

# The Astronomical Society of Edinburgh

Journal 43 - April 2001



**Image of the Moon**  
(See text of 'Postcard from Earlyburn' by Horst Meyer dieksford details)

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# From the President

Isn't Astronomy a great hobby? There are so many aspects to suit all kinds of people. From the fireside astronomers and historians to the optical observers and the hi-tech digital imagers, there's something for everyone. It is particularly encouraging to see a growth in the number of practical observers and an enthusiasm shown by our new members for the two new observing/imaging groups. Thanks are due to those fronting the groups.

Dave King coordinates the Messier group. The Messier objects are good targets for the amateur astronomer providing everything from easy naked eye objects to fiendishly difficult faint ones. A good pair of binoculars is all that you require to get started. The satisfaction in finding these (sometimes) elusive objects is a reward in itself, but if you complete an observing logbook, you will also qualify for a certificate.

Horst Meyer dies is continuing to run the CCD/Imaging group in the temporary absence of Neil Grubb. Horst is looking for more members interested in conventional photographic imaging to strike a better balance with the already strong following of digital imaging. The front cover of "The Journal" is a digital image produced by Horst using a simple webcam. Impressive isn't it. If you would like to be able to produce images like this, then why not join the group to find out how? This group meets on the first Monday of the month at the Calton Hill and even if the weather is unfavourable, there is plenty of interest provided from members passing on handy hints for dealing with all kinds of observing difficulties.

Both of these groups are open to everyone in the Society from the absolute beginner to the seasoned observer. What better way to learn your way around the sky than to complete a project set by the observing groups?

The Dobsonian telescope has now been taken down to Earlburn. Regrettably, however, due to the Foot and Mouth crisis, we must ask that you stay away from the site for the time being. The virus causing this disease can easily be spread by people walking around the countryside and of course, those of you familiar with Earlburn will realise that there is livestock in the adjacent fields. Let's hope that the disease is brought under control very soon. We will inform you as soon as we know the site can be used again.

The A.G.M. was held on 2nd March. Your new Council elected are:

|                 |   |
|-----------------|---|
| President       | Lorna McCalman  |
| Vice Presidents | Peter MacDonald, Alan Ellis   |
| Secretary       | Graham Rule   |
| Treasurer       | George Grant  |
| Councillors     | Alison Duncan, Ray Fenoulhet, Charlie Glead, Jim Nisbet, Adrian Weatherhead |

The Council try to run the Society for the benefit of all the members, but we need your input too. If you have suggestions or ideas that you think might benefit the Society then please let us know. We have a new Society Noticeboard in the Playfair Building that can be used to advertise and inform. Any astro equipment you may wish to buy or sell; fellow members you may wish to find to share particular viewing interests, or information about lectures and events that you think may be of interest to other members, then please use the Notice Board. We will also use it to display promotional leaflets received from various companies and publishers. Used well, the Notice Board will be well worth checking for information. Incidentally, the tearotais also posted on the Notice Board and you will note that we are always in need of volunteers for tea duties. Don't leave it to the same people, please put your name down and take a 'turn with the urn'. It is a great way to get to meet other members of the Society. Who knows, the "milk and two sugars please" might just turn out to have an 8 S.C.T. and similar viewing interests.

The Astronomical Society of Edinburgh is vibrant and exciting. With lots of committed and enthusiastic people, this is making us the envy of many other societies. In addition to the practical observing, we have an interesting programme of meetings lined up for the next six months. So, get involved with whatever aspect of Astronomy appeals to you, and enjoy it!

Lorna McCalman

# An Account of the Aurora Seen in London in the Year 1716

That day was the last Tuesday in February, when London, just after dark, was attracted by strange flashes of light in the North - West. The light was diversely compared to the dawn of day, to that of the moon breaking through the clouds; and a newspaper philosopher cheerfully describes it as 'darting many stream towards all parts of the sky, which looked like smoak'. Its progress was towards the South - East, and it died out at the witching hour of night. Superstitions sharpened or deceived the eyes of beholders in all parts of the country. The London Jacobites hailed this Aurora as a message from Heaven to cheer them after the depression caused by the execution of sentence on the Jacobite leaders. The London Whigs did not know what to make of it, but men of both parties, whose eyes were made the fools of others senses, agreed in seeing in the field of the sky armies fiercely engaged, giants flying through the ether with bright flaming swords, and fire dragons flaring from swift and wrathful comets. They swore they heard the report of guns; they were quite sure they smelt powder. What one man said he saw, another assented to, and proceeded to see something monstrous.... the scientific critics saw nothing but what was natural, and they schooled the Londoners in this wise: "The Sun having been hot for two days past, and particularly that afternoon, by which various vapours were exhaled both from the Earth and Water, and the sulphurous Particles mixed with them, taking fire, might occasion that Light, and some coruscations, as it is very common upon marshes in fenny places, in Spring and Summer nights."

