Star Gazer News

Astronomy News for Bluewater Stargazers
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Editor's Rant

As you are aware, Neil Armstrong passed away Saturday Aug 25, 2012. As an indication of how out of touch some news agencies were with the significance of this event, NBCNews.com posted this: "Astronaut Neil Young, first man to walk on the moon dies at age 82." That stayed up on their site for seven minutes, long enough for people to notice and post some comments - unfortunately making light of a sad occasion.

Another news source, the Huffington Post made several errors including getting the name wrong as well as one which said that Armstrong (Young) did his moonwalk from the shuttle.

And in the UK, Britain's Daily Telegraph wrote: "Obit: Neil Armstrong, First American woman in space, who showed 'millions of little girls that they can be heroes.'. They confused Armstrong with astronaut Sally Ride who died earlier this year at age 61 of pancreatic cancer.

Perhaps to atone for the error, Huffington Post columnist David Freeman posted an article entitled: *Neil Armstrong Remembered By Buzz Aldrin As 'True American Hero And The Best Pilot I Ever Knew'* in which most of the material was a quote from Buzz Aldrin (see box at right).

I suppose one cannot expect copy writers who were not even born when the landings occurred to have any first-hand connection to the first lunar touchdown. Nor can we expect them to be as affected by the sadness of the death of the man that we watched in grainy images making his way down the ladder. The space race was an era that captivated the imaginations of all of the young folks of the time, -we all remember distinctly where we were when we watched the first steps being taken. Sadly, the space program is just not the same any more. Still, shame on the news people for making such dumb mistakes. And don't get me started on the moon-hoax believers! They continue as annoyingly inane (or is that insane?) as ever.

A unique image of Man on the Moon. For most of the activities on the surface on July 20, 1969, Neil Armstrong was working the camera. It is not surprising, then, that most of the images of a "man on the Moon" are of Buzz Aldrin. Even the famous "before and after" boot print is not Armstrong's but Aldrin's and it was taken by Aldrin. There are also a few grainy stills from the motion picture camera showing the astronauts singly or together around the flag. One shows Armstrong with his visor up and you can just make out his facial features. When Aldrin took over the camera near the end of the space walk, he got photos of Armstrong, but in those Armstrong was at work with his back to the camera. No good pictures of the FIRST man on the moon...pity! The above shot of Aldrin, shows reflected in the visor, (R to L) the LM, Armstrong, the movie camera and the flag. The Solar Particle Collection experiment is in there also. Notable is Armstrong's shadow with a solar "glory" around his helmet. There is also a crosshair (fiducial) just below centre image which is not part of the reflection but the marks used to correct for distortions in the images. These were scribed onto a glass plate at the film plane of the camera. This image was further processed by some techs at Moonpans.com, fine-tuned and enhanced, then reversed to make it look like a shot of Armstrong taken by Aldrin. A copy of that image was presented to Armstrong at a recent event and he took great pleasure in it. Check this site for more: http://moonpans.com/Neil_Armstrong_on_the_moon.htm Also, virtually all of the images taken during the Apollo program are available here: http://www.apolloarchive.com/apollo_gallery.html. Incidentally, many of the images of man on the moon you see on the internet are incorrectly attributed usually claiming the image is of Armstrong, (it is probably Aldrin) so the above site is the authoritative source. On one site, for ex. I found Apollo 12 astronaut Alan Bean being mistaken for Armstrong. Dumb, dumb, dumb.

Neil Armstrong Remembered By Buzz Aldrin As 'True American Hero And The Best Pilot I Ever Knew'

The Huffington Post | By David Freeman

> "Buzz" Aldrin: *"I am very saddened to learn of the passing of Neil Armstrong today. Neil and I trained together as technical partners but were also good friends who will always be connected through our participation in the mission of Apollo 11. Whenever I look at the moon it reminds me of the moment over four decades ago when I realized that even though we were farther away from earth than two humans had ever been, we were not alone. Virtually the entire world took that memorable journey with us. I know I am joined by millions of others in mourning the passing of a true American hero and the best pilot I ever knew. My friend Neil took the small step but giant leap that changed the world and will forever be remembered as a landmark moment in human history."*

Aldrin said in the statement that he had hoped to mark the 50th anniversary of the moon landing with Armstrong and Collins. "Regrettably, this is not to be," he said. "Neil will most certainly be there with us in spirit."

The Neil Armstrong I knew — and flew with

By Michael Collins, [Published: Sep 12 Washington Post]

Before manned space flights began, officials pondered what background they should seek in the crew for this bizarre new venture: Danger lover? Bullfighter? Mountain climber? Should they search for people who were self-aware and calm in extreme conditions? A deep-sea diver, perhaps? Finally, they settled on — and President Dwight Eisenhower supported — experimental test pilots, people who had already guided complex new flying machines. Thus the original seven astronauts were selected in 1959.

In 1962 I was a budding test pilot at Edwards Air Force Base in California — our Mecca — and much interested in joining NASA's second crew selection. Pondering the competition, I wrote to my father on April 19 that "Neil Armstrong will be on the list . . . because he has by far the best background." Neil, a former Navy fighter pilot, was a combat veteran employed by NASA at Edwards. He was testing new Air Force and Navy aircraft, as well as rocket ships. His flights in the rocket-powered X-15 alone put him a stratosphere above the rest of us.

It was no surprise that Neil advanced to make the first docking in space, as commander of Gemini 8, and then moved to Apollo, where Buzz Aldrin and I joined his crew. By then he had proven his technical competence many times over, but I didn't really know the man behind the reputation.

