



TRANSIT

The Newsletter of



8th April, 2005. Julian Day 2453469



Couldn't resist this image when I found it on the Hubble site (well, I think it was Hubble). Have I read somewhere that barred galaxies are now thought to be the result of a collision of galaxies?

Here's some evidence for large craters still being formed on the Moon. It's a bit hair-raising to think about how close this incident was to the Earth. Does anyone know more about it all?

NASA Solves Half-century-old Moon Mystery

A NASA press release from Ray Worthy

In the early morning hours of November 15th, 1953, an amateur astronomer in Oklahoma photographed what he believed to be a massive, white-hot fireball of vaporized rock rising from the center of the Moon's face. If his theory was right, Dr. Leon Stuart would be the first and only human in history to witness and document the impact of an asteroid-sized body impacting the Moon's scarred exterior.

Almost a half-century, numerous space probes and six manned lunar landings later, what had become known in astronomy circles, as "Stuart's Event" was still an unproven, controversial theory. Skeptics dismissed Stuart's data as inconclusive and claimed the flash was a result of a meteorite entering Earth's atmosphere. That is, until Dr. Bonnie J. Buratti, a scientist at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, and Lane Johnson of Pomona College, Claremont, California, took a fresh look at the 50-year-old lunar mystery.

"Stuart's remarkable photograph of the collision gave us an excellent starting point in our search," said Buratti. "We were able to estimate the energy produced by the collision. But we calculated that any crater resulting from the collision would have been too small to be seen by even the best Earth-based telescopes, so we looked elsewhere for proof." Buratti and Lane's reconnaissance of the 35-kilometer (21.75-mile) wide region where the impact was most likely to have occurred led them to observations made by spacecraft orbiting the moon.

First, they dusted off photographs taken from the Lunar Orbiter spacecraft back in 1967, but none of the craters appeared a likely candidate. Then they consulted the more detailed imagery taken from the Clementine spacecraft in 1994. "Using Stuart's photograph of the lunar flash, we estimated the object that hit the moon was approximately 20 meters (65.6 feet) across, and the resulting crater would be in the range of one to two kilometers (0.62 to 1.24 miles) across. We were looking for fresh craters with a non-eroded appearance," Buratti said.

Part of what makes a Moon crater look "fresh" is the appearance of a bluish tinge to the surface. This bluish tinge indicates lunar soil that is relatively untouched by a process called "space weathering," which reddens the soil. Another indicator of a fresh crater is that it reflects distinctly more light than the surrounding area.

Buratti and Lane's search of images from the Clementine mission revealed a 1.5-kilometer (0.93 mile) wide crater. It had a bright blue, fresh-appearing layer of material surrounding the impact site, and it was located in the middle of Stuart's photograph of the 1953 flash. The crater's size is consistent with the energy produced by the observed flash; it has the right color and reflectance, and it is the right shape. Having the vital statistics of Stuart's crater, Buratti and Lane calculated the energy released at impact was about 0.5 megatons (35 times more powerful than the Hiroshima atomic bomb). They estimate such events occur on the lunar surface once every half-century.

I hope John will forgive me if this doesn't work. We (my photocopier, Flora, at Cockerton Church and I) are trying the text/photo facility to see if black and white, or is it gray-scale, pictures will photocopy properly. It hasn't worked very well in the past!!

The Biggest "Red Herring" Ever?

From John Crowther

Many years ago I borrowed from the library Arthur Koestler's book "The Sleepwalkers". After looking at it, I returned it as being too long, too detailed and too difficult a read. Having more spare time now, and hopefully a greater understanding and interest in astronomy, I asked about the book at our Astro-Fest bookstall last year but they couldn't help. Then I received a copy through the post as a gift from a kind member of our Society. "The Sleepwalkers" is a very detailed study of important historical astronomical characters. These are written about in biographies which vary in length. Copernicus, the Timid Canon, has a hundred pages and Kepler has two hundred.

The title, The Sleepwalkers, refers to the first part of the book about Babylonian and Ancient Greek astronomy. This was before the onset of the 1,500 year dark age interlude, which began to fragment with the advent of Copernicus, Kepler and Galileo.

The red herring of my title is Kepler's. It is the dead end coincidence which used up and to our minds, wasted much of his working life. Before Newton, it was thought that God controlled the Universe. His power was at first centred in the Earth and after Copernicus in the Sun. The planets were held in their orbits and angels and other powers moved them. Before we smile too much at these ideas we need to remember that the force of gravity is still a mystery to most people. We accept Einstein's refinement of Newton's theory but how many of us can fully understand warped space-time, a vacuum being distorted or a black hole, a hole in nothing, leading perhaps to another dimension?