But nobody looked on that northern aurora in the way prescribed. Sentiment connected it with an individual. The aurora might not be an omen of good for a party, yet it might be a symbol of grief for an individual, and an assurance that Heaven had taken to its glory what men had destroyed.

Lady Cowper described the spectacle more simply than scientifically. "First appeared a black cloud, from whence smoke and light issued forth at once, on every side, and then the cloud opened and there was a great body of pale fire, that rolled up and down and sent forth all sorts of colours - like the rainbow on every side; but this did not last above two or three minutes. After that it was like pale elementary fire, issuing out on all sides of the Horizon, but most especially at the North and North - West, where it fixed at last. The Motion of it was extremely swift and rapid, like Clouds in their swiftest Rack. Sometimes it discontinued for a While; at other Times it was but as Streaks of Light in the Sky, but moving always with great Swiftness. About one o'Clock this Phenomenon was so strong that the whole Face of the Heavens was entirely covered with it, moving swiftly as before, but extremely low. It lasted until past four, but decreased until it was quite gone. At one, the Light was so great that I could, out of my Window, see People walking across Lincoln's Inn Fields, though there was no Moon. Both Parties turned it on their Enemies. The Whigs said it was God's Judgement on the horrid Rebellion, and the Tories said it came for the Whig taking off the two Lords that were executed. I could hardly make my Chairmen come home with me, they were so frightened, and I was forced to let my glass down and preach to them as I went along, to comfort them! I am sure anybody that had overheard the Dialogue, would have laughed heartily. All the People were drawn out into the Streets, which were so full One could hardly pass, and all frightened to Death."

(Extract from *London in the Jacobite Times*, Vol 1, by Dr Doran, London 1877)  
Supplied by Alison Duncan

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## B.A.A. Aurora Section Meeting

A meeting of the BAA Aurora Section will be held on Saturday 8 September 2001 at the City Observatory. All ASE members are welcome to attend (whether you are in the BAA or not). It will start at 10:00 for 10:30. Further details about times and speakers will be announced later.

# Dr Harry Ford

[Theoration given by Dr William Samson on the occasion of Harry Ford being awarded the honorary degree of Doctor of Science at the University of Abertay, Dundee on 7th July 2000.]

Chancellor, I have the honour to present to you for the award of the Honorary Degree of Doctor of Science Harry Stewart Ford, lecturer at the Caird Planetarium at the Old Royal Observatory, Greenwich. I present Harry Ford to you for this award in the light of his outstanding record in actively promoting astronomy to the public, especially to young people.

Harry Ford was born in Dundee in 1938 and educated at Rockwell Central School. He left school at the age of fifteen and became a medical technician at Queen's College, Dundee - now Dundee University; receiving part of his training at 'Bell Street Tech' - now the University of Abertay Dundee.

In 1956 Harry was one of the founders of Dundee Astronomical Society in which he held, over the years, every office with distinction, and is now an Honorary Member. From 1963 he assisted Dr Jaroslav Cisar, part time Curator of Mills Observatory, Dundee and member of the Department of Astronomy in the University of St Andrews, and then succeeded him. At first, this was a part -time post but in 1970 it became full -time.

The Mills Observatory was transformed under Harry's leadership from a dusty outpost of the Parks and Cemeteries department into an active centre for amateur astronomy, and for bringing Astronomy to the public, which was the founder's intention. The idea of siting a public observatory in Dundee was originally conceived by the Reverend Dr Thomas Dick, a director of the Watt Institution - a precursor of the present -day University of Abertay Dundee - and implemented thanks to the philanthropy of John Mills in the 1930s. Dick's idea did not reach fruition until the 1970s, when Harry Ford put the Mills Observatory on the map as the UK's foremost public observatory and a place of pilgrimage for amateur astronomers from throughout the UK and beyond. It became the venue for astronomical meetings and conferences, with Patrick Moore being a frequent visitor. The 10 inch Cooke telescope at the Mills was used mainly for studies of the Moon, prior to the lunar landings and in 1976 -78 Harry became director of the Lunar Section of the British Astronomical Association. He also made notable contributions to observations of Aurora, Noctilucent Clouds and Meteors.

