



Bubble Nebula

Doug Baum captured the above image of the Bubble nebula in Cassiopeia (NGC 7635). Doug used a Takahashi FSQ 106 EDX II, telescope and a QSI 532wsg camera. The image was processed from 30 Minute Sub Exposures - 9.5 Hours Total Exposure (H-alpha 5 x 30 minutes, SII 6 x 30 minutes, OIII 9 x 30 minutes). Doug employed the Hubble palette: H-alpha is green, SII is red and OIII is blue.

Also known as Caldwell 11, the Bubble nebula is approximately 7,100 light distant. A challenging visual object, look for the Bubble nebula about ½ degrees southwest of M-52.

Events for March 2010

➤ WAA Lectures

"Ten Years with Chandra"

Friday March 12th, 8:00pm

**Miller Lecture Hall, Pace University
Pleasantville, NY**

David High, a designated NASA Solar System Ambassador, will speak on the the Chandra X-Ray Space Telescope and the notable discoveries made over the last ten years with Chandra. Free and open to the public,

Upcoming Lectures

On April 2nd, Linda Zimmerman will speak. The title of her lecture is: "The Wrong Stuff," an examination of the mistakes and lack of foresight in the history of space flight. She has written for *Sky & Telescope* and *Astronomy* Magazines.

➤ **Starway to Heaven**

Saturday March 13th, 7:00-9:00PM

**Meadow Picnic Area, Ward Pound
Ridge Reservation, Cross River**

This is our scheduled Starway to Heaven observing date for March, weather permitting. Free and open to the public. The scheduled rain/cloud date is March 20th.

➤ **Other WAA Events**

Quaker Ridge Elementary School,

Wednesday March 17th, 7:30PM

125 Weaver Street, Scarsdale

**(Exits 20 southbound or Exit 21 northbound
Hutch & Rt. 125)**

A large group of students will be waiting for us to show them the Night Sky. Meet and set up telescopes at the back parking lot. Rain date: March 19th.

**Hommocks Middle School,
Thursday March 18th, 7:00PM
10 Hommocks Rd,
Larchmont, NY**

A large group of students will be waiting for us to show them the Night Sky. Meet and set up telescopes at the back parking lot. Rain date: March 22nd.

New Members. . .

Lucia Balestrieri - Tarrytown

Matthew Van Houten - West Harrison

Renewing Members. . .

Tom and Lisa Cohn - Bedford Corners

William Sawicki - Bronx

Sue Barker - Yonkers

David Klaus - Yorktown Heights

➤ **Other Local Events**

"Cosmic Collisions"

Thursday March 4th, 12:00pm

**Christopher J. Murphy Auditorium,
Murphy Center, Iona College
New Rochelle, NY**

From shooting stars to dinosaur extinction, Dr. Heidi B. Hammel will talk about what we know of cosmic collisions and how to avoid them. Dr. Hammel is an astronomer from the Space Science Institute. She will also give the talk that evening at the New Rochelle Science Café (located at the Gnarly Vine, 501 Main Street, New Rochelle, NY) at 7:00 PM. Free and open to the public.

Call: 1-877-456-5778 (toll free) for announcements, weather cancellations, or questions. Also, don't forget to periodically visit the WAA website at:

<http://www.westchesterastronomers.org/>.

Westchester Amateur Astronomers, Inc., a 501(c)(3) organization, is open to people of all ages with the desire to learn more about astronomy. The Mailing address is: P.O. Box 44, Valhalla, New York 10595. Phone: 1-877-456-5778. Observing at Ward Pound Ridge Reservation, Routes 35 and 121 South, Cross River. Annual membership is \$25 per family, and includes discounts on *Sky & Telescope* and *Astronomy* magazine subscriptions. Officers: President: Mike Virsinger; Vice President: Charlie Gibson; Vice President Programs (lectures): Pat Mahon; Treasurer: Doug Baum; Vice President Membership: Paul Alimena; Vice President Field Events: David Butler; Newsletter: Tom Boustead.

