

SKYLIGHTS

Newsletter of the Astronomical Society of Northern New England



May 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.



Apologies to Richard Dibon-Smith. His records do not show ASNNE having permission to use material found on his website: <http://www.dibonsmith.com/>. Per his request, the material in question has been deleted from the March and April newsletters.

What's Up In May

By Bernie Reim

The month of May was named after the Greek goddess Maia, who was identified with the Roman goddess of fertility, Bona Dea, whose festival was held in May. Maia is also the eldest of the seven sisters, or the Pleiades, who are the seven daughters of Atlas and Pleione in Greek mythology.

The Pleiades in Taurus, along with the rest of the Winter Hexagon will be disappearing below the western horizon this month. Looking east, notice that the bright stars of the summer triangle are beginning to rise. They are Vega in Lyra, then Deneb in Cygnus and then Altair in Aquila the Eagle. This is a sure sign that spring is finally here, with summer soon to follow as the days get increasingly longer. So get out and enjoy the night sky this month, since it has to be clearer and warmer than this April was.

There will be several interesting highlights this month including a meteor shower, a great conjunction of the moon and Venus, and even a fairly rare blue moon.

The Eta Aquarid meteor shower will peak on the mornings of Saturday May 5 and Sunday May 6. This is one of the best showers for the southern hemisphere, but we will only see about 5 to 10 meteors per hour in this hemisphere. Caused by Halley's Comet, the earth passes through its dust and debris twice each year, in May and again on October 21 and 22, when it is called the Orionids because all the meteors in that shower seem to originate from the constellation of Orion.

You will be seeing tiny pieces of this most famous of all comets. You will need to wait until 2062 to see the whole comet again. Its last visit was in late 1985 to early 1986. It is now well on its way back out to Neptune, our most distant planet now that Pluto has been

demoted to an icy dwarf, which it will swing around in 2024 before it heads back towards Earth again on its highly elliptical orbit inclined at about 18 degrees to the plane of our solar system. The comet travels much slower when it is farthest away from the sun with its strong gravitational field, following Kepler's second law of planetary motion, which says that objects traveling in elliptical orbits sweep out equal areas in equal time.

The reason these sand grain-sized pieces of Halley's Comet that we see twice a year are so bright is because they are hitting our upper atmosphere at 40 miles per second, disintegrating at about 70 miles above the earth. Even though we will not see many of these Eta Aquarids this month, there is a good chance we will see several bright earth-grazing meteors around 2 in the morning when Aquarius rises.

Brilliant Venus will be at its highest and brightest for the year this month. Our sister planet will reach 40 degrees high in the

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The Moon First Then Mars

By Paul Kursewicz

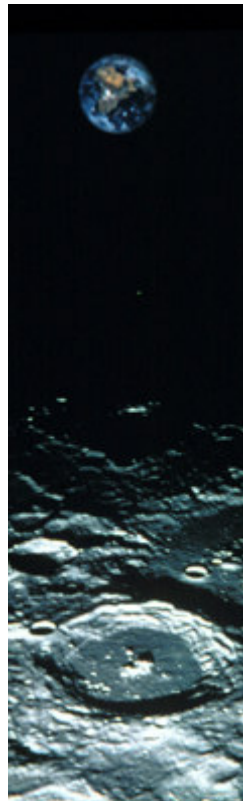


Image Credit: U.S. Geological Survey

The above photo was taken by NASA's Clementine spacecraft in 1997. The full Earth rises over the north pole of the Moon. The crater with a central peak in the foreground is Plaskett. It spans about 67 miles in diameter with a center that sits about 149 miles from the Moon's northern pole.

Plaskett Crater could play a key role in preparing humans for their eventual journeys to Mars. From Plaskett, on the far side of the Moon, the Earth can only be seen from the crater's northern rim for just a few days during a few months every year.

"A human outpost there, on the edge of Luna Incognita, would allow us to study the effects of Earth-deprivation on a crew in a controlled way," says Bernard Foing, SMART-1's Project Scientist. "It will allow us to simulate Mars operations and isolation, on the Moon, at a safe distance from a human base at the north pole."

The crater was named after **John Stanley Plaskett**, a leader in building Canadian astronomy.

He designed an exceptionally efficient spectrograph for a 15-inch refractor and measured radial velocities and found orbits of spectroscopic binary stars. He successfully lobbied for and designed and supervised construction of the 72-inch reflector built for the new **Dominion Astrophysical Observatory** in Victoria and was appointed its first director in 1917. There he extended the work on radial velocities and spectroscopic binaries and studied spectra of O and B-type stars.

He was able to confirm the **Lindblad-Oort** model of galactic rotation with these data, and he also did important work on interstellar calcium.



Front of the Plaskett Telescope

When the 72" aperture telescope was constructed in 1918, it was very briefly the largest telescope in the world.

Some things named after him:

- Plaskett Crater on the Moon
- NRC-HIA Plaskett Fellowship
- Mount Plaskett
- The Plaskett Medal
- Asteroid 2905 Plasket
- Plaskett's star

Plaskett's Star: is a spectroscopic binary at a distance of around 6600 light-years. It is one of the most massive binary stars known, with a total mass of about one hundred times that of the Sun. Plaskett discovered its binary nature in 1922. The star has a visual magnitude of 6.05, and is located in the constellation Monoceros.

Moon Phases

May 2

Full

May 10

Last Quarter

May 16

New

May 23

First Quarter

May 31

Full

Moon Data

May 4

Antares 0.5° north
of Moon

May 5

Jupiter 6° north
of Moon

May 10

Neptune 1.8° north
of Moon

May 12

Mars 3° south
of Moon

May 15

Moon at perigee

May 17

Mercury 3° south
of Moon

May 19

Venus 1.7° south
of Moon

May 22

Saturn 0.8° south
of Moon

May 27

Moon at apogee

What's Up "Continued from page 1"

western sky at sunset and will not set until around 10 pm. It will reach magnitude minus 4.4 by the end of the month as it continues to get closer to earth in its faster and tighter orbit around the sun. Since they are inferior planets, both Mercury and Venus go through phases like the moon. Venus is in a waning gibbous phase now and will be half illuminated by the end of the month. Then Venus will continue getting closer and larger, but also less illuminated, so it will not be as bright anymore.

Start watching for the slender waxing crescent moon on the evening of Thursday, May 17. Mercury will be just below and to the left of the moon that evening and Betelgeuse, the red super giant star in Orion, will be a little farther to their left, also very low on the west northwestern horizon. The next evening at the same time the moon will be 12 degrees higher and farther east along the ecliptic. Then, on Saturday evening the 19th, the moon will be less than one degree, which can be measured by holding up your little finger at arm's length, above and to the right of brilliant Venus in Gemini, not far below Castor and Pollux. Try to get some photographs of this stunning conjunction if you can.

The second full moon in any given month is called the Blue Moon. That will happen this month, with full moons on the second and 31st. There is another definition of a blue moon, which refers to having four full moons during any season. Neither of those blue moons is that rare, they happen about every year and a half.

It is much less common to get two blue moons in one year. That usually occurs in January and March, because February is a short month. That last happened in 1999 and only happens about every 18 years, which also happens to be the length of a saros cycle. Lunar and solar eclipses have three major characteristics. When all three of these intersect, we get a very similar eclipse.

Saturn is the next evening planet you will notice after Venus. Saturn begins this month 55 degrees to the east along the ecliptic from Venus, but ends the month only 24 degrees away. The pair is heading for a spectacular close conjunction of less than one degree apart on July first. Notice that Saturn is slowly crawling back towards Regulus, the brightest star in Leo the Lion, since the ringed planet

returned to its normal, prograde, eastward motion last month.

The next planet you will run into as you continue eastward along the ecliptic will be Jupiter. The king of the planets will begin the month by rising around 11pm, but it will be rising just after sunset by the end of May. Jupiter will reach opposition on June 5th, when it will rise exactly at sunset and will be at its closest and brightest for the year. At magnitude minus 2.6, Jupiter is still nearly two magnitudes, or 6 times fainter than Venus. Saturn, at 0.5 magnitude, is another three magnitudes, or 15 times fainter than Jupiter and five magnitudes, or 100 times fainter than Venus.

May 2. Full moon is at 6:09 a.m. EDT. The May full moon is called the Flower, Planting, or Milk Moon.

May 5 and 6. The Eta Aquarid meteor shower peaks.

May 10. Last quarter moon is at 12:27 a.m.

May 12. Mars will be near the waning crescent moon this morning and the next low in the east southeastern sky.

May 15. The moon is at perigee, or closest to the earth today at 359,392 km.

May 16. New moon is at 3:27 p.m.

May 17. Mercury will be 3 degrees below the waxing crescent moon this evening.

