

Sky WAA tch



Eerie Astronomy

In honor of Halloween, Doug Baum captured this image of the Ghost nebula using his 106mm Takahashi FSQ-106 refractor and QSI532wsg CCD camera. It is an hour and a half of exposure taken with a H-alpha filter.

Also known as Barnard 343, the Ghost nebula is a dark nebula located within the emission nebula IC1318 in Cygnus.

Events for October 2010

WAA Lectures

“Dark Adaptation and How to Use It to Get the Most out of Your Viewing Pleasure”

Friday October 1st, 8:00pm

Miller Lecture Hall, Pace University Pleasantville, NY

Rob Baker, an ophthalmologist, will speak on a practical problem facing visual astronomers all too frequently--how to maintain dark adaption. He will cover basic eye anatomy, how the retinal photoreceptor cells work, how dark adaptation works, and the practical effects of these on maximizing your viewing pleasure as an amateur astronomer. Free and open to the public.

Upcoming Lectures

Miller Lecture Hall, Pace University Pleasantville, NY

On November 5th, Caroline Moore will speak on her discovery of a rare supernova. On December 2nd, Charles Scovill will give a talk entitled “A History of the Stamford Observatory, its 22-inch Telescope and the Astronomical Society.”

Starway to Heaven

Saturday October. 2th, 8:00-10:00pm

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled Starway to Heaven observing date for October, weather permitting. Free and open to the public. The scheduled rain/cloud date is October 9th. Participants and guests should read our [General Observing Guidelines](#).



New Members. . .

Luanne Buckley - Bronx

Andrew Vana - New Rochelle

Renewing Members. . .

Matthew Fiorello - Bedford

Josh & Mary Knight - Mohegan Lake

Robin Stuart - Valhalla

Michael Rinaldi - Valhalla

Martin Lee - Yonkers

Doreen Fitzpatrick - Ossining

Leonard Ospina - Briarcliff

Alex Meleney - Greenwich, CT

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/>.



John Paladini took this photo of Jupiter on the day after it reached opposition on September 21 with a Celestron 9.25 (2.5x 500 stack).

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

Movie Review: *The Astronomer at the Movies: IMAX Hubble* by Larry Faltz

The Hubble Space Telescope is one of the three most important astronomical instruments in history. Only the 100" Hooker telescope that provided the data that Hubble himself used to discover the expansion of the universe and Galileo's modest 1" refractor have made such profound scientific breakthroughs. We have every reason to celebrate its 20 years of scientific and technological achievement.

Hubble has captured the popular imagination with its spectacular, artistic images. People who know nothing about astronomy (sadly about 98% of the population) and have no idea of Hubble's vast scientific significance recognize many of the most important Hubble images, particularly the "Pillars of Creation". Hubble has, from its beginning, been in front of the public. After long funding and building delays (Isaac Asimov, in his book "Eyes on the Universe", written in 1975, reports that NASA thought it could get a space telescope in orbit in 1981), Hubble's launch in 1990 was followed by the dismaying news of its faulty optical figure and then by the near-miraculous repair mission in 1993 that really began the scope's astonishing scientific and imaging bonanza. The most recent repair mission, Service Mission 4 (May 2009), was scheduled after a groundswell of popular sentiment that the scope shouldn't be allowed to die in orbit from its inevitable malfunctions and propellant shortages, as well as the support of Congress' most ardent proponent of space exploration, Senator Barbara Mikulski (D-MD). As a result, Hubble will have a few more years of productivity until the Webb telescope goes up (assuming it doesn't run into fiscal complications).

The IMAX Hubble movie, 45 minutes in length, is currently playing at the American Museum of Natural History. It covers the history of the instrument, including views of Space Shuttle launches, reports of the discovery of its optical aberration, in-space film of the first and last repair missions and interviews with crew members of SM-4 both on the ground and in orbit. Some of the most famous Hubble images (with low-intensity scientific commentary) are shown. There's a lot of computer-generated imagery. In particular, since the main scientific interest in the film is of new planet formation (tied to an "Are We Alone in the Universe?" point of view), a good bit of time is spent with the Hayden Planetarium's Digital Universe video of the Orion Nebula fly-through, which has been shown in planetarium shows and is even available for download

on the Internet. It irked me a little that this was not identified as a computer graphic, and I suspect more than one credulous audience member ended up believing that these actually came from Hubble. Also, since the movie is also available in a 3-D version (we viewed in 2-D), many of the Hubble images had stars moving forward in the frames, as if we were flying through space. Whether these are actual field stars lifted off the main image layer to simulate the 3-D effect, or just some faux stars added for the same purpose, I don't know. In either case it seemed a bit cheesy and unnecessary to me. I also chafed at the relatively small number of actual Hubble images that were shown, but what was not enough for me was probably quite enough for non-astronomers and impatient children. I admit this is a bit of quibbling: the shuttle launches and in-space action are very dramatic on the enormous IMAX screen and by themselves are well worth the price of admission. Anyway, for amateur astronomers who want science and lots of images, the excellent Hubble sites on the Internet are quite sufficient to satisfy years of inquiry. The film is not intended to substitute for those resources. It's an overview, and it's a good one.