Articles and Photos

Going to the Moon, with Music by Larry Faltz

Unless you're a werewolf or a deep-sky observer, you've got to love the moon. The moon, Luna, Selene or whatever you wish to call her, has been the human race's regular but inconstant night-time companion, entertaining us with her stately waxing and waning, lending rhythm to the tides and perhaps to our emotions as well (although there's no scientific evidence of a connection, anyone who's worked the Bellevue Emergency Room, as I have, knows that a full moon brings out the crazies). Her ethereal reflected sunlight is nothing like sunlight at all, its coolness a potent stimulus for intrigue, romance and wonder. Poets, writers, artists and composers have made alliance with the moon to add meaning or magic to their creations. Some of history's most important moments have had to respect the moon's rhythm, such as planning the invasion of Normandy for the new moon in June 1944. "O fortuna, velut luna" sang the medieval troubadours (O fortune, changeable as the moon).

I was moved to think about this at a recent performance of Franz Joseph Haydn's *Il Mondo della Luna* (The World in the Moon). This romantic farce was first performed in 1777 and tells the story of a rich tyrannical father, Buonafede, who is trying to keep his two daughters away from their suitors, one of whom is a "would be astrologer", Ecclitico, who owns a telescope. Demonstrating the instrument, he fools the old man into thinking he is seeing creatures on the moon. Ecclitico concocts an elaborate plan to liberate the daughters. He tells Buonafede that he has been summoned by the Emperor of the Moon to join his court, and he can go there by drinking a potion (the Star Trek transporter in liquid form, perhaps?). Buonafede, who by now is utterly moon-struck, demands to go with him, and is slipped a goodly amount of what is merely a sleeping draught. When he awakes, the garden of his house has been transformed into the lunar surface, and the suitors and their friends into the Emperor and his court. Buonafede really believes he is on the moon, meeting various lunar personages and feeling obligated to conform to their customs. Through a variety of machinations, the girls are liberated (along with some of Buonafede's fortune as dowry) and all ends well.

What made the opera so remarkable was a recent (January 2010) production by the Gotham Chamber Opera, which took place at the Hayden Planetarium. Director Diane Paulus used the Universarium projector, images from NASA and all sorts of computer-generated video and, for the

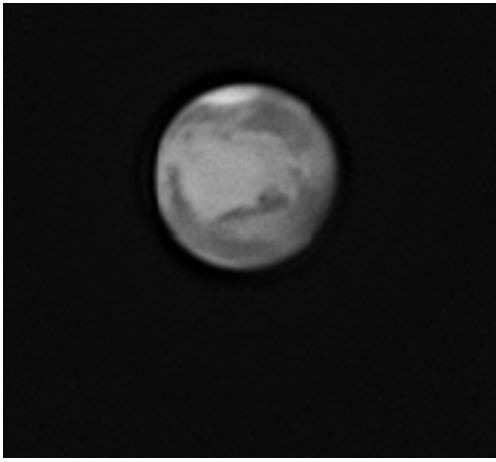
moon scenes, clothed the characters in fantastic costumes with embedded LED's and fiber optic bundles. Given the tiny amount of space available for the singers, Paulus creatively used a large table and three rolling ladders to represent the lunar surface. The Hayden may not be an opera theater, but it was a perfect place to celebrate the marriage of music and astronomy.

The moon makes its appearance innumerable times in opera. Dvorak's *Russalka*, a water nymph, sings a famous "Ode to the Moon". The moon rises "blood red" in Alban Berg's *Wozzeck* and leads to murder and suicide. In Richard Strauss' *Salome*, a darkened stage is suddenly illuminated by a beam of moonlight to reveal Salome kissing the lips of the severed head of John the Baptist, accompanied by one of the most cataclysmic chords in all opera. In Borodin's *Prince Igor*, a total eclipse of the sun (which is after all the responsibility of the moon) stops the action portentously in Act 1. There are many other examples and perhaps you have your favorites.

