice Milky Way.

Jean and I must have seen at least two dozen objects, ending with a very low, featureless Mars.

★ Roger

On June 21, someone mowed the grass before I got there so I string trimmed the site, then mulched the grass clippings with the JD235 riding mower.

On July 3, **Gardner Gerry** mowed the field in about 90 minutes.

Thanks a bunch!

★ Larry Lopez

Web Uploads

The web committee is getting back to work on the new web design after some job-related delays. We are working on design details and working out the logistics of rewriting content and transferring archives. We should have an update at the next meeting.

★ Barbara O'Connell

ATM True Grit

On June 29, **Ernie Lopez**, **Don Ware**, **Larry Lopez** were at the ATM meeting at the New Boston Library.

Don helped Larry plan the baffles for his 8-inch f/15 refractor. Ernie presented his work on his mount. We also talked for a short time about the pier for YFOS.

★ Larry Lopez

The Bottom Line

Club Balance: $6,000
Accounts Payable: $3,600
Net Balance: $2,400

2003 Membership: 167

Donations: $50.00 from the Girl Scouts of Swift Water Council as a thank you to the NHAS members who volunteered their time at the May 30th "Camporee-2003". A special "thank you" went to **Ed Ting**, our distinguished Public Observing chair.

Welcome to these recent new members:

Dan Chase of Pembroke, NH
Lisa Fitzgerald of Campton, NH
David Weaver of Nashua, NH

Note: Sky Publishing has just increased the annual subscription rate for club members from $29.95 to $32.95. When sending in S & T renewals or signups, please take note of the new price.

★ Jim Warenda

Looking Back at Last Month

Opening. Joe Derek welcomed everyone to the meeting.

Committees. ATMs: **Larry Lopez** postponed the ATM meeting at the New Boston Library until June 29 at 2 p.m. Membership Comm.: **Bob Sletten** said the last Astronomy 101 course was awaiting the completion of the 16-inch observatory scope. Photo Comm.: **Chase McNiss** said they met the prior Saturday at YFOS but it rained. They discussed "deconvolution." A new Yahoo group for NHAS astrophotography now has 13 members. Next meeting TBA. Web Comm.: no updates.

Scope of the Month. Herb Bubert displayed his 11-inch Starmaster ELT truss tube Dob. scope on a custom-made, motorized, equatorial platform that provides star tracking for about an hour. He was able to assemble the truss mount in just a few minutes.

Public Observing. Ed Ting noted two upcoming skywatches: July 3 at Eastman, NH near Claremont, and late July at Geneva Point on Lake Winnipesaukee.

YFOS. A select group of mowers trimmed the field recently. Another mowing session was slated for Saturday, June 21. Larry's C14 scope was still being restored by **John Blackwell**. We were still waiting for the Titan mount and the truss mount to be shipped.

Treasurer's Report. Our bank balance was $6000, with $2400 in payments due. Membership is 165.

Scope Sale. Chase McNiss mentioned that **Dan Smith** of Rivers Camera had an overstock of scopes taken in trade and would give NHAS members an additional discount to take them off his hands.

Evening Program. The featured presentation was The Mystery Clark Refractor.

Bob Veilleux presented a talk about the history of the 1875 4-inch Clark refractor that had been at Manchester Central High School for over a century.

The full story of these famous telescope makers was available in a book entitled *Alvan Clark and Sons, Artists in Optics* published by Willmann-Bell.

Alvan Clark was born in Ashfield, Mass. in 1804, a New England Yankee, and made a livelihood painting portraits until 1860. He became a telescope maker by accident in 1844 when his son George made one out of the melted-down brass of his school's broken dinner bell. With his sons, George Bassett and Alvan Graham, Alvan, Sr. started making refractor lenses in 1846. By 1897, the company completed its magnum opus, the 40-inch refractor lens for Yerkes Observatory – still the largest refractor ever made.

Alvan was know to use his thumb for final polishing and he eventually developed severe swelling from the constant stress of lens polishing. His company manufactured over 575 telescopes and Alan eventually died in 1887 followed by his sons George in 1891 and Alvan Graham in 1897.

The Mystery Clark Refractor

On the scope is this engraving: "Alvan Clark & Sons, Cambridgeport, Mass. 1875." Bob recounted that the refractor had been stored for many years at Manchester Central High School. He showed a photo from 1907 of the Classical Building with a copper-domed observatory on the roof, surmising that the scope was housed there.

After much searching through microfiche (accompanied by much eyestrain), Bob eventually found an article in the "Mirror and American" newspaper noting the purchase of a 4-inch Alvan Clark telescope for the Manchester High School, a scope that was delivered on Feb. 8, 1876.

The primary lens was an achromatic doublet – typical of Clark refractors. The scope sat on a tripod made of black walnut. The end cap was a hefty piece of solid brass as was the tube and finder.

Since Bob was to retire from teaching this year, he felt the best thing to do to preserve this historic telescope was to donate it to the Manchester Historical Association. He scornfully avoided suggestions to sell it on eBay.

After the talk, members went for a closer look at this historic instrument.

Note: The latest issue of the Orion catalog offers a beautiful 60 mm refractor made of brass and mahogany. It has that retro look reminiscent of the Clark scopes of 150 years ago.