Neil, who will be memorialized Thursday at the National Cathedral, always seemed serious and businesslike, but you could make him laugh if you tried. It was real laughter, because Neil did not pretend. He was genuine through and through. He signaled displeasure with silence, never an outburst. He had high standards and stuck to them.

The best way to get Neil talking was to start with airplanes. He knew more about planes than anyone I've ever met, real ones and children's models. We both were model builders from an early age, and we always wanted them to go higher and faster. My solution? Another few turns on the rubber band. Neil's? Build a wind tunnel.

Wind tunnels are serious, high-tech business but one that Neil turned into fun. Before putting power to the tunnel he built in the basement, Neil invited his grandmother to stand in front of it. When he threw the switch, the wind blew her housecoat off.

Neil was smart as hell — and an encyclopedia of knowledge of things far beyond air and space. He trotted out tidbits on occasion. After the flight of Apollo 11, we went on a world tour. One evening we found ourselves in Yugoslavia at a formal dinner hosted by Marshal Tito and his wife, Madame Broz. The small talk got smaller and smaller, with madame doing a fine imitation of an Easter Island monolith: frozen, staring straight ahead. Neil bent over and started talking quietly to her, and when I strained to listen, I was astounded that he was talking about Nikola Tesla, the early electric genius and competitor of Thomas Edison. Had Neil lost his mind? No, Madame Broz lit up like a thousand-watt bulb, and from then on we were all buddies, including even the taciturn Tito. Later I asked Neil about his choice of topic. "Oh," he replied offhandedly, "she is related to Tesla."

Armstrong Memorial Service

A memorial service for Neil Armstrong was held on Sep 13, 2012 at the National Cathedral in Washington, DC. Tributes were read by Michael Collins, Apollo 17 astronaut Eugene Cernan, and NASA administrator and former astronaut Charles F. Bolden. Eighteen former astronauts attended, including John Glenn, now 91 years old and the last surviving Mercury astronaut. Singer Diana Krall wearing a golden moon necklace, sang a poignant version of "Fly Me To The Moon".

The most moving tribute was by the Rt. Rev. Mariann Edgar Budde. In her homily, she analyzed why Armstrong was so defiantly humble. People always asked Armstrong, she said, why he didn't bask in his triumph.

"Because," he said. "I didn't deserve it."

Budde added: "This was not, I am convinced, an expression of Midwestern modesty, an attempt to minimize his passionate ambition . . . it was simply the truth: No one goes to the moon alone. No one accomplishes anything of lasting value in any realm of human endeavor alone."

Armstrong's cremated remains were buried at sea on Friday Sep 14, 2012.

The Space Window at National Cathedral Washington DC
The 'Space Window' was designed by St. Louis artist Rodney Winfield and fabricated under his supervision. Whirling stars and orbiting planets are depicted in orange, red and white on a deep blue and green field. The moon rock, weighing only 7.18 grams was set later in the center of the Space Window (small white circle), the culmination of more than four years of work and planning by Dr. Paine, Winfield, Dr. Fletcher and Dean Sayre. President Nixon authorized the gift of the NASA moon rock earlier in the year. [The window waited until the 5th anniversary of the Apollo 11 landing before the moon rock was installed. Nixon rejected the original request but after Watergate, he apparently mellowed. Armstrong, Aldrin and Collins presented the moon rock in 1975. ed]

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BAS Events for October 2012

Oct 3	Wed	BAS Meeting speakers: Doug and Paula Cunningham "Shadow Over Easter Island"	Grey Roots	7:00 pm
Oct 6	Sat	BAS Viewing	ES Fox Observatory	dark
Oct 12	Fri	Night Sky Tour	Grey Roots	dusk
Oct 20	Sat	BAS Viewing PE University Women tour (tentative date)	Orionid Meteors (20/h) ES Fox	dark
Oct 27	Sat	Fall Harvest Dinner for the BAS Observatory Project		
Nov 7	Wed	BAS Meeting (Members night)	Grey Roots	7:00 pm

Speaker: Robert Burcher
"The Leather Boat: Ancient Celts in North America?"
Wayne Burke Catering
Menu: Four course served dinner
salmon, beef, soup, desserts, coffee and tea
Pelee Is. Wine and Local Beers (cash bar)
Silent Auction
Music by Paul Williamson

3rd Annual Fall Harvest Dinner Oct 27, 2012

an evening of great food and entertainment supporting ES Fox Observatory Celebrating 40 Years of Outdoor Education at the Bluewater Outdoor Education Centre

#3092 Bruce County Rd 13
near Oliphant
Tickets $50.00 per person
(tax receipt issued for portion)
Doors open at 5:30 pm
Dinner at 6:30 pm
Limited Seating
Only 76 tickets will be sold
Call Now for Tickets
(519) 376-9554 (Owen Sound)
(519) 371-0670 (Owen Sound)
(519) 389-3922 (Port Elgin)

Oct 3 BAS Meeting: Don't Miss It!

Doug and Paula Cunningham will relate their experiences viewing the July 11, 2010 total solar eclipse whose ground track fell over Easter Island. The AFP image at left shows the iconic Moais of the Rapa Nui culture found on the island with an over-exposed image of the eclipsed sun in the background. (I was not able to find a caption with this image that explained it so it may not be the eclipsed sun, but it is nice anyway).
Doug and Paula spent some time in Chile enroute and we will probably hear about some of those adventures as well. This talk is one that was scheduled in late 2010, but which had to be postponed for various reasons. Don't miss it.