I know of only three operas that actually take place on the moon. In 1875, Jacques Offenbach wrote *Le Voyage dans La Lune* (The Voyage to the Moon) loosely based on Jules Verne's novel. This was a theatrical extravaganza with a huge cast and all sorts of mechanical and lighting effects. The characters go to the moon via a gigantic cannon. Jonathan Dove's 2005 opera for young people *The Enchanted Pig*, based on a charming Romanian folk tale, tells the story of a prince who is turned into a pig. His wife travels to the moon, the sun and the Milky Way to find the witch who cast the spell. All ends well. In 2006, Dove also wrote *Man on the Moon*, an opera for British television about the life of Buzz Aldrin, which includes a scene depicting the Apollo 11 landing.

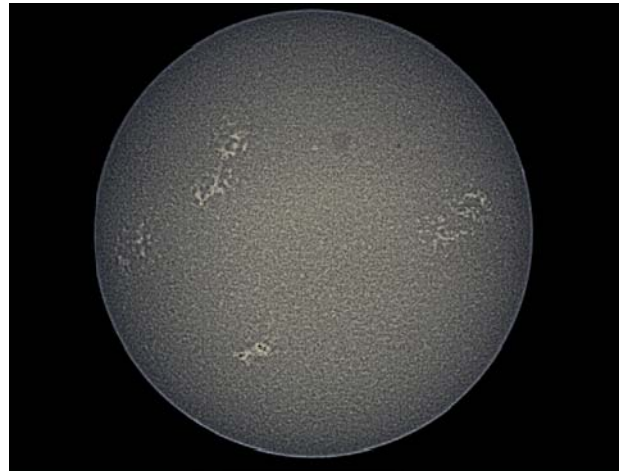
I can only find one opera that takes place entirely in outer space, Swedish composer Karl-Birger Blomhahl's *Aniara*. This bleak 1959 work tells the story of a doomed spaceship blown off course on its way to Mars. The ship is controlled by the crazed computer Mima (an obvious precursor to HAL 9000) and unlike the works of Haydn, Offenbach or Dove, nothing good happens. Maybe that's because the moon doesn't play a part. O fortuna....

More on observing the moon next month.



Mars Redux

John Paladini captured this image of Mars with a Celestron 9.25 (dmc camera, 500 stack). Readers should compare this image to a similar image in last month's issue. The enhanced detail in the more recent image highlights the importance of seeing conditions.



Sun Getting Active

John Paladini captured this image of the Sun using a 60mm Calcium-K Solar Telescope and an Orion Solar System camera (stack 233).



Horsehead Nebula

James Barnett provided the above image of the Horsehead nebula in Orion (Barnard 33). He used a Mountain Instruments MI-250 mount running GEMINI L4 and mounted on an MI-8P pier, a Takahashi FSQ-106N scope at F/5 and a SBIG STL-11000M camera--35 minutes of Luminance data (5 minute subs) and 40 minutes each of RGB data (again, all 5 minute subs).

Constellation Corner

By Matt Ganis

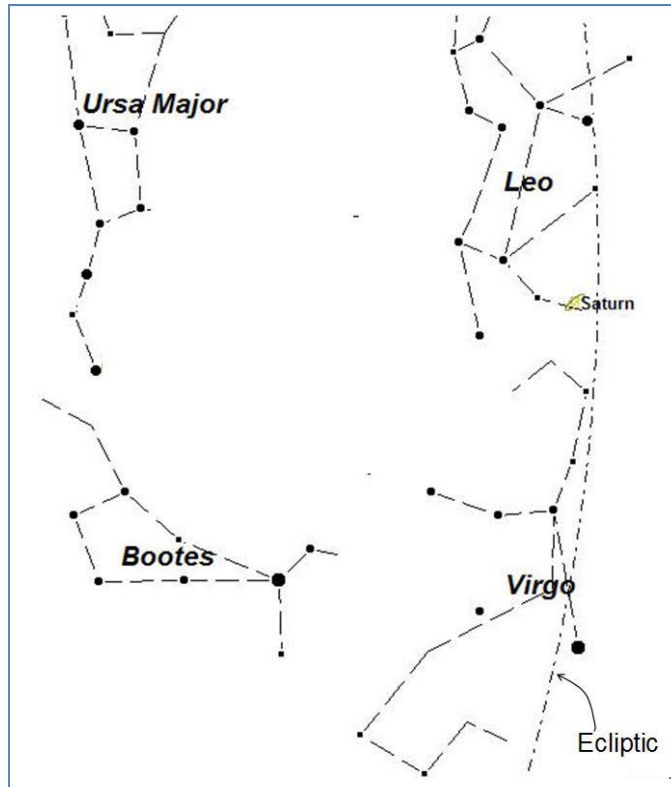
In looking at the sky map for the month of March, I noticed that the constellation of Virgo seemed to be pretty well placed for observing. Given its size I thought it was surprising that I haven't spent much time talking about this constellation in the past.

Virgo is the second largest constellation in the sky (with the constellation of Hydra being the largest) but there is considerable space between its borders. Being a zodiacal constellation, the Sun passes through this constellation from late September through the end of October, which is the time of the Autumn Equinox. So it's Virgo that announces the harvest. Like many other constellations along the Ecliptic, Virgo is not particularly bright and can be very difficult to locate.

The origin of Virgo as both a mother and virgin can be traced to prehistoric times and it is often associated with birth and new life. The constellation is the only female figure counted among the constellations of the Zodiac. Since the beginning of recorded history, Virgo has been thought to represent a vast array of goddesses. In antiquity, she was thought to represent Isis, the Egyptian protector of both the living and the dead and the principal Mother Goddess, who was also known as the Goddess of Fertility. In the Sumerian civilizations, she was known as Ishtar meaning "Queen of Heaven." While the ancient Romans referred to her as Ceres, the Goddess who oversaw the growth of food plants and harvests (especially corn). To the Greeks, she was Demeter, Goddess of Agriculture. It should come as no surprise that she is usually depicted either holding an ear of wheat or carrying the Scales of Libra.

This constellation's single bright first magnitude star is Spica, derived from the Latin for "ear" of corn. Spica is a white-blue star which is approximately 300 light years away from the Earth and is located

a little above the curve from the seven stars of the Big Dipper. When I teach my students how to locate constellations in the sky, we start from the handle of the "Big Dipper" and "arc on down to Arcturus [in Bootes] and then "Spike on down to Spica [in Virgo]".



Due to the fact that this area of the heavens is in the same line of sight as the Virgo cluster of galaxies (the greatest concentration of galaxies in the Earth's region of the universe) the constellation lays claim to over 2,000 galaxies! The light which reaches Earth from these galaxies today began its long journey at approximately the same time the dinosaurs became extinct, some sixty million years ago. One of the more interesting and brightest of these galaxies is known as the Sombrero Galaxy, an edge-on galaxy. It got its name because a dark dust lane cuts along its equator, giving it the appearance of a Mexican sombrero hat.

There are three meteor showers that have their radiants in this constellation: the Eta Virginids; the Theta Virginids; and the Pi Virginids. None of these meteor showers, however, are particularly strong, though quite appropriately for this month's column their durations occur from the end of February through mid-April. Another interesting tidbit from this constellation is that it contains the brightest known quasar. Located at a distance of three billion light years from Earth, it is the most distant object likely to be seen by amateur astronomers through their telescopes.