There's a message in this film, but it's not one you'd expect. For me, the science and technology are sufficient reasons to marvel at Hubble, but for those 98% it must not be. Standing on line behind us before the movie, an obstreperous 10-year old boy, probably already suffering from museum overload, complained to his mother, "I HATE these IMAX movies. They're always about saving the Earth." We chuckled (Elyse quietly suggested, "Maybe Republicans are born and not made") and figured he would find his cynicism unconfirmed this time. It's all about science and discovery and advancing knowledge, right? But at the end of the movie, there's a long shot of earth, clearly not from Hubble, over which the narrator, Leonardo di Caprio, intones something to the effect that what we learn from Hubble will help us preserve our rare and precious planet. The little twerp was right!



◀ **NCC 7331**

Olivier Prache provided this image of the spiral galaxy NGC 7331 in Pegasus. The photo was taken over 4 days with an ST8 behind a C8 telescope at F/10 (2 hours for luminance and 1 hour each for R,G,B all bin 1x1). He processed the image with CCDStack and CS4.



◀ **King of Planets**

Rick Bria produced this image of Jupiter from a video taken with a 16" LX200 SCT at f/10. Video was acquired using the freeware program EOSMovieRecord, which uses the Canon 'Live View' function at 1X or 5X. Notes Rick: EOSMovieRecord is a little quirky, and sometimes needs to be restarted, but at least it allowed me to test if my Canon camera can work as a planetary camera.

The image is a 5X 'digital stack' of the best 371 video frames out of 3,315 taken at 3AM on September 10, 2010. It was processed in the freeware program Registax5.



◀ **Dumbbell Nebula**

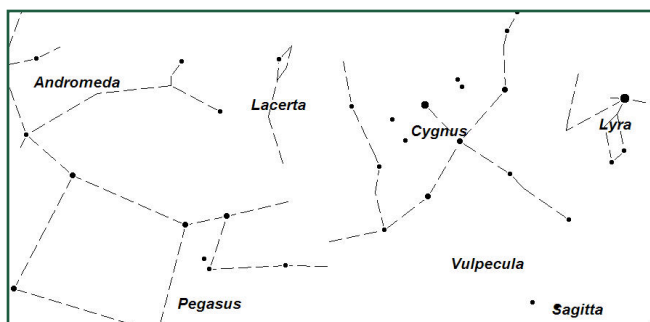
Olivier Prache took this image of the Dumbbell Nebula (M27) in Vulpecula with an ST8 on a C8 at F/10 with about 4 hours each L,R,G,B.

Constellation Corner

by Matt Ganis

I'd thought I'd dedicate this month's column to the "lesser known" things in our skies. Now there are lots of constellations that aren't as popular as some of the more well known ones. But when I was outside the other night, I simply looked up to my zenith and noticed that I had never mentioned the constellations Lacerta or Vulpecula – so "guys" this one's for you.

Lacerta is a small, fairly faint constellation located in our northern hemisphere. Its name appropriately means "lizard" in Latin. It's one of the more "recent" constellations having been created by the Polish astronomer Johannes Hevelius in the late 17th century. It is sometimes called "Little



Cassiopeia" because the brightest stars of the constellation form the shape of a "W," much like the ones in Cassiopeia.

Lacerta lies between Cygnus and Andromeda and is best seen around 9 p.m. during the month of October. It runs through one of the richest areas of the Milky Way but its dim stars make it difficult to see (the Alpha star shines only at magnitude at +3.78). For such a small, barely visible constellation, Lacerta contains some interesting objects. Roe 47, a star system with five components, and ADS 16402, a binary system consisting of two stars similar to the Sun, with an unusual extrasolar planet (a hot Jupiter-like gas giant with unusually low density) are just two of the objects that lie within the Lizard's reach.

Lacerta does not contain any Messier objects, bright galaxies or globular clusters. It does, however, contain a number of open clusters and double stars, as well as IC 5271, a faint planetary nebula. If we look close, we see that BL Lacertae,

originally thought to be a variable star, is in fact a prototypical blazar (blazing quasi-stellar object), a highly compact quasar associated with a supermassive black hole - presumed to be lying at the core of an active giant elliptical galaxy located in the constellation.

Vulpecula (the Fox) is another of the constellations created Johannes Hevelius out of the dim regions in the sky next to better known constellations. Although Vulpecula is a faint constellation, its area of space can be found easily because of its location within the Summer Triangle. Only Vulpecula and Sagitta (the Arrow) reside within the boundaries of this famous asterism. You'll recall the Summer Triangle is formed by the three bright summer stars-- Altair in Aquila, Deneb in Cygnus and Vega in Lyra. Vulpecula runs along the border of Cygnus, right next to the well-known double star Albireo. On the opposite side of Vulpecula from Cygnus is Sagitta and Delphinus the Dolphin (another of the very dim constellations).