STARFEST 2012 -a personal view

by John Hunt

On Thursday evening, a blistering storm rolled over River Place Park. High winds ravaged our tents and around 02:00 Friday morning, the heavens opened and it poured. Although one member of our group abandoned canvas for the security of his vehicle, we were surprised in the morning to find that none of the 10 BAS attendees had gotten wet. However, little shuteye was had and it was a blurry eyed group of astronomers who gathered at Dawson's mobile aluminum hacienda for their morning blast of coffee.

Friday and Saturday are Starfest's core event days. Friday morning, venders opened for two days of dealing accessories, books, and new and used equipment. While venders were opening, the first of 12 speakers was mounting the stage to deliver his presentation. The lectures covered broad ranging astronomy and scientific subjects. From new astronomers at the start of a steep learning curve to seasoned amateurs, the lectures provided something of interest to everyone. This year discussions covered everything from Black Holes, to the origin of the solar system, the dating of rock and meteorites, cosmic collisions and a host of other topics. Environment Canada even delivered a presentation covering severe summer weather. Between lectures and venders there were plenty of things to do during daylight hours.

On Friday, for most of the day, the sky remained cloud covered and the wind remained high. In the late afternoon; however, our solid ceiling fractured into scattered cloud and the sky was clear when we returned from dinner. We spent the evening assembling telescopes and preparing for a good night at our eye pieces.

The camp ground is essentially an open field of perhaps 80 acres. Over the field, 100s of telescopes emerged and stood waiting beside their owner's tents. Around each telescope was gathered four or five astronomers waiting for darkness and the opportunity use their equipment. At dark, the club's large 28" Webster telescope garnered considerable attention and Brett, John and Dan spent time demonstrating it. People wander about having a look through each other's equipment, comparing notes and make suggestions. It was a great evening.

The official events came to an end on Saturday evening. Although a few folks had folded their tents, many remained for another evening under the stars. If you were unable to attend Starfest this year, you should make plans to do so next year. From a social and observing standpoint, it is great fun and you will certainly glean knowledge that will advance you in your hobby.

Left: *we really HAVE to get a new sign. (It is in the works -ed)*

Below: *Do we spend a lot of time sitting around? Looks like.*

Below: *We also spend time cooking...*

Centre: *Two of the founders of Starfest, Andreas and Bonnie.*

Above: *Webster's home for the duration.*

Left: *Venus and Jupiter shine through the dawn haze with Orion peeking over the trees.*

Astronomers Predict Titanic Milky Way - M31 Collision

May 31, 2012: NASA astronomers say they can now predict with certainty the next major cosmic event to affect our galaxy, sun, and solar system: the titanic collision of our Milky Way galaxy with the neighboring Andromeda galaxy.

The Milky Way is destined to get a major makeover during the encounter, which is predicted to happen four billion years from now. It is likely the sun will be flung into a new region of our galaxy, but our Earth and solar system are in no danger of being destroyed.

"After nearly a century of speculation about the future destiny of Andromeda and our Milky Way, we at last have a clear picture of how events will unfold over the coming billions of years," says Sangmo Tony Sohn of the Space Science Institute (STScI) in Baltimore. "Our findings are statistically consistent with a head-on collision between the Andromeda galaxy and our Milky Way galaxy," adds Roeland van der Marel of the STScI.

To make matters more complicated, M31's small companion, the Triangulum galaxy, M33, will join in the collision and perhaps later merge with the M31/Milky Way pair. There is a small chance that M33 will hit the Milky Way first.

A century ago astronomers did not realize that M31 was a separate galaxy far beyond the stars of the Milky Way. Edwin Hubble measured its vast distance by uncovering a variable star that served as a "milepost marker."

Hubble went on to discover the expanding universe where galaxies are rushing away from us, but it has long been known that M31 is moving toward the Milky Way at about 400,000 km/h. That's fast enough to travel from here to the moon in one hour. The measurement was made using the Doppler effect (the change in frequency and wavelength of waves produced by a moving source relative to an observer) to measure how starlight in the galaxy has been compressed by M31's motion toward us.

Previously, it was unknown whether the far-future encounter will be a miss, glancing blow, or head-on smashup. It depends on M31's tangential motion.

Until now, astronomers had not been able to measure M31's sideways motion in the sky, despite attempts dating back more than a century. The Hubble Space Telescope team, led by van der Marel, conducted extraordinarily precise observations of the sideways motion of M31 that remove any doubt that it is destined to collide and merge with the Milky Way. [I can hardly wait! -ed]

"This was accomplished by repeatedly observing select regions of the galaxy over a 5- to 7-year period," says Jay Anderson of STScI.

"In the worst-case-scenario simulation, M31 slams into the Milky Way head-on and the stars are all scattered into different orbits," adds Gurtina Besla of Columbia University in New York, N.Y. "The stellar populations of both galaxies are jostled, and the Milky Way loses its flattened pancake shape with most of the stars on nearly circular orbits. The galaxies' cores merge, and the stars settle into randomized orbits to create an elliptical-shaped galaxy."

The space shuttle servicing missions to Hubble upgraded it with ever more-powerful cameras, which have given astronomers a long-enough time baseline to make the critical measurements needed to nail down M31's motion. The Hubble observations and the consequences of the merger are reported in three papers that will appear in an upcoming issue of the *Astrophysical Journal*.

