

SKYLIGHTS

Newsletter of the Astronomical Society of Northern New England



SEPT 2007



Member of NASA's
Night Sky Network



Astronomical League
Member

ASNNE MISSION

ASNNE is an incorporated, non-profit, scientific and educational organization with three primary goals:

1) *To have fun sharing our knowledge and interest with others.*

2) *To provide basic education in astronomy and related sciences to all who are interested.*

3) *To promote the science of Astronomy.*

STELLAFANE 2007

By Paul Kursewicz

On August 11, Joyce and I headed to Springfield, Vermont for the annual *Stellafane Convention*. We arrived around 9:30 am and were very disappointed with the high entrance fee...\$40!

I walked away purchasing nothing at the *swap tables* (a first for me). Throughout the day we bumped into some of our club members as well as friends and acquaintances from other clubs.

After socializing for awhile, we took the bus up to the top of Breezy Hill. Here, amateur telescope makers display their homemade telescopes. They can also enter their instruments for judging. I took some pictures and will show a few of them in this article. I believe *Joyce*, *Steve*, and *Jim* may have taken more photos than me. Maybe at a future club meeting they can show us their photos.

Real Manseau from Drummondville, Quebec made two exquisite replicas of the first reflecting telescope (invented by Isaac Newton). One of the telescope's is shown below:



2.36" f/4.5 Replica of a 1671 Newtonian on Ball Mount

Much research was done as to how the first reflecting telescope looked and worked. To achieve the rich brownish color, many coatings of **blood** was used. Why use *blood* you may ask? Because back then, this was the best medium to use to achieve the rich brown color tone. The two replica telescopes won an award in the *Specialty Division*.

Another telescope that grabbed my attention currently belongs to the *Adirondack Public Observatory* in New York. This telescope won a **Mechanical Award** for: *Excellence in Antique Restoration*. A very interesting story surrounds this telescope. *Jan Wojcik* who helped in the restoration of this scope was standing next to it, and I had a chance to talk to him about the restoration and the significance of it being at *Stellafane* (see Photo).



Jan standing next to the 12.3" f/10 Newtonian on a German Equatorial Mount

Amateur astronomers in the Adirondacks spent last winter restoring a telescope made by *Wally Everest*, an inventor, engineer,

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Einstein His Life and Universe

By Walter Isaacson
2007

Reviewed By Richard Beaulieu

As a baby, Einstein was slow in learning to talk. He became a brilliant student in mathematics and science. In school, he disliked an appeal to authority. I mean by that that he didn't like to hear such things as "Newton said so, so don't question it", or "Galileo said so, so it is true". He wanted evidence.

An older friend gave him a formative set of science books for children.

As a youth, Einstein wondered what a ray of light would look like if he were to ride alongside at light speed. Would he see the wave pattern stopped?

In special relativity, later, he answered this question. If he were able to ride in a space ship at almost the speed of light, and a ray were coming toward him, it would still come at the speed of light.

The science in the book is easy to understand and there are no mathematics. The greatest physicists, such as Murray Gell-Mann, Brian Greene, Lawrence Kraus and more, all examined this book and offered suggestions, so you can count on it not leading you astray.

After graduating from a college in Switzerland, he couldn't get a job. He had antagonized the professors who were writing the references with his lack of respect for authority and an impertinent tongue.

Finally, a classmate helped him get a job as clerk in a patent office.

1905 is called his miracle year. In that year, he wrote a paper on Brownian motion that proved the existence of atoms. Up until that time, a lot of scientists still didn't believe in the physical reality of atoms. But Einstein settled it.

In the same year, in writing on the emission of electrons by a metal hit by light, he proved that energy was in particles or quanta. Thus he

helped found quantum mechanics.

Also in 1905, he created special relativity, that proved that there was no absolute time in the universe; there were localized times with no absolute simultaneity.

In writing his papers, he needed help with mathematics. A friend, Minkowski, did the math of special relativity and another friend, Marcel Grossman did that of general relativity.

When he was working on the latter, he was having a very difficult time with his wife, Mileva, and his two boys. Mileva was depressed and impossible to live with.

He wrote his greatest paper, on general relativity, in 1915.

Einstein was a good enough violinist. Fritz Kreisler, the great concert violinist and composer played a quartet with Einstein and two others once. When Einstein fell behind, Kreisler, in mock exasperation, turned to him and said: "Einstein, can't you count?"

Einstein believed in the God of Benedict Spinoza, the philosopher. Thus God gave laws to Nature, but he did not answer prayers or concern himself with the destinies of individuals or nations. Neither Einstein nor Spinoza believed in life after death.

With a friend, and while in Princeton, Einstein wrote a paper showing that general relativity should allow for gravitational lensing. This means that since light is bent by gravity, a nearby galaxy acts like a lens and forms images of more distant galaxies

When he was older, he became outdated and useless in physics. He never could accept quantum mechanics as it developed, even if he had started it all by asserting his belief in quantized energy.

As he tried to create a unified field theory, he did not take into account the newly discovered weak and strong forces, but only gravity and electromagnetism. Isn't this a guarantee that he had to fail?

I have read that Isaac Newton's life was filed with harsh quarrels, but there was no such thing with Einstein. He was an amiable old man who helped the neighborhood's children with their arithmetic homework.

He was one of the greatest scientists ever and this is a good book on him.

Moon Phases

Sept 3
Last Quarter

Sept 11
New

Sept 19
First Quarter

Sept 26
Full

Moon Data

Sept 4
Mars 6° south
of Moon

Sept 8
Venus 9° south of
Moon

Sept 10
Saturn 0.8° north of
Moon

Sept 13
Mercury 2° north
of Moon

Sept 15
Moon at apogee

Sept 18
Jupiter 6° north
of Moon

Antares 0.7° north
of Moon

Sept 23
Neptune 1.4° north
of Moon

Sept 27
Moon at perigee

Stellafane 2007 "Continued from page 1"

friend of **Russell Porter**, and considered by his peers to be the premier amateur mirror maker of the early 20th century. Their model for restoring missing parts was a photograph taken of the telescope on Breezy Hill in the 1920's (see the below photo).



Wally Everest's Personal Telescope
at Stellafane C. 1928

Briefly, the story of the founding of the amateur telescope making movement from the late 1920s through the 1950s has been associated with **Albert G. Ingalls**, with some help from **Russell W. Porter**, and by a number of other individuals like **Wally Everest** who constituted an inner circle of Ingalls's correspondents. These individuals were telescope making practitioners of substantial experience. They provided the necessary theoretical and practical knowledge that allowed Ingalls to continue to publish columns, papers and books to the growing population of amateur telescope makers. Together, they constituted the "first team" of amateur telescope making in this period.

Back to Wally Everest and his telescope. After Wally passed on, his family donated the instrument to a school. Over time, certain parts of the telescope began to disappear. It was then put in storage for about 40 years. Now that the telescope has been restored, it was brought back home to Breezy Hill and placed in the same spot some 80 years earlier. Wally Everest's son was on hand for the dedication. The telescope will reside at the *Adirondack Public Observatory* in New York.

Joyce and I also caught Jan's talk about this telescope at the technical talks tent. We also stayed for the next talk, using a web-cam for imaging. It was very technical, i.e. "described how to calculate the digital sampling frequency of a CCD based web-cam and how to use the digital sampling theorem to determine the optimum focal ratio to avoid aliasing effects"...WOW! Another words...use a high focal ratio. Needless to say, Joyce and I did not stay for the entire talk.

We then made our way to Stellafane's famous **chicken barbecue**. We sat at a table with *John Dobson* (inventor of the Dobsonian Telescope). And as one would expect, John kept all in hearing distance very amused with his stories.

We had clear skies, so after the evening program talks, Joyce and I spent about 2 hours viewing through various telescopes. Al Nagler's **100 degree wide** flat field eye-piece was really neat. He had it pointed on the Sagittarius Star Cloud. It felt like you were floating in space. But, when he pointed the scope to a different object, a galaxy with "fewer stars" in the field of view, it lost some of it's WOW factor (at least for me).

We spent alot of time with Peter Gillette (the person from Vermont who attends our "Starfest" events...hope I spelled his name right). He will once again be joining us this year. Joyce and I got home around 3:40 am.

We are drastically reducing our store inventory. Rivers will have a 1 day invitation sale to kick things off. Please pass this info to all interested parties.

Thanks
Roger Rivers

**When :Sunday Sept 9th
10:00am—3:00pm**

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**Principal
Meteor
Showers in
2007**

January 4
Quadrantids

April 22
Lyrids

May 6
Eta Aquarids

July 30
Delta Aquarids

August 12
Perseids

October 9
Draconid

October 21
Orionids

November 9
Taurids

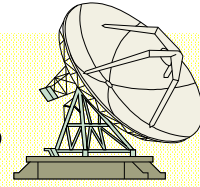
November 18
Leonids

November 26
Andromedids

December 14
Geminids

December 22
Ursids

*Note: Dates are
for maximum*



Got any News?
Skylights welcomes your input.

Here are some suggestions:

*Book reviews -- Items for sale -- New equipment -- Ramblings --
Star parties -- Observing -- Photos.*

Club Items For Sale



Our club has merchandise for sale at:
www.cafepress.com/asnne

All money raised goes to our operating fund.

Any design can be put on any item.
Just let our President, David Bianchi, know.



Omit Needless Bytes!

by Patrick Barry and Tony Phillips

Now is an exciting time for space enthusiasts. In the history of the Space Age, there have never been so many missions “out there” at once. NASA has, for example, robots on Mars, satellites orbiting Mars, a spacecraft circling Saturn, probes en route to Pluto and Mercury—and four spacecraft, the two Voyagers and the two Pioneers, are exiting the solar system altogether.

It’s wonderful, but it is also creating a challenge.

The Deep Space Network that NASA uses to communicate with distant probes is becoming overtaxed. Status reports and data transmissions are coming in from all over the solar system—and there’s only so much time to listen. Expanding the network would be expensive, so it would be nice if these probes could learn to communicate with greater brevity. But how?

Solving problems like this is why NASA created the New Millennium Program (NMP). The goal of NMP is to flight-test experimental hardware and software for future space missions. In 1998, for instance, NMP launched an experimental spacecraft called Deep Space 1 that carried a suite of new technologies, including a new kind of communication system known as Beacon Monitor.

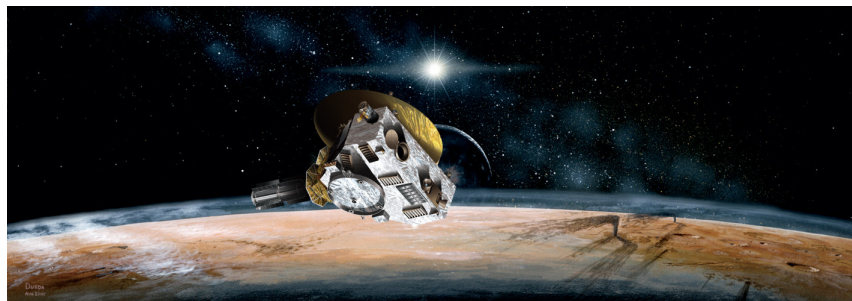
The system leverages the fact that for most of a probe's long voyage to a distant planet or asteroid or comet, it's not doing very much. There's little to report. During that time, mission scientists usually only need to know whether the spacecraft is in good health.

“If you don't need to transmit a full data stream, if you only need some basic state information, then you can use a much simpler transmission system,” notes Henry Hotz, an engineer at NASA's Jet Propulsion Laboratory who worked on Beacon Monitor for Deep Space 1. So instead of beaming back complete data about the spacecraft’s operation, Beacon Monitor uses sophisticated software in the probe’s onboard computer to boil that data down to a single “diagnosis.” It then uses a low-power antenna to transmit that diagnosis as one of four simple radio tones, signifying “all clear,” “need some attention whenever you can,” “need attention soon,” or “I’m in big trouble—need attention right now!”

