From: Ian Glendenning
Subject: AA#43 September 2012
Date: 31 August 2012 23:04:42
Attachments: tesmn1209.pdf

A Starry Night of Iceland by Stephane Vetter. First winner of Beauty of the Night Sky category in the 2011 International Earth and Sky Photo Contest.

The arc of the Milky Way is framed by the dancing ring of the northern lights over Jökulsárlón, the largest glacier lake in Iceland. Date: 2011 March 10.

http://apod.nasa.gov/apod/ap110517.html will take you to a larger display. More breathtaking auroral photography is at the end of this email.

Astronomy Courses

These are the planned astronomy courses that I will be running this academic year.

An introduction to astronomy for the beginner or enthusiast
Starts: Thursday **13 September 2012**, 1.30pm-3.30pm for 10 weeks
Where: The **Glynneath Training Centre**, Oddfellows Street, Glynneath, SA11 5DB. Tel: 01639 721772.

An introduction to astronomy for the beginner or enthusiast
Starts: Monday **17 September 2012**, 6.30pm-8.30pm for 10 weeks
Where: **Coleg Powys**, 3 Brecon Road, **Ystradgynlais**, SA9 1HE. Tel: 0845 4086 500.

The following two are 'continuation classes' that will progress on from the introductory classes of last year. It will be moving on to recognizing the constellations, but is still at an introductory level so is suitable for new students and complete beginners.

Starts: Monday **14 January 2013**, 6.30pm-8.30pm for 10 weeks
Where: **The Cross** Community Centre, 1 High Street, **Pontardawe**, SA8 4HU. Tel: 01792 863955.

Starts: Thursday **17 January 2013**, 7.00pm-9.00pm for 10 weeks
Where: **Canolfan y Bont**, 28 Dulais Road, **Pontarddulais**, Swansea, SA4 8PA. Tel: 01792 885519.

Cost: £30.00 (full-fee) £20.00 (concessions) £5.00 (unwaged).

I'm also running an astronomy workshop in Coleg Powys Brecon 24/11/12 10:00 am to 3:30 pm. Cost £15. Tel: 0845 4086 400.

If you are interested in any of the above courses then you can either email me or ring the telephone numbers provided.

Curiosity Lands on Mars

After a perilious 'seven minutes of terror' descent to the Martian surface the **Curiosity** rover made a successful landing (6/8/12) after one of the most complex engineering manoeuvres ever undertaken in spaceflight.
See http://www.youtube.com/watch?v=Ki_Af_o9Q9s . The main objective of Curiosity is to scale the slopes of the massive 3-mile-high mountain inside the Gale crater region. Named Aeolis Mons ('Mount Sharp'), it's actually a stack of sediments that, scientists hope, represent hundreds of millions of years of Martian history and that the lowest layers within Aeolis Mons were laid down perhaps more than 3 billion years ago, when geologists suspect that the climate was warm enough to permit liquid water to flow abundantly across the surface.
As part of the $2·5 billion Mars Science Laboratory mission http://en.wikipedia.org/wiki/Mars_Science_Laboratory it is expected to last at least two years and the overall objectives are to study the geology and climate of Mars and the role of water. It is also investigating the habitability with the view of eventual human exploration of the Red Planet. Although it must be said the chances of the latter happening this decade or even the next are remote.

For other links to Curiosity:
http://www.skyandtelescope.com/community/skyblog/newsblog/Touchdown-Curiosity-Lands-in-Gale-Crater-165101446.html
http://www.skyandtelescope.com/community/skyblog/newsblog/Real-Footage-of-Curiositys-Descent-to-Mars-165273796.html
http://www.skyandtelescope.com/community/skyblog/newsblog/Orbiter-Captures-Curiositys-Crime-Scene-165383386.html
http://www.panoramas.dk/mars/greeley-haven.html For an interactive panoramic view of Mars. For two other programmes see *The Sky At Night* below.

September Night Sky

Venus and **Jupiter** continue to be spectacular, but it is one for the insomniacs or early risers, if you are up around 4 am onwards have a look in the predawn sky. The third quarter Moon is close to Jupiter on the 8th.

On the 19th **Saturn** and **Mars** and a thin crescent Moon are low in the W after sunset. Mars is to the left of the Moon, Saturn is over to their right. **Mercury** is not easily visible this month.

Uranus is favourably positioned to be sought in a telescope. It is close to the faint star 44 Piscium and reaches closest approach 'appulse' during 21st to 25th. http://www.jodrellbank.manchester.ac.uk/astronomy/nightsky/ gives more details of this and charts for all the events above along with an article on telescopic features of the Moon.

Full Moon is on the 30th 04:20 BST and is our Fruit Moon. The **Autumnal Equinox** is on Sept 22nd, the Sun crosses the celestial

equator from N to S, and there is equal day and night the whole world over.

www.skymaps.com produces a concise star chart (attached file tesmn1209.pdf) and also lists the dates when the Moon is close to bright stars and planets.

The Sky At Night is on 'Curiosity at Mars'. BBC1 00:05 3/9/12.

http://www.bbc.co.uk/iplayer/episode/b00p1crx/Mars_A_Horizon_Guide/ For a general history of the exploration of the Red Planet to ideas of sending the first humans on a Mission To Mars.

http://www.bbc.co.uk/iplayer/episode/b01mgllj/Horizon_20122013_How_Big_is_the_Universe/ For a review of the latest attempts to 'map the universe' (see a Flight Through the Universe below too), to the latest cosmological observations and ideas that **we live in an infinite universe**, that is **but one**, in an **infinite number**. If you can get your head round that one!

Astronomy Picture of the Day

http://apod.nasa.gov/apod/ap120801.html The Milky Way Over Monument Valley by Wally Pacholka.
http://apod.nasa.gov/apod/ap120819.html M72. A Globular Cluster of Stars.
http://apod.nasa.gov/apod/ap120815.html Curiosity On Mars. A Wall of Gale Crater.
http://apod.nasa.gov/apod/ap120821.html DNA. The Molecule that Defines You. An animation of the workings of the miracle molecule of life.
http://apod.nasa.gov/apod/ap120816.html NGC 6888. The Crescent Nebula. From J-P Metsävainio (Astro Anarchy).
http://apod.nasa.gov/apod/ap120813.html A Flight Through the Universe. An animation of the Sloan Digital Sky Survey. See 'How Big is the Universe?' above.

Sir Bernard Lovell and Neil Armstrong

Sir Bernard Lovell, the pioneering radio astronomer, died last month. His vision in masterminding the construction of the 76 m steerable Lovell Radio telescope at Jodrell Bank meant that Britain has always been at the forefront of radio astronomy research. As someone growing up in this era, he was an inspiration for my generation.

The Lovell Telescope was completed in 1957 and is the third largest steerable telescope in the world

And now only last week the death of Neil Armstrong, the first human to set foot on the moon. I can put the tribute no better than to quote his fellow astronaut Buzz Aldrin.

"Whenever I look at the moon I am reminded of that precious moment, over four decades ago, when Neil and I stood on the desolate, barren, yet beautiful, Sea of Tranquillity," he said in a statement. "Looking back at our brilliant blue planet Earth suspended in the darkness of space, I realised 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 many millions of others from around the world 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 historic moment in human history."

http://www.guardian.co.uk/science/2012/aug/26/since-neil-armstrong-manned-spaceflight for a thoughtful reflection on the future human exploration of space by Lord Martin Rees, Astronomer Royal.

Auroral Astrophotography

By Ole Christian Salomonsen. The following two photos are from, respectively, Tromsø and Hillesoy, Norway

photo

Majestic Elements

http://www.flickr.com/photos/salomonsen/
http://www.thedphoto.com/inspiration-fix/long-exposure-arctic-light-photography-by-ole-salomonsen/
http://www.thedphoto.com/inspiration-fix/stunning-digital-astrophotography-from-masahiro-miyasaka/

File:Paradiso Canto 31.jpg

I saw Eternity the other night,
Like a great ring of pure and endless light,

All calm, as it was bright,
And round beneath it, Time in hours, days, years
Driv'n by the spheres
Like a vast shadow mov'd; in which the world
And all her train were hurl'd.

Henry Vaughan, *The World*

File:Milky Way from Flickr.jpg

When on some gilded cloud or flower
My gazing soul would dwell an hour,
And in those weaker glories
Spy some shadows of eternity.

Henry Vaughan, *The Retreat*

The second of the two quotes I came across whilst reading *Dreams Of A Final Theory: The Search For The Fundamental Laws Of Nature* by Steven Weinberg.

I was fascinated to find that Henry Vaughan was a C17th physician and metaphysical poet from Brecknockshire, which is not far from where I live. And that his twin brother, Thomas, was a hermetic philosopher and alchemist http://en.wikipedia.org/wiki/Henry_Vaughan . http://en.wikiquote.org/wiki/Henry_Vaughan gives a lovely selection of images to go with quotes from his poetry.

If you can look into the seeds of time,
And say which grain will grow and which will not,
Speak then to me.

William Shakespeare, *Macbeth*

Per Ardua Ad Astra

Ian.

Ian Glendenning. Maths and Physics tutoring services in: GCSE Biology, Chemistry, Maths, Physics and Science; A Level tutoring in Maths, Further Maths, Physics and Statistics; university maths, and, lecturing in astronomy, cosmology, maths and science.