Harry Ford, equipped with practical and communication skills, filled the observatory with models, visual aids and even built a small planetarium - one of the first miniature projection planetaria in Scotland. His first planetarium was made from a copper cistern ball, acquired from a certain university in Dundee. This was expertly perforated with tiny holes corresponding to the positions of the stars, and set on a rotating mounting made from an old bicycle. The end result was superior to many's store -bought planetaria in terms of its precision, its functionality and its flexibility. Harry also makes spectroscopes, sundials and telescopes from the most unlikely junk, to give away to interested youngsters. I myself had the privilege of being on there receiving end of Harry's generosity in the early 1960s, when he made this beautiful little telescope for me. It still sees active service in my back garden.

During his time as Curator of the Mills Observatory, Harry encouraged many young people and trained them in the use of astronomical instruments. Some went on to become distinguished astronomers - for example Robert McNaught, now at Siding Spring Observatory, Australia, who has discovered several asteroids, comets and supernovae; and Neill Reid, now at Mount Palomar Observatory, USA, discoverer of the smallest known star. Indeed, not a few of our students at Abertay, over the years, were given their first introduction to the wonders of science through the good offices of Harry Ford.

In 1982, for family reasons, Harry resigned as director of the Mills Observatory and moved with his wife Lynne to Southend. Harry and Lynne set up a workshop and built a larger planetarium in the Central Museum, Southend. This excellent planetarium is still there, and is run by the museum.

In 1986, Harry Ford was appointed Planetarium Lecturer at the Caird Planetarium - another Dundee connection - at the Old Royal Observatory, Greenwich. He is also responsible for the care and use of historic astronomical instruments, and continues to make instruments - most recently the Viking Sun - Compass - and models; some of them for other planetaria and institutions. His enthusiastic and highly personal presentations are well known especially for their sound scientific content, at a time when many planetaria are reduced to eye-catching visual effects and pre -recorded commentaries. He gives lectures to astronomical societies and has taught astronomy classes.

Harry Ford is the author of two children's books "100 Questions and Answers on Astronomy and Space

Travel", in 1994, and "The Young Astronomer" in 1998, which has been translated into all the major European languages. He has published many articles, including some in the Scots Magazine about local historical figures of scientific interest.

In 1985 Harry received the Lorimer Medal of the Astronomical Society of Edinburgh, in recognition of his work in popularising Astronomy. This award has been presented only 10 times since its inception in 1938. In 1996 Harry Ford was presented with the Callendar Award of the National Maritime Museum.

It is for all these reasons that it is appropriate that this University should seek to honour Harry Ford today.

Sir, it gives me great pleasure to present to you Harry Stewart Ford, for the award of Honorary degree of Doctor of Science of the University of Abertay Dundee.

[Acknowledgements to the University of Abertay and to Dr Samson. -Ed]

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## Lord John McLaren - another Edinburgh Astronomer



**Lord McLaren**

From: A. Eddington, *Edinburgh and the Lothians at the Opening of the Twentieth Century*, Brighton and Edinburgh 1904

his house at 46 Moray Place (now the office of the Educational Institute of Scotland) or at his summer cottage at Lochailort. For a time he had in his possession the famous Dunecht Heliometer which had been used by Sir David Gill to estimate the Sun's distance, and which is now preserved at the Visitor's Centre at the ROE, and he wrote to Sir William Christie, the Astronomer Royal, wanting to borrow a photometer so that Hilger could make one for him. Biographies state that he had a "powerful telescope" but it is unlikely that he did any serious observing. He became a Fellow of the Royal Astronomical Society in 1884.

John McLaren was born in Edinburgh on 17 April 1831, the eldest son of Duncan McLaren MP and Lord Provost of Edinburgh, and his first wife Grant Aitken. He was of very small stature and always in delicate health so he was educated privately. He trained in Law at Edinburