

# SKYLIGHTS

Newsletter of the Astronomical Society of Northern New England



February 2006



Member of NASA's  
Night Sky Network

## 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.*

## ASNNE, A Proud Member of NASA Night Sky Network

by Joan Chamberlin

ASNNE has been a member of the NASA Night Sky Network since March 2004. During these past two years I have brought activities from some of the Night Sky Network Toolkits to club meetings and have kept members informed about the wonderful telecons with NASA scientists and other scientists in the field of astronomy that all of our club members can participate in. The purpose of this article is to explain what the Night Sky Network is, how and why it was formed, and the benefits that we receive from participating in this network. The following information is from the NASA Night Sky Network Website at <http://nightsky.jpl.nasa.gov>.

The Night Sky Network is a partnership of amateur astronomy clubs, NASA, Astronomical Society of the Pacific, and the Astronomical League.

In 2002, the Astronomical Society of the Pacific conducted a survey of amateur astronomers to determine the nature of outreach by amateurs. In the survey, amateurs expressed the need for support of their outreach efforts. The main requests were:

- Materials on themed topics
  - Training in the use of the materials
  - Effective ways to communicate with varied audiences
  - Networking with other amateurs doing outreach
- The Night Sky Network was inaugurated to help meet these needs.

Amateur astronomers have an interest in

providing the public with entertaining, engaging ways to learn basic astronomy concepts. It is one of NASA's education goals as well to improve the American public's understanding of astronomy. The Night Sky Network was developed with the dedicated assistance of an advisory team of amateur astronomy clubs.

Who is sponsoring the Night Sky Network? The Night Sky Network is sponsored and supported by JPL's PlanetQuest public engagement program. PlanetQuest is a part of JPL's Navigator Program, which encompasses several of NASA's extra-solar planet-finding missions, including the Keck Interferometer, the Space Interferometry Mission (SIM), the Terrestrial Planet Finder (TPF), the Large Binocular Telescope Interferometer (LBTI), and the Michelson Science Center.

The NASA Education Forum on the Structure and Evolution of the Universe (SEU), based at the Smithsonian Astrophysical Observatory, is a national center for teaching and learning about NASA's SEU theme.

The Origins Education Forum, based

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## ASNNE Observing Session Coordinators

### Schedule for 2005-2006

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Solar days  
April 2

We need more volunteers to be Observing  
Session coordinators.

E-mail me if you can at [dbianchi@verizon.net](mailto:dbianchi@verizon.net)

Joan Chamberlain and David Bianchi will al-  
ternate informing everyone of our open ses-  
sions starting with Joan in October.

## The Wright Flyer

by Paul Kursewicz

During Christmas, I spent time in Virginia visiting my wife's sister and husband. We spent two days cutting trees down in their front yard. Last summer, we worked in the backyard.

Since we had some free time left, we decided to go to the Outer Banks of North Carolina. The first powered air flight (in a heavier-than-air machine) took place here.

On Dec. 17, 1903, with Orville at the controls, the Flyer lifted off shakily from Kitty Hawk and flew 120 ft. — little more than half the wingspan of a Boeing 747. Only 3 U.S. newspapers mention the event.

On July 20, 1969; Armstrong, Aldrin and Collins make the first manned lunar landing. From Kitty Hawk to the Moon in just 66 years!



Along with items of sentimental value, Armstrong would later recall, "we had with us a piece of fabric from the wing of the first aircraft which ever flew, the Wright brothers' 1903 airplane, and a piece of its propeller."

In my photo above (taken at one of the museums), the center brown object is the piece of propeller. It sits upon a piece of fabric taken from the wing.

One of the Park Rangers talked about the significance of the first powered flight. He likened it to the invention of fire, and or, the first written language.

To see the Wright Flyer, you need to visit the Air and Space Museum in Washington DC (I made the trip several years ago). Otherwise, you have to settle with a full size replica which is housed in one of the museums.

Keep in mind that the brothers were bicycle mechanics who owned a bicycle shop.

## Moon Phases

**Feb. 5**  
First Quarter

**Feb. 12**  
Full

**Feb. 21**  
Last Quarter

**Feb. 27**  
New

## Moon Data

**Feb. 5**  
Mars 2° south  
of Moon

**Feb. 11**  
Saturn 4° south  
of Moon

**Feb. 13**  
Moon at apogee

**Feb. 18**  
Spica 0.4° south  
of Moon

**Feb. 20**  
Jupiter 4° north  
of Moon

**Feb. 24**  
Venus 10° north  
of Moon

**Feb. 26**  
Neptune 4° north  
of Moon

**Feb. 27**  
Moon at perigee

**Feb. 28**  
Mercury 4° north  
of Moon

## The Forgotten Genius

by Stephen Inwood

*Reviewed by Richard Beaulieu*

**T**his is the life of Robert Hooke, 1635 - 1703.

Hooke was born on the Isle of Wight and was mechanically inclined as a child. He studied at Oxford and became the laboratory assistant to Robert Boyle.

Hooke used his mechanical talent to make a vacuum pump, and this led to Boyle's law of gases, a law which says that if you double the pressure, you half the volume.

Hooke was a universal scientific genius. He built a microscope and first saw the cells of living things. He looked at cork and thought that what he saw resembled the monk's cells in a monastery. The name he gave, cells, remains in biology today.

Hooke was the first to construct a Gregorian reflecting telescope. He discovered that the period of rotation of Mars is about 24 hours. He first saw the great spot of Jupiter and deduced that the planet rotated.

Hooke was the long-time "curator of experiments" for the Royal Society, which meant that he presented weekly experiments at the meetings.

He invented the universal joint.

This great scientist slept with many of his servant girls. He never married. For twelve years, he had an incestuous affair with his niece, Grace. Hooke used a "pessary" as a method of contraception. But when Grace became pregnant, she returned home to the Isle of Wight for nine months.

Her father committed suicide.

All of this news was successfully muzzled and there was no scandal. The archbishop of Canterbury gave Hooke an honorary doctorate late in his life.

Much of London burned in a great fire during Hooke's life. When it was rebuilt, Hooke was the architect of many of the churches. He was the actual designer of many of the churches attributed to Christopher Wren.

Although Newton delved in alchemy and theology, Hooke was one of the few scientists of his time to be completely naturalistic: no

astrology, no alchemy no theology or Biblical chronology.

Hooke created in many branches of science, and half did a lot of things, then abandoned them. Later, when someone else reinvented the same thing and developed it, Hooke would claim priority.

Hooke quarreled so much with Isaac Newton that he is said to have given Newton a nervous breakdown.

When Newton created the law of gravitation, and demonstrated mathematically that it was an inverse square law and that it led to elliptical orbits, Hooke claimed that he had discovered this first. Hooke had in fact arrived at the inverse square law independently, but he did not have the mathematics to show that this led to Kepler's laws. Newton demonstrated this mathematically.

Hooke was member of the Church of England and went to mass all of his life. He is remembered today for his jealousy of Newton, but he actually made a lot of contributions to science himself.

Got any news?

Skylights welcomes  
your input.

## Principal Meteor Showers in 2006

**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*

### *“Continued from page 1”*

at the Space Telescope Science Institute in Baltimore, is an association of the education and public outreach programs of the NASA missions seeking to understand and characterize the origins of the universe, planets, and life.

The SETI Institute is sponsoring the Network under NASA Grant NAG 2-6066 for the Kepler Mission.

Membership in the Night Sky Network is free.

This is an opportunity to:

- Enhance the public outreach you already do
- Encourage more of your members to participate in outreach
- Increase the confidence of those who are interested in outreach
- Earn national recognition for your outreach efforts
- Keep up-to-date on the latest NASA discoveries via members-only teleconferences with NASA scientists

Your club can:

- Receive Outreach ToolKits on themed topics in astronomy
- Discuss ideas for outreach with other NSN members
- Contribute your ideas to the development of new Outreach Tool Kits

What is available on the Night Sky Network website? The Night Sky Network website has several purposes:

- News is posted about upcoming events for NSN participants, like teleconferences with NASA scientists and special outreach opportunities
- You can review what other clubs are doing for outreach
- You report your outreach events and earn outreach recognition
- It's a place to get help with the Outreach ToolKits

- You can contact other Night Sky Network members either by email or on the Discussion Board

As our club's Night Sky Network Coordinator, I would like to encourage more of our members to become active in using some of the activities from these kits during any of your outreach events. It is not necessary to use all activities in the kit to participate. Find an activity that you feel comfortable with and that is adaptable to your event. There are some activities that work well for classroom presentations, some that work well for small groups, and some that can be used at star parties. Most of the activities require very few or very cheap props to demonstrate the concept. Start out with one activity and then add others when you feel ready. I have found some of these activities were most appreciated when I was at an event where the weather didn't cooperate. Since April 2, 2004, I have personally logged in 51 events using Night Sky Network activities. An event can be with a group of 30 or even 1 person. The only requirement is that you use a tool or information from a toolkit.

If you have never visited the Night Sky Network Website, I hope you will do so. You will see that our club is #2 right now in the Stars of the Night Sky Network. If more of us were using these activities, we could easily be #1. There are presently 207 amateur astronomy clubs from all over the US in this network. If you go to the website, be sure to click on the map to see all the member clubs.

You may remember that our club won a Mars Globe a few months ago. Every three months the events go into a raffle and are picked at random. That is how we earned the Mars Globe. The more events we do, the better our chances for more prizes.

In order to log in events, I need to add you to our list of participants. At present, the presenters I have listed are Gerry McAuliffe, Joyce Brann, Rob Burgess, Paul Kursewicz, David Bianchi, Michel Dostie, Bob Dyer, and Bernie Reim. If any other members would like to be entered in so that you can have access to the discussion boards, toolkit downloads, or logging in events, please let me

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### Did you know?

▶ The Andromeda Galaxy (M31), is a spiral galaxy and lies 2.5 million light years away. It is the farthest object that can be seen with the naked-eye.

▶ The dwarf elliptical galaxy M110 (a satellite of Andromeda) has a remarkable system of 8 globular clusters around it's halo. The brightest of them, G73, is of 15th magnitude and thus within the reach of large amateur telescopes. Like our 16-inch?

▶ The Milky Way galaxy and the Andromeda Galaxy are hurtling towards each other at about 60 miles per second. At this rate, a collision could take place in the next 3 to 4 billion years.

## Deep Sky Objects

by Paul Kursewicz

Last month, we found bright constellations. This month, we take the next step...finding deep sky objects. Start with the *Messier Objects*.

### What are Messier Objects?

They are a set of fuzzy astronomical objects first catalogued by Charles Messier in 1774. The original motivation behind the catalogue was that Messier was a comet hunter, and was frustrated by objects which resembled but were not comets. He therefore compiled a list of these objects.

### Types of Messier Objects

There are four main types of astronomical objects included in Messier's list: *open clusters*, *globular clusters*, *galaxies* and *nebulae*.

**Open cluster:** A grouping of stars in the sky. Often formed from an associated cloud of gas and dust and can be quite young in age.

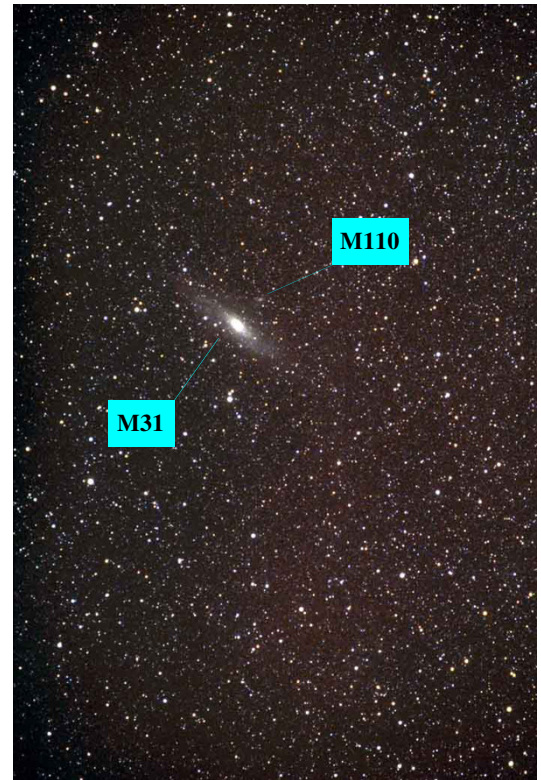
**Globular cluster:** A spherical bound concentration of approx. 10,000 to one million stars, populating the halo or bulge of our galaxy. Globular clusters are believed to be very old.

**Galaxy:** A huge mass of stars and dust with upwards of several million stars. They are further classified by appearance: *spirals*, *ellipticals*, and *irregulars*.

**Nebula:** There are two types in Messier's catalogue: *diffuse nebulae*, which are clouds of interstellar gas and dust; and *planetary nebula*, which are essentially shells of gas expelled by a star as it shrinks from a red giant to white dwarf.

The **Messier Catalog** contains 110 of the most beautiful and brightest sites seen in a telescope or a pair of binoculars. Each are given a number preceded by the letter "M." Many of these objects are easy to find, others are not. See my photo of the Andromeda galaxy (M31) and its companion M110.

Messier Catalog:  
[http://www.ngcic.org/dss/dss\\_messier.asp](http://www.ngcic.org/dss/dss_messier.asp)



The above digitized image does not do justice to my original slide film. Also, the camera picks up many more stars than what can be seen from visual observing.

### How to find Messier Objects

Now that you know how to recognize certain constellations, find out which Messier objects lie in them. One way of doing that is to purchase a beginner/novice star chart. To view the "M" objects, I recommend using a pair of binoculars. Binoculars present an upright image, telescopes do not. Thus, it makes life easier going from a star chart to the night sky.

On star charts, the larger size stars will be brighter in the sky. Also, a star's brightness is measured by it's magnitude. Lower numbers are brighter; higher numbers are dimmer.

I took my photo with a 135mm lens. Using an average pair of binoculars, this is what you can expect to see.

**Binocular Messier Club:** I highly recommend this. It's fun, and a good way to learn the night sky. Also, mounting your bino's on a tripod will let you see more. As a member of ASNNE, you're also a member of this league: <http://www.astroleague.org/al/obsclubs/binomess/binomess.html>

## Club Meeting & Star Party Dates

Date	Subject	Location
Feb. 03, 7:30 PM	The monthly Club Meeting. Topics of interest will be presented by members <b>Steve Innes, Tim Brown</b> , and <b>Ron Burk</b> .	Masonic Hall West Kennebunk, Me.
Feb. 24, 7:00 PM	Open Observing Session with rain/cloud date of Feb. 25th. New Moon 2/27.	Starfield Observatory, West Kennebunk, Me.
Mar. 03, 7:30 PM	The monthly Club Meeting. Club member <b>Jim Hatch</b> will give a talk on light pollution.	Masonic Hall West Kennebunk, Me.
Mar. 24, 7:00 PM	Open Observing Session with rain/cloud date of Mar. 25th. New Moon 3/29.	Starfield Observatory, West Kennebunk, Me.
Apr. 07, 7:30 PM	The monthly Club Meeting.	Masonic Hall West Kennebunk, Me.
Apr. 21, 7:00 PM	Open Observing Session with rain/cloud date of Apr. 22nd. New Moon 4/27.	Starfield Observatory, 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.

“Continued from page 4”

know.

As most of you know, Joyce and I participated in the testing of the new toolkit, Telescopes: Eyes on the Universe. The club received two CD’s as a thank you for doing this. I will bring these to an upcoming meeting. We can either watch these as a group at a meeting or maybe members could sign

them out if we are going to have a library at the new meeting site.

The toolkits that we have right now are Planet Quest; Our Galaxy, Our Universe; Black Holes; and Telescopes: Eyes on the Universe. I am still in the process of trying to figure out the activities in the Black Hole Kit. When I have some of these figured out I will bring them in and try them out on you all. If there is a particular kit that you would

like to use, let me know. It is difficult to get things back and forth because we all live such great distances. This is something we will need to figure out. I think some of the activities in these toolkits would be great for the classes we plan to start for beginning astronomy members. If you have any questions about the Night Sky Network, please feel free to email me or ask me at a meeting.

### The Space Elevator

by Richard Beaulieu

About a year ago, I gave a talk on the space elevator. This is a long ribbon from the surface of the earth to a weight in orbit. “Elevators” or machines would clamp on to the ribbon and climb up into space.

It would be a cheap and safe way to get into space.

This is an update.

NASA has started funding annual summer competitions for two things: a competition for ribbons, to

see which one is the strongest, and one for the elevator. The elevator has to be powered by a laser on the ground.

The 2005 elevator competitions were held at NASA’s Ames Research Center but the 2006 games will be in Mountain View, CA on August 4th.

The two winners of last year’s games were teams from the University of British Columbia and from the University of Saskatchewan.

In this year’s games, there are 30

teams signed up so far and the first prize is \$150,000.

My alma mater, Virginia Tech, presented one of the teams in the 2005 competition.

The web site says that this way to get up in orbit should be operational in 15 years.

FMI, please google “ Spaceward Foundation” and visit

[www.isr.us/SEHome.asp?m=1](http://www.isr.us/SEHome.asp?m=1).



## Are you a ASNNE member?

★ ASNNE is a member of Astronomical League (a federation of astronomical societies); the International Dark Sky Association (IDA); and NASA’s Night Sky Network.

★ Meetings are held the first Friday of each month, at 7:30 PM at the Masonic Hall, located in West Kennebunk, Maine. Meetings generally consist of lectures and discussion by members or guest speakers on a variety of interesting astronomical topics.

★ For more details, please visit our website: <http://www.asnne.org>

★ To join, go to our website or fill out the membership form on the following page.

★ Checks should be made payable to the Astronomical Society of Northern New England (A.S.N.N.E) and mailed to the address on the membership form.



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

### 2006 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 \_\_\_\_\_