“These simple tones are much easier to detect from Earth than complex data streams, so the mission needs far less of the network's valuable time and bandwidth,” says Hotz. After being tested on Deep Space 1, Beacon Monitor was approved for the New Horizons mission, currently on its way to Pluto, beaming back a simple beacon as it goes.

Discover more about Beacon Monitor technology, as well as other technologies, on the NMP Technology Validation Reports page, <http://nmp-techval-reports.jpl.nasa.gov>.

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



Caption:

This artist's concept shows the New Horizons spacecraft during its planned encounter with Pluto and its moon, Charon. The spacecraft is currently using the Beacon Monitor system on its way to Pluto. Credit: Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute (JHUAPL/SwRI)

Club Meeting & Star Party Dates

Date	Subject	Location
Sept 07 7:30 PM	The <i>regular club</i> meeting will be held at 7:30pm. Topic: Galaxies . Possible observing at Starfield Observatory after meeting.	Masonic Hall West Kennebunk, Me. NOTE: Beginner classes will be held from 6:30 PM to 7:15 PM.
Sept. 14	ASNNE Starfest Weekend Begins	Starfield Observatory, West Kennebunk, Me.
Sept 19	ASNNE Business Meeting.	Masonic Hall West Kennebunk, Me.

Directions to ASNNE event locations

Directions to Masonic Hall

From I-95:

If coming southbound, take Exit 25 off of I-95. Come out to Rte. 35. Turn left at stop sign and turn right at next stop sign. Proceed straight ahead and you will see a variety store on the left and the Masonic Hall will be on the right.

If coming northbound, take Exit 25 off of I-95. Turn right at the stop sign and cross over I-95. Proceed straight for about 1/2 mile. There will be a variety store on the left and the Masonic Hall will be on the right.

Directions to Starfield Observatory

From North:

Get off turnpike at exit 32, (Biddeford) turn right on Rt 111. Go 5 miles and turn left on Rt 35. Go 2 miles on Rt 35 over Kennebunk River to very sharp 90 degree left turn. The entrance to the Starfield Observatory site is at the telephone pole at the beginning of the large field on the left. Look for the ASNNE sign on the pole.

From South:

Get off the turnpike at exit 25 in Kennebunk. After toll both turn right on Rt 35. Go up over the turnpike and immediately turn right on Rt 35. About 4 miles along you will crest a hill and see a large field on your right. Continue until you reach the end of the field. Turn right into the Starfield Observatory site at the last telephone pole along the field. Look for the ASNNE sign on the pole. If you come to a very sharp 90 degree right turn you have just passed the field.

To join **ASNNE**, please fill out the below membership form. *Checks should be made payable to: Astronomical Society of Northern New England (A.S.N.N.E).* For more details, please visit our website:
<http://www.asnne.org>



Astronomical Society of Northern New England
 P.O. Box 1338
 Kennebunk, ME 04043-1338

2007 Membership Registration Form

(Print, fill out and mail to address above)

Name(s for family): _____

Address: _____

City/State: _____ Zip code: _____

Telephone # _____

E-mail: _____

Membership (check one):

Individual \$35 _____ Family \$ 40 _____ Student under 21 years of age \$10 _____ Donation _____

Sky & Telescope (\$32.95) _____ Astronomy (\$34) _____

Total Enclosed _____

Tell us about yourself:

1. Experience level: Beginner _____ Some Experience _____ Advanced _____

2. Do you own any equipment? (Y/N) And if so, what types?

3. Do you have any special interests in Astronomy?

4. What do you hope to gain by joining ASNNE?

5. How could ASNNE best help you pursue your interest in Astronomy?

6. ASNNE's principal mission is public education. We hold many star parties for schools and the general public for which we need volunteers for a variety of tasks, from operating telescopes to registering guests to parking cars. Would you be interested in helping?

Yes _____ No _____

7. ASNNE maintains a members-only section of its web site for names, addresses and interests of members as a way for members to contact each other. Your information will not be used for any other purpose. Can we add your information to that portion of our web site?

Yes _____ No _____