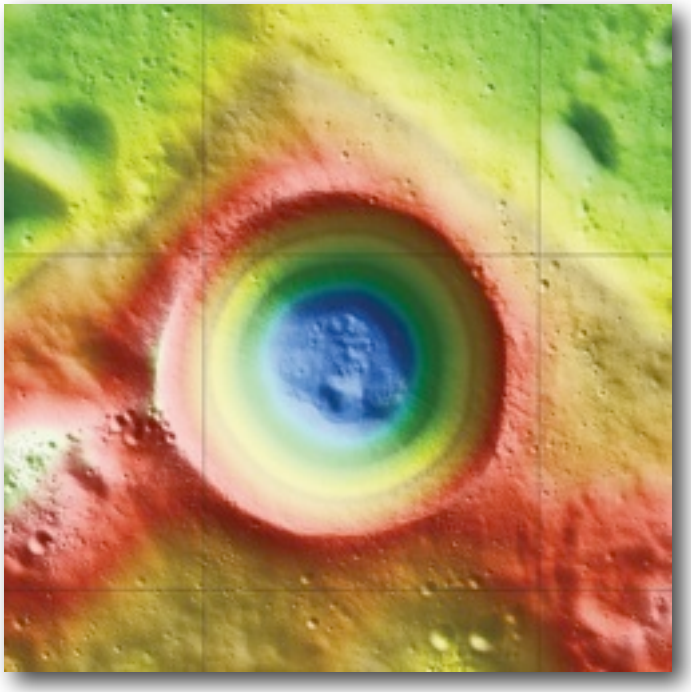
This series of photo illustrations shows the predicted merger between the Milky Way and Andromeda as seen from Earth. The first frame is the present day; the last frame is 7 billion years from now. ***Credit****: NASA Image*

Evidence Mounts for Ice in Shackleton Crater on Moon

June 21, 2012: According to data from NASA's Lunar Reconnaissance Orbiter (LRO), ice may make up as much as 22 percent of the surface material in Shackleton crater at the Moon's south pole.

The huge crater, named after the Antarctic explorer Ernest Shackleton, is two miles deep and more than 12 miles wide. The small tilt of the lunar spin axis means Shackleton's interior is permanently dark and very cold.. Researchers have long thought that ice might collect there.

When a team of NASA and university scientists used LRO's laser altimeter to examine the floor of Shackleton crater, they found it to be brighter than the floors of other nearby craters around the South Pole. This is consistent with the presence of small amounts of reflective ice preserved by cold and darkness. The findings are published in today's edition of the journal *Nature*.



In this laser elevation map of Shackleton crater, false colors indicate height, with blue lowest and red highest. Credit: NASA/Zuber, M.T. et al., Nature, 2012

In addition to the possible evidence of ice, the group's map of Shackleton revealed a remarkably preserved crater that has remained relatively unscathed since its formation more than three billion years ago. The crater's floor is itself pocked with several small craters, which may have formed as part of the collision that created Shackleton.

"The crater's interior is extremely rugged," said Maria Zuber, the team's lead investigator from the Massachusetts Institute of Technology in Cambridge in Mass. "It would not be easy to crawl around in there."

While the crater's floor was relatively bright, Zuber and her colleagues observed that its walls were even brighter. The finding was at first puzzling. Scientists had thought that if ice were anywhere in a crater, it would be on the floor, where no direct sunlight penetrates. The upper walls of Shackleton crater are occasionally illuminated, which could evaporate any ice that accumulates.
"The brightness measurements have been puzzling us since two summers ago," said Gregory Neumann of NASA's Goddard Space Flight Center in Greenbelt, Md., a co-author on the paper.

A theory offered by the team to explain the puzzle is that "moonquakes"-- seismic shaking brought on by meteorite impacts or gravitational tides from Earth -- may have caused Shackleton's walls to slough off older, darker soil, revealing newer, brighter soil underneath. Zuber's team's ultra-high-resolution map provides strong evidence for ice on both the crater's floor and walls.

"There may be multiple explanations for the observed brightness throughout the crater," said Zuber. "For example, newer material may be exposed along its walls, while ice may be mixed in with its floor."

For more info see: http://lunar.gsfc.nasa.gov
Editor: Dr. Tony Phillips | Credit: Science@NASA

Apollo 11 Landing Site in Hi-Res

This image of the Apollo 11 landing site captured from just 24 km above the surface provides LRO's best look yet at humanity's first venture to another world. You can see the remnants of their first steps as dark regions around the Lunar Module (LM) and in dark tracks that lead to the scientific experiments the astronauts set up on the surface. The Passive Seismic Experiment Package (PSEP) provided the first lunar seismic data, returning data for three weeks, and the Laser Ranging RetroReflector (LRRR) is still operational. You can even spot the discarded cover of the LRRR. Another trail leads toward Little West crater around 50 meters (164 feet) to the east of the LM. This was an unplanned excursion near the end of the two and a half hours spent on the surface. Armstrong ran over to get a look inside the crater, (Little West) and this was the farthest either astronaut ventured from the landing site. Their tracks cover less area than a typical city block!

"The Next DSLR Revolution is Here !"

"*No one expected this camera !*" -Alan Dyer
Sky and Telescope Test Report - September, 2012

Jupiter was dazzling and Orion was nicely placed in the southeast just above the trees that surround Quetican. A call of nature awoke me and the exceptionally clear September skies provided the motivation to drag my still sleepy body out to the observatory. An exercise in early morning astro-imaging had beckoned. I was amazed as the image of M42 came up on the large, 1.04 mega pixel 3" LCD screen. Such a rich, detailed, and vibrant picture! It was an unguided exposure [i.e. TAK clock drive only -ed] with the new Canon 60Da DSLR attached to the prime focus of my TAK FSQ106. I had acquired the image using an exposure of 160 seconds at 4000 ISO and I used the camera's high ISO noise reduction and long exposure noise reduction features. I was seeing detail and color that previously had only been available with extensive processing of images captured by cooled, dedicated CCD astronomical cameras. I sensed that the beginning of an new era in digital astro-imaging had begun!

My early September morning experience actually began in March 2012, while Paula and I were at Arizona Sky Village. I came across a news item regarding the upcoming release of a new Canon DLSR for astrophotography. It would be called the Canon 60Da and would be available in the Spring of 2012. I took notice! It had been 7 years ago when Canon developed their 20Da camera for amateur astrophotographers.

Orion Nebula, M42, 160 s Exp , ISO 4000 - Canon 60Da at Prime Focus TAK FSQ 106 -Doug Cunningham Photo, processed in Maxim and iPhoto

I remember seeing the astrophotography results of this Canon 20Da by my friends, Andreas Gada and John Lash, and I was impressed with their images. Unfortunately, Canon ceased production of the 20Da even though the demand was still strong. But now, here was an improved version of the same product. I obtained one from Foto-Art in Owen Sound which arrived in mid-May. Cost: $1499 (camera-body) + HST and an SD memory card.

This camera has many features and these have been reviewed in the popular astronomy magazines by Alan Dyer (Sky and Telescope, September 2012), Blair MacDonald (JRASC, October 2012), and Tony Hallas (Astronomy, November 2012). But, for myself, as a novice astro-imager, I really like 7 aspects of this camera.

First, there is the live view focus (at up to 10x) on the movable 3 inch, 1.04 megapixel LCD screen. It is so convenient to position this screen away from the camera body and rotate it for the most comfortable viewing angle when I am focusing the telescope or viewing the resulting image. No more awkward, neck breaking viewing positions!

Second, I really like the in-camera noise reduction features. Although I used 5000 ISO, this camera can record images at up to 12800 ISO and it has a High ISO Noise Reduction feature and a Long Exposure Noise

Pleiades, M45, 124 s, ISO 4000 , - Canon 60Da at Prime Focus of TAK FSQ 106 -Doug Cunningham Photo, Processed in Maxim and iPhoto

Reduction feature. The only problem is that, after you take an image, the camera cannot take a second image until the noise reduction algorithms complete their work.

Third, the camera CMOS sensor is an 18 megapixel array of 4.3 micron pixels and there is a specially engineered IR blocking filter placed in front of the chip. This filter transmits 3 x more H-Alpha light to the chip and that makes quite a difference when imaging celestial objects which are rich in H-alpha light.

Fourth, the camera, weighing only 24 ounces, is quite light and easily attaches to my two TAKs; the FSQ 106 and TOA 150 and doesn't materially affect the mount's balance.

Fifth, the camera has a mirror lock-up feature that I can activate 2 seconds prior to opening the shutter and this reduces any possibility of mirror/camera shake.

Sixth, and Alan Dyer points this out in his review in Sky and Tel, the Canon 60 Da has a choice of movie modes. It has a 1920 x 1080 HD recording at 30 frames per second, and a crop which is suitable for recording planetary detail, and records at 1:1 resolution using the central 640 x 480 pixels.

Lastly, the camera can image at various resolutions of JPG and RAW and the automatic color balance is splendid.

This latest iteration of the DSLR astronomy camera by Canon, in its 60Da model, is a great piece of technology and I really like it. I can recommend it! Are you ready for a new DSLR? Then, as Alan Dyer said at the end of his September Sky and Tel Test report:

" ... the Canon 60Da is a great deal. There is certainly no question in my mind that the 60Da is the best choice for anyone wanting a DSLR for all types of astrophotography."

From The Economist (Obituary): **Neil A. Armstrong**

ASTRONAUTS do not like to be called heroes. Their standard riposte to such accusations is to point out that it requires the efforts of hundreds of thousands of back-room engineers, mathematicians and technicians to make space flight possible. They are right, too: at the height of its pomp, in 1966, NASA was spending about 4.4% of the American government's entire budget, employing something like 400,000 workers among the agency and its contractors.

But it never works. For Neil Armstrong, who commanded Apollo 11, the mission that landed men on the moon on July 20th 1969, the struggle against heroism seemed particularly futile. The achievement of his crew, relayed live on television, held the entire planet spellbound. On their return to Earth, the astronauts were mobbed. Presidents, prime ministers and kings jostled to be seen with them. Schools, buildings and roads were named after them. Medals were showered upon them. A whirlwind post-flight tour took them to 25 countries in 35 days.

As the first man to walk on another world, Armstrong received the lion's share of the adulation. All the while, he quietly insisted that the popular image of the hard-charging astronaut braving mortal danger the way other men might brave a trip to the dentist was exaggerated. "For heaven's sake, I loathe danger," he told one interviewer before his fateful flight. Done properly, he opined, spaceflight ought to be no more dangerous than mixing a milkshake.

Indeed, the popular image of the "right stuff" possessed by the astronaut corps—the bravery, the competitiveness, the swaggering machismo—was never the full story. The symbol of the test-pilot school at Edwards Air Force Base in the Mojave desert, where Armstrong spent years testing military jets, is a slide rule over a stylized fighter jet. In an address to America's National Press Club in 2000, Armstrong offered the following self-portrait: "I am, and ever will be, a white-socks, pocket-protector, nerdy engineer, born under the second law of thermodynamics, steeped in steam tables, in love with free-body diagrams, transformed by Laplace and propelled by compressible flow."