May 19. Venus will be less than one degree below and to the left of the moon this evening.

May 22. Saturn will be less than one degree below the moon this evening. The moon's dark edge will actually cover, or occult Saturn this evening, but it will be visible only if you are in Europe.

May 23. First quarter moon is at 5:03 p.m. Regulus will be less than one degree below the moon tonight.

May 27. The moon is at apogee at 405,460 km.

May 31. The Blue Moon is at 9:04 p.m. Antares is just half a degree north of this full moon, with Jupiter a few degrees to the left.

**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/asne

All money raised goes to our operating fund.

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

SHOP CATEGORIES

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Early Bird Gets the Worm or “Black Hole Breakfast”

By Dr. Tony Phillips

We all know that birds eat worms. Every day, millions of birds eat millions of worms. It's going on all around you! But how often have you awakened in the morning, stalked out in the dewy grass, and actually seen a bird having breakfast? Even though we know it happens all the time, a bird gulping a worm is a rare sight.

Just like a black hole gulping a star...

Every day in the Universe, millions of stars fall into millions of black holes. And that's bad news for the stars. Black holes exert terrible tides, and stars that come too close are literally ripped apart as they fall into the gullet of the monster. A long burp of X-rays and ultraviolet radiation signals the meal for all to see.

Yet astronomers rarely catch a black hole in the act. “It's like the problem of the bird and the worm,” says astronomer Christopher Martin of Caltech. “You have to be in the right place at the right time, looking in the right direction *and* paying attention.”

A great place to look is deep in the cores of galaxies. Most galaxies have massive black holes sitting in their pinwheel centers, with dense swarms of stars all around. An occasional meal is inevitable.

A group of astronomers led by Suvi Gezari of Caltech recently surveyed more than 10,000 galactic cores—and they caught one! In a distant, unnamed elliptical galaxy, a star fell into a central black hole and “burped” a blast of ultraviolet radiation.

“We detected the blast using the Galaxy Evolution Explorer (GALEX), an ultraviolet space telescope,” explains Gezari. Her team reported the observation in the December 2006 issue of *The Astrophysical Journal Letters*. “Other telescopes have seen black holes devouring stars before,” she adds, “but this is

the first time we have been able to watch the process from beginning to end.”

The meal began about two years ago. After the initial blast, radiation diminished as the black hole slowly consumed the star. GALEX has monitored the process throughout. Additional data from the Chandra X-ray Observatory, the Canada-France-Hawaii Telescope and the Keck Telescope in Hawaii helped Gezari's team chronicle the event in multiple wavelengths

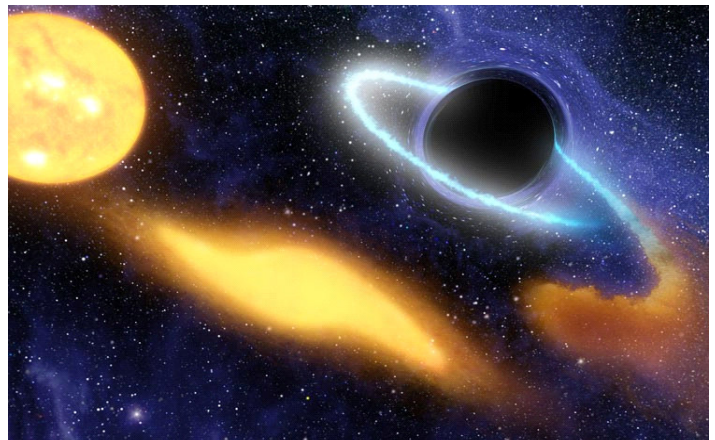
Studying the process in its entirety “helps us understand how black holes feed and grow in their host galaxies,” notes Martin.

One down, millions to go.

“Now that we know we can observe these events with ultraviolet light,” says Gezari, “we've got a new tool for finding more.”

For more on this and other findings of GALEX, see www.galex.caltech.edu. For help explaining black holes to kids, visit The Space Place at spaceplace.nasa.gov.

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



Caption:
In this artist's concept, a giant black hole is caught devouring a star that ventured too close.

Club Meeting & Star Party Dates

Date	Subject	Location
May 04, 7:30 PM	The <i>regular club</i> meeting will be held at 7:30pm. Topic: TBA	Masonic Hall West Kennebunk, Me. NOTE: Beginner classes will be held from 6:30 PM to 7:15 PM.

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
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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 _____