Of course it has been said that "good things come in small packages" and that's very true when it comes to Vulpecula. The most interesting object within Vulpecula is M27, the Dumbbell Nebula, which can be seen even in 7 × 50 binoculars as a fuzzy star and easily observed with a small telescope.

Interestingly, about ten years ago, a Japanese satellite recorded a bright burst of X-rays from Vulpecula. Using this research astronomers reported a "new" star, called QZ Vulpeculae. Actually, QZ Vulpeculae is a system of two stars bound by a mutual gravitational pull and located about 14,000 light-years from Earth. One of the stars is massive but dark and the other contains less mass, and is barely visible to large ground-based telescopes. Later, it was found that the two stars orbit each other once every eight hours, which means that they're very close together. Recently, two teams of astronomers independently measured the speed of the visible star and the data suggests that the dark companion is at least five times the mass of our Sun (probably more) which means it's almost certainly one of the best black-hole candidates yet discovered. Pretty cool for a barely visible constellation!

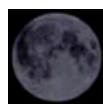
Almanac

For October 2010 by Bob Kelly

Jupiter rules the night from sunrise to sunset this month. You could spend all night, with any optical aid, happily viewing Jupiter. From hour to hour watch Galileo's four moons shuttle back and forth as they revolve around the planet. Every 10 hours the planet's rapid rotation brings the Great Red Spot into view. Ok, so it's a Faded Pink Spot, perhaps needing a four-inch or larger scope, but now is the time to get out those color filters. Jupiter is so bright that even a basic set of filters should show different aspects of Jupiter's atmosphere and may be needed to reduce glare. In a larger scope, the four moons seem more like dots than star-like points of light. (Compare them to Uranus, off a couple of degrees to the east.) Will Jupiter's second brownish band return? Watch and let us know!

After Jupiter, what else is there this month? Go down, way down into the depths of the post-sunset solar glare to find Venus, glaring back at you to the left of the sunset point. Venus is tricky to see this month, so close to the Sun. But telescope users are rewarded as Venus goes through its crescent phases until it swings between us and the Sun on the 29th. Mars is still nearby, but you'll need binoculars. At four arcseconds wide, there's no detail to be seen in most scopes. The Moon, Mars and Venus are together on the 9th, but Venus is on the horizon 25 minutes after sunset. Surprisingly, Mars hangs out for a couple of months hiding in the bright twilight, lining up with Mercury in late November and early December. Neptune feels neglected in the southern sky after sunset (at only 2 arcseconds wide). Can anyone see both Uranus and Neptune and describe their colors or lack thereof?

Comet Hartley2 should be a good object for binoculars high up near Cassiopeia and Perseus this month. It's a very small comet, but is visible to us as it swoops close to Earth, passing by at 11 million miles from Earth on the 20th. That will make Hartley2's coma spread out and make it look fainter than its advertised 6th magnitude and easily overwhelmed by moonlight or city lights. Any binocular should show it (though I haven't seen it yet) with the best views with large binoculars or a wide



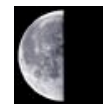
Oct 7



Oct 14



Oct 20



Oct 30

field telescope. The Deep Impact observation spacecraft will be passing 600 miles from Hartley2 on November 4th. The mission has been rechristened the combined "Deep Impact Extended Investigation (DIXI) and the Extrasolar Planet Observation and Characterization (EPOCh)" mission. Sticking these two names together, they call it "EPOXI". (Who makes up these names?)

When is the latest sunrise? In our area, the latest sunrise occurs just after the winter solstice at about 7:20am EST. But as early morning commuters would point out, it's getting darker in the morning now and by late October, sunrise will occur after 7:20am, on our clocks, thanks to Daylight Time. The 'earliest' sunrise will be on the last morning of Daylight Time at 7:30am on November 6th.

If you're one of those early morning risers, Mercury is low in the twilight for a few days early in the month – compare it to Regulus a little higher up. The Moon joins them on the 4th. Saturn passes Mercury on the 8th, in very bright twilight. For telescope users, Mercury (at 5 arcseconds wide) appears only about 50 percent wider than Uranus. Saturn will be higher in the sky in the second half of October, and while small at 15 arcseconds wide, check out the widening rings for yourself.

After the end of astronomical twilight, about 8pm at the start of the month, moving to 7:30 by the end of the month, sweep through the star fields and dust clouds of the Milky Way now overhead, marked by Cygnus, aka the Northern Cross. The International Space Station, with three to six souls on board, is brighter than Jupiter on its passes over us – in the morning twilight through the 20th and in the evening from the 25th through mid-November.

Look for updates and photos on Bob's HeadsUP! blog at <http://bkellysky.wordpress.com/>