He had an engineer's reserve, mixed with a natural shyness. Even among the other astronauts, not renowned for their excitability, Armstrong was known as the "Ice Commander". Mike Collins, one of Armstrong's crew-mates on the historic moon mission, liked his commander but mused that "Neil never transmits anything but the surface layer, and that only sparingly." In one famous incident, Armstrong lost control of an unwieldy contraption nicknamed the "Flying Bedstead" that was designed to help astronauts train for the lunar landing. Ejecting only seconds before his craft hit the ground and exploded, Armstrong dusted himself off and coolly went back to his office for the rest of the day, presumably to finish up some paperwork.

That unflappability served him well during the lunar landing. The original landing area turned out to be full of large boulders, and so Armstrong had to take control from his spacecraft's primitive computer and skim across the lunar surface by hand, looking for somewhere suitable to set down. By the time he found his spot, there was only 25 seconds of fuel left in the tanks.

It served him well back on Earth, too. The astronauts knew from the experiences of their predecessors on the Mercury and Gemini flights that their trip would transform them into celebrities. But theirs was the biggest achievement yet, and none were prepared for the adulation that awaited them. Puzzlingly for the pragmatic spacemen, their trip to the moon seemed to have elevated them to the status of oracles, and people pressed them for their thoughts on everything from religion to the future of the human species and the chances for world peace.

Unlike some of his fellow astronauts (two of whom became senators), Armstrong chose a comparatively quiet retirement, teaching engineering at the University of Cincinnati. He returned to NASA twice, both times to serve on boards of enquiry, the first into the near-disaster of Apollo 13, and the second into the disintegration of the space shuttle Challenger in 1986. He spent his final years on his farm in rural Ohio, flying gliders in his spare time (it was, said the supposedly emotionless engineer, the closest humans could come to being birds).

For all mankind

Half a century after the event, with the deaths of many of its participants, the Apollo project is beginning to fade from living memory and pass into the history books. It was one of the mightiest achievements of the potent combination of big government and big science; in many ways the apotheosis of the post-war American political consensus. Viewed from an age in which America's government aspires to smallness and in which grand projects are regarded with suspicion, it seems more alien with every passing year.

Nevertheless, it is one of the few events of the 20th century that stands any chance of being widely remembered in the 30th. Despite its origins in Cold War paranoia and nationalist rivalry, Mike Collins recalls in interviews a brief moment of global unity: "People, instead of saying 'you Americans did it', they said 'we—people—did it'. I thought that was a wonderful thing. Ephemeral, but wonderful."

Perhaps the most unexpected consequence of the moon flights was a transformation of attitudes towards Earth itself. Space was indeed beautiful, but it was beauty of a severe, geometrical sort. Planets and stars swept through the cosmos in obedience to Isaac Newton's mathematical clockwork, a spectacle more likely to inspire awe than love. Earth was a magnificent contrast, a jewel hung in utter darkness, an exuberant riot of chaos and life in a haunting, abyssal emptiness. The sight had a profound effect on the astronauts, and photos of the whole Earth, which had never been seen before, nourished the nascent green movement.

As for the man himself, his reserve was not limitless. One of the most famous photos of Armstrong shows the Ice Commander in the Lunar Module after he and Buzz Aldrin had completed their historic walk on the moon's surface. He is dressed in his space-suit, sports a three-day beard and is clearly exhausted. And on his face is plastered a grin of purest exhilaration.

Armstrong with happy grin: Image AS11-37-5528HR taken by Aldrin in the LM after the historic moonwalk. See http://www.apolloarchive.com/apollo_gallery.html for more images of the original moon-landing.

Oct 1 Mercury 1.8° N of Spica
Oct 3 Venus 0.1° S of Regulus (very close approach!)
Oct 5 Jupiter 0.9° N of Moon
Oct 6 Mercury 3° S of Saturn
Oct 7 Ceres 0.9° N of Moon
Draconid meteors peak (ZHR = ??) Moon LQ waning
Last Quarter Moon rises at 11:53 pm DST
Oct 12 Venus 4° N of Moon
Oct 13 Zodiacal Light visible in East before dawn for next 2 wk
Oct 15 New Moon rises at 7:51 am DST
Oct 16 Mercury 1.3° S of Moon
Oct 18 Mars 2° S of Moon
Oct 19 Mars 4° N of Antares (compare colours)
Oct 20 Orionid meteor peak (20/h) Moon crescent sets 11 pm
Oct 21 First Quarter Moon rises at 2:11 pm DST
Oct 26 Mercury greatest elongation E (24°) low in W after sunset
Oct 30 Full Moon (Hunter's Moon) rises 6:05 pm DST

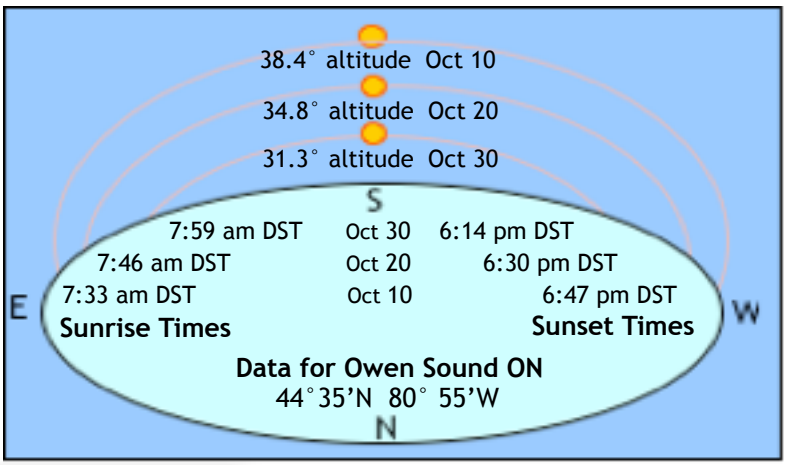
BAS Events

Oct 3 BAS Meeting Grey Roots 7:00 pm
speakers: Doug and Paula Cunningham Easter Is. Eclipse
Oct 6 **BAS Viewing** ES Fox Observatory dark
Oct 12 **Night Sky Tour** Grey Roots dusk
Oct 20 PE University Women tour (tentative date)
Oct 20 **BAS Viewing** Orionid Meteors (20/h) ES Fox@dark
Oct 27 **Fall Harvest Dinner** supporting the Fox Observatory
6 pm, tickets $50 from John, Ross or Joan

Planets

MERCURY, is difficult to see in October as it hugs the western horizon all month. Do try for a look on Oct 16 when it is close to the crescent Moon. **VENUS**, (-4.2) is a dawn planet in October and moves quickly away from Jupiter towards a rendezvous with the Beehive and crescent Moon on Oct 12. It continues to race across the sky through Gemini and then into Leo for a very close Oct 3 meeting with Regulus (0.1° separation!). **MARS** (1.2), continues to sit above the western horizon in October. Watch for the crescent moon nearby on Oct 17 and 18. Mars, the moon and Antares should make a nice grouping. **JUPITER**, (-2.4) rises around 11 pm and is still between the horns of Taurus in Sep. The last crescent Moon is about 2 degrees away on Oct 8. **SATURN**, (mag 0.7), is too close to the sun for viewing. It passes into the morning sky at month end but will not emerge into dark sky for another month or so. **URANUS**, (5.7) and **NEPTUNE**, (7.8) are well up by dark and well-placed for viewing this month. Two **asteroids, Vesta (8.2)** and **Ceres (9.0)** are near the Crab Nebula and M35 in Gemini. See the charts in this issue. They are this close to each other only every 17 years or so. **PLUTO** (mag. 14) is past the meridian at midnight and may be found with accurate charts and large telescopes.

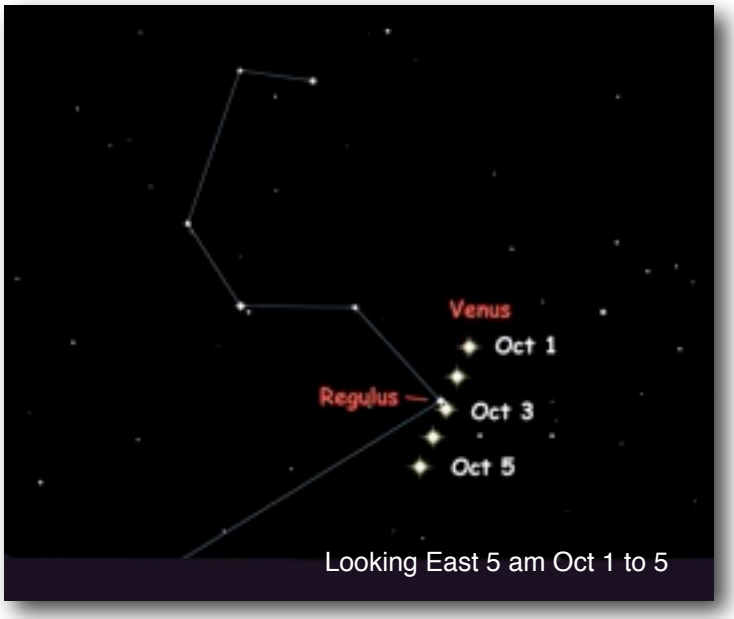
The diagram below gives the sunrise/sunset times and the sun's altitude on three dates this month.The sun continues to sink lower as we pass through Fall. The moon calendar below the sun chart shows lunar phases for the month. Times of moonrise for NM, FQ, FM and LQ are in the Sky Calendar listing at left.



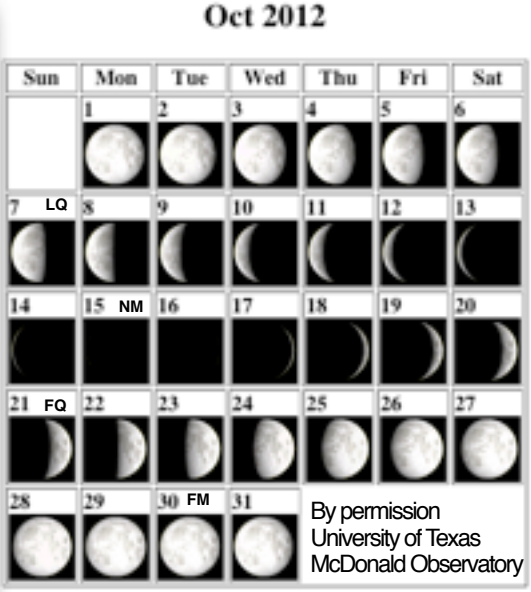
Special Events

Venus and Regulus Very Close

The planet Venus makes a very close approach to Regulus, the 22nd brightest star in the sky on Oct 3. It is within a degree of the star from Oct 2 to 4 and on Oct 3, when the two rise above the horizon, Venus is 0.12 degrees (7 min 20 s) away. The closest approach happens less than an hour earlier but Venus is below the horizon then. To give you a sense of the separation, Alcor and Mizar are about 12 min (0.2°) apart and the Double-Double is 3 min 28 s (0.06°) apart. You will be able to frame the pair in a medium power eyepiece (10 mm in a typical SCT). You should have no trouble discerning the phase of Venus at that power. Also, Regulus is a multiple star with an 8.1 mag companion 3 min of arc away and a 13.5 mag companion too close for most telescopes. Regulus B should be easy to spot. Good luck and send in any images you get!

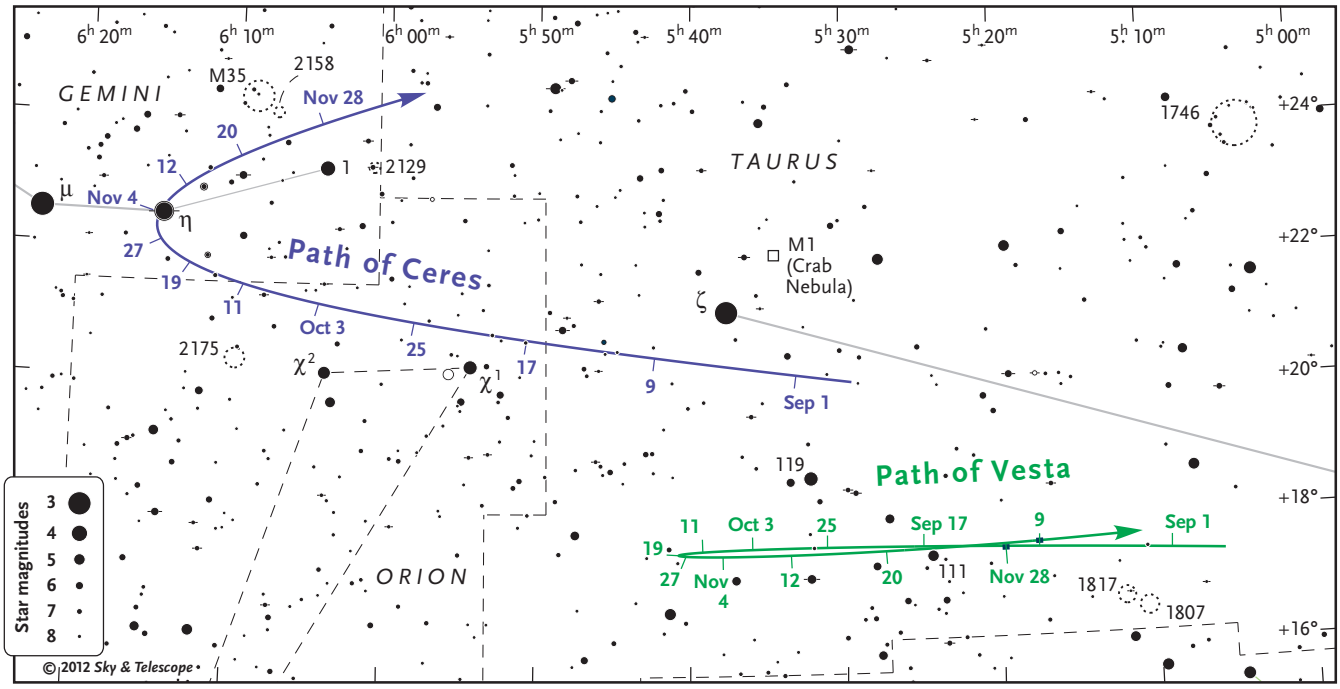


Looking East 5 am Oct 1 to 5



By permission University of Texas McDonald Observatory

Ceres and Vesta from September to November



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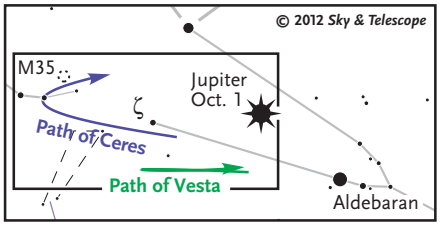

The tick marks are for 0 hours Universal Time on the dates indicated. This moment falls on the evening of the previous date in the time zones of the Americas.

FOR SALE: Televue Pronto

2 element E.D. Refractor, 2.7" / 70mm diameter. f.l. 480mm, f/6.8. with 1-1/4" Star Diagonal, with 45 degree Prism diagonal (for terrestrial viewing), with TeleVue Red dot finder, complete with TeleVue Soft Case. Asking $ 700.-- Firm Anton VanDijk 519 376-9912 ravand@rogers.com

Update on Rental Scopes

One 12-inch Dob is available for loan.

Contact Brett T. or John H. if you are interested.

We also have a number of 8-inch Dobs available as well.

For Sale: HUTECH part # 3101 Single Arm Compact Fork Mount Head,

Can be used in Alt-Az as well as Equatorial mode with lightweight Scope (I have used it with PRONTO on Manfrotto 128RC Photo-tripod). Has Slo-Mo knobs (flexible shafts can be added to it - not included)
1/4 - 20 thread on base Size: 3" x 3" x 6".
Asking $ 200.-- Firm

Anton VanDijk 519 376-9912
e-mail: ravand@rogers.com

Review/pictures can be found here: http://www.cloudynights.com/item.php?item_id=798