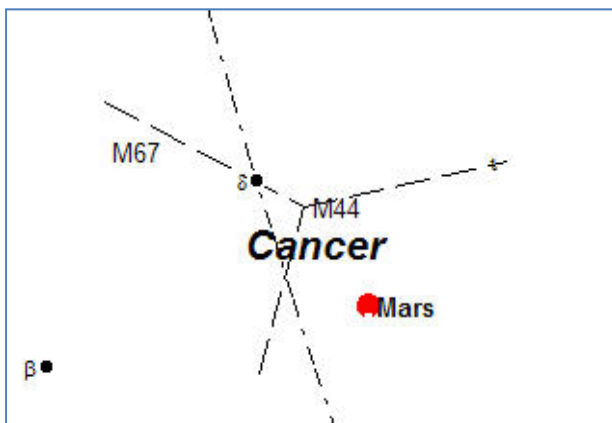
Almanac

For March 2010 by Matt Ganis

The month of March looks to be a rather ordinary month for planetary observing this year—some interesting views, but nothing extraordinary. Let's see what the month brings us:

By midmonth, the planet Venus is about 5° above the Western horizon just after sunset. It's quite bright, shining at about a -3.9 magnitude almost the whole month of March. You'll find this bright beacon in the constellation of Pisces (of course, assuming you have a decent view of the western horizon). By the end of the month, Venus will be joined by a quickly rising Mercury, as the "speedy little planets" rockets up from below the western horizon into our view. The pair will stay relatively close to each other into April, where Venus will eventually "win the race" and pull away again from poor little Mercury.

You can find the planet Mars hanging out in the constellation of Cancer this month. If you look close, you'll notice that Mars will stop its retrograde motion around March 11th and continue its trek eastward across the sky towards the famous Beehive cluster. The planet is fairly bright (though not overly so) shining at an apparent magnitude of $+0.20$.



Really the showcase of our March sky is the planet Saturn. Never a disappointment in the telescope the ringed planet can be found in your southeastern sky near the head of Virgo (see the picture in my other column) and the



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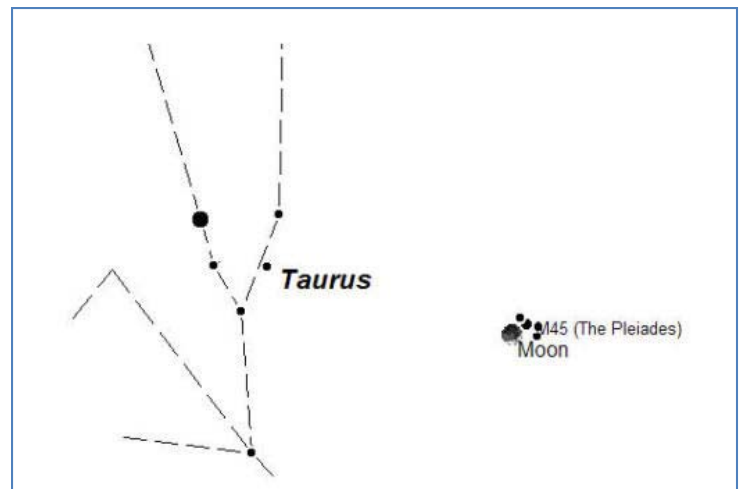


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foot of Leo the Lion. The planet isn't overly bright, shining at a moderate $+0.5$ apparent magnitude, but given the sparseness of the sky in the area of Virgo, it's by far the brightest object in that part of the sky. In March, Saturn rises at sunset allowing for an earlier and more convenient viewing window. Saturn's northpole is tipped toward us right now. And this year Saturn's rings are slightly inclined - tilted 4 degrees in January, dipping to a nearly edge-in view in June, then tipped up to 10 degrees by year-end.



The planet is really well positioned for observations at this time of the year. Saturn reaches opposition on March 21 when it is visible all night long. Remember, an object is at opposition when the sun is on one side of Earth and the object is directly on the opposite side. The result is that the object is fully illuminated by the sun and appears disk-like.

On the evening of March 20th look for the almost 1st quarter moon to occult part of the Pleiades. On that same day (Saturday, March 20) the spring equinox arrives for the Northern Hemisphere at 1:32 p.m. EDT, ushering in the first day of spring. However, a few days earlier, On Sunday, March 14, daylight saving time begins in the USA and Canada. Due to the spring equinox and daylight saving time, the time of sunset leaps dramatically from the start to the end of the month !