★ Michael Frascinella

NASA Space Place

Monster Trucks on Mars

by Patrick L. Barry and Dr. Tony Phillips

We all know what Mars rovers look like now: Robotic platforms, bristling with scientific instruments, trundling along on small metallic wheels. Planetary rovers of the future, however, might look a little different – like miniature monster trucks!

Enormous, inflatable tires can easily roll right over the rocks and rugged terrain of alien planets, just as they bound over old cars like as many speed bumps.

That's the idea behind a novel concept for robotic planetary rovers known as the "big wheels inflatable rover." Unlike rovers similar to the Sojourner robot that explored the surface of Mars in 1997 and depended on instructions sent from Earth or complex programmed intelligence to steer through rough terrain, this rover has

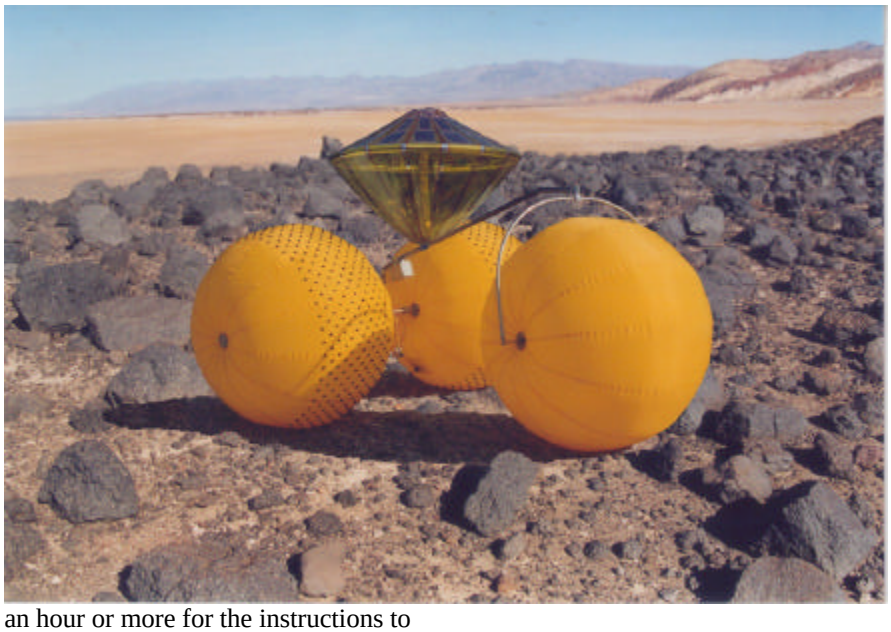
(See **Space Place** on p.4)

Space Place (from p. 3)

three beach ball-like tires roughly five feet across that make it a true off-road vehicle.

"We sent this rover out to Death Valley, to a place called Mars Hill that has a general geological formation like Mars, and nothing could stop it," says Jack Jones, the mastermind of the inflatable rover concept at JPL. "It just kept going and going and going." [Sounds like the Eveready bunny, huh?]

Lots of current research is devoted to developing advanced robotic intelligence that allows rovers to detect rocks in their path and maneuver around them. The alternative to such on-the-spot intelligence is tedium: Ground controllers on Earth working out the maneuvers by hand and waiting



an hour or more for the instructions to travel to the distant planet.

A "big wheels" rover would need such computer intelligence to avoid very large boulders, but Jones asks, "Why worry about every little rock, pebble, and crack when you can just roll right over most of them?"

Jones imagines a scenario where multiple inflatable-wheel rovers could be sent out to explore the Martian terrain-easily and quickly traversing the rugged terrain. Samples gathered by the rovers could be returned to a central, stationary laboratory module for detailed analysis.

"The Martian surface is really very, very rough with a lot of rocks, and to be banging this laboratory equipment up and down over all of these rocks aboard the rovers doesn't make much sense," Jones says. "I suspect it might be better to leave it in a central location."

At the moment it's all very speculative; NASA currently has no definite plans to send inflatable rovers to Mars. But who knows, one day monster truck-like vehicles could be zipping over Mars' rough, red surface.

Kids can baffle their friends with a robot puzzle (including a "Big Wheels" rover) they make themselves at http://spaceplace.nasa.gov/robots/robot_puzzle.htm . Adults can find out more about NASA's inflatable rover program at http://www.jpl.nasa.gov/adv_tech/rovers/summary.htm.

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

DEADLINE August Issue: 5 PM August 4

E-mail your articles to the Editor. Phone if you have a late submission.

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Notify the Treasurer. Include your full name and new street address. If changing an e-mail address, specify whether you want to add, modify, or delete an e-mail address.

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Off-Axis Newt, July 11, St. Anselm

NHAS Upcoming Events

Event	Date	Time	Location
July meeting	July 11	7:30 p.m.	St. Anselm's College, Goffstown, NH
Coffee House	July 25	8:00 p.m.	YFOS
Stellafane Convention	Aug. 1-2		Breezy Hill, Springfield, VT
CMP Skywatch	Aug. 1	8:00 p.m.	Planetarium, Concord, NH
Aug meeting	Aug. 15	7:30 p.m.	Planetarium, Concord, NH