Kepler's red herring seems to have a link with Bode's Law, which isn't a scientific explanation as to the spacing of the planets in our solar system. Kepler only knew the first five naked eye planets and in his acceptance of Copernicus' theory, realised that the Earth also orbited the Sun. He was also familiar with the Platonic solids, which are the six when we include the sphere. He imagined that the planetary orbits touched and were controlled by, the corners of these non-existent solids. Kepler gave his invisible and imaginary solids frames of different thickness. Using these he was able to keep "perfect" circular orbits for the planets, as they could move into the frames as they moved around the Sun.

Later, after he had abandoned this dead end theory, he discovered the truth that the planets move in elliptical orbits. It's interesting to note that the Earth, the planet with life, has the most intricate solid, the twenty-sided icosahedron. Kepler was so taken with his theory that he made paper models to illustrate it. He planned to give Frederick the Duke of Wuthemberg, a jewelled cup with the solids inside it. Pipes serving different alcoholic drinks would come out of the platonic solids. The Sun was to give aqua vitae, Mercury brandy, Venus mead, Mars vermouth, Jupiter white wine and Saturn bad old wine or beer.

All this came to nothing, the Duke flattered at first by the idea, wouldn't finance the jewelled solids, which included diamonds, jacinths and pearls. One wonders if a red herring would have been an apt breakfast for Kepler after this disappointment. Like

News of Carole Haswell and baby

Charlotte is now 4½ weeks old and is, on the whole, a very sweettempered, easy baby. We've only had one night where she cried for a significant length of time - usually (touch wood) we wake, feed, and go back to sleep - something astronomer-parents find relatively easy to deal with. We've had a number of the normal minor worries: failure to gain weight at first, but now she's gaining 10 oz a week; two colds; and an infected hang-nail. The health visitor said she'd never seen the last in a newborn before! Recently she's been a bit colicky, but I hope (touch wood) I've adjusted my diet to fix that. In summary: (i) babies are much damper and more wriggley than astrophysics (ii) in 4½ weeks she's caused me as much joy as my entire career has to date!

Hope all's well with CaDAS,
cheers,
Carole



BBC Sky at Night Magazine

From Neil Haggath

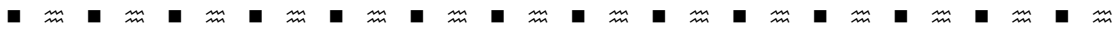
A new monthly magazine is being launched in June, BBC Sky at Night magazine. This will include details of society meetings and events; naturally, I'll be sending them our meetings programmes.

Some of our imaging experts may be interested to know that they plan to run a monthly astrophotography competition, with the best photos each month printed in the magazine, and a prize for the winning entry. Photos should be as recent as possible, dated no more than five months before the month of the issue.

Entries can be e-mailed to skyatnight@originpublishing.co.uk.

To be of acceptable quality, they must be at least 15 x 15 cm, at a resolution of 300 dpi. Any common file format is acceptable, and any file size up to 7 MB. Old-fashioned slides can be considered by prior arrangement (sign of the times, or what?); please contact them first, if you wish to send photos by post.

Neil M. Haggath



Armagh Telescopes Restored

From Jack Youdale FRAS

INTRODUCTION

The Armagh Observatory, in Northern Ireland, was founded in 1791 by the Archbishop Robinson. Recently, two large telescopes, which are part of the history of this observatory, have been carefully restored to their original condition after many years

of neglect. This work has been undertaken by the Sinden Optical Company at Newcastle. David Sinden and his small team had to research for information to ensure the instruments are as authentic to the originals as possible. The telescopes will be available to the general public for viewing the night sky at Armagh Observatory.

HISTORY OF THE TELESCOPES

Thomas Grubb FRS (1801 – 1878) founded a telescope making works in Dublin and by 1834 he made a 15 inch reflecting telescope (Newtonian/Cassegrain) for the Armagh Observatory. This instrument had speculum metal optics and was one of the first reflecting telescopes to be mounted on a driven equatorial mounting. Its main mirror was also the first to have a multi-point support system built into its mirror cell. There are other unique features on the mounting's polar axis. The restored telescope will have modern optics (glass) and the original optics will be displayed for visitors.

The sixth director of the AO was the Rev. W.F.A.Ellison, who took office in 1918. Ellison was a keen telescope maker in his own right and published one of the first books on telescope making. The book was entitled "The Amateur's Telescope" and it paved the way in the U.S.A to the publishing of the telescope making bibles "Amateur Telescope Making", Vols I, II and III.

During the latter part of the 19th century, George Calver, of Widford, Chelmsford, established a telescope making firm. He made many large reflecting telescopes, with silver on glass optics. Ellison had acquired an 18 inch Calver telescope and brought it with him to Armagh. After Ellison's death in 1936, Eric Lindsay took over as director of the observatory. He was to make many innovative changes to the observatory and brought new vision and energy to Irish astronomy.

By the end of the second World War, Lindsay applied for funding to convert the Ellison telescope into a 12/18 inch Schmidt camera. This was the first Schmidt optical system to be erected in the British Isles.

In recent years, both the Grubb and Calver telescopes had suffered greatly from neglect. The current administration in Armagh decided to have both instruments restored to their original working condition. This work was entrusted to the Sinden Optical Company, Newcastle. David Sinden had been Chief Optician at Grubb Parsons optical Company. Grubb Parsons was founded in 1925 at Walkergate, Newcastle. This optical company designed and produced some of the largest astronomical telescopes for the world, during its almost 60 years of manufacturing. The last great telescopes were the 153 inch Anglo-Australian and the 165 inch William Herschel telescope at La Palma. Grubb Parsons ceased to operate in the early 1980's and by this time David Sinden had established his own optical shop in Newcastle in 1979.

The two photographs on the next page show the completed telescopes in the Sinden optical shop prior to their shipment to the Armagh Observatory. The fully restored instruments will be working telescopes for use by the general public. They will also serve as a reminder of the history of the Armagh Observatory and some of its early telescopes. Sounds to me like it's going to be worth a visit!

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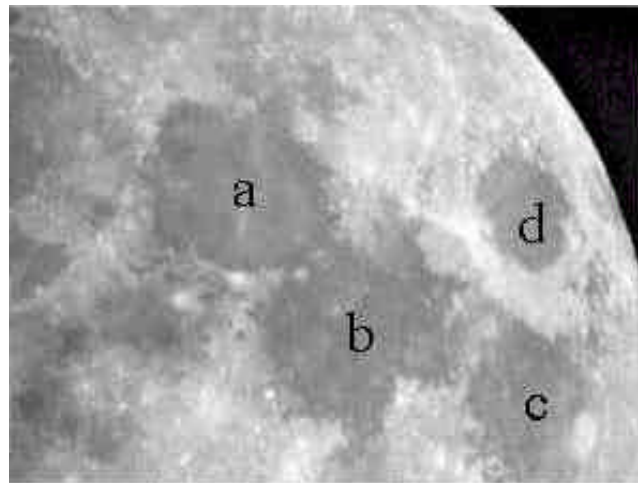
The (Next to) Back Page Pictures



The T.Grubb 15 inch, made in 1834



The Calver 18 inch, brought to Armagh in 1918 by Ellison
Photos by Malcolm Bannister



Name the four mare (lettered a, b, c and d in the picture), clustered in a group in the north-west quarter of the full Moon.

Transit Tailpiece

Don't ask why but I present for your enjoyment another series of very modern quotes on the subject of eclipses of the Sun

Quote/Unquote

Now eclipses are elusive and provoking things . . . visiting the same locality only once in centuries. Consequently, it will not do to sit down quietly at home and wait for one to come but a person must be up and doing and on the chase.

Rebecca R. Joslin (1929)

Shadow and Sun – so too our lives are made –
Here learn how great the Sun, how small the shade.

Richard Le Gallienne (1920)

Each eclipse has at least one phenomenon that makes it special.

Stephen J. Edberg (1990)

The general phenomenon is perhaps the most awfully grand which man can witness.

George B. Airy (1851)

A total eclipse of the Sun is the most sublime and awe-inspiring sight that nature affords.

Isabel Martin Lewis (1924)

Custom Telescopes UK. For your telescopes, binoculars and accessories of all kinds, go to Glen Oliver, a long-time member of the Society. He operates from Hartlepool and has a website www.goliver.freeserve.co.uk. Glen also supplies Astronomy and Space books of all kinds. Don't forget to visit his website soon.

CaDAS Website Now at www.wynyard-planetarium.net and the webmaster, Ed Restall, can be contacted at webmaster@wynyard-planetarium.net. Everyone is encouraged to visit the site and tell your friends about it. There is an opportunity on the site to find that piece of equipment you were looking for or to advertise the things you want to sell. There are links to all sorts of other interesting sites and information about the Society.

Post and Email If anyone wishes to change the way they receive their Transit, please let me know. If any member is not receiving a copy, please let me know.

Articles Please send contributions for the newsletter to Alex Menarry, 23, Abbey Road, Darlington, DL3 7RD, 01325 482597 (a.menarry@virgin.net) or to John McCue, 01642 892446 (john.mccue@ntlworld.com). Copy deadline date is the 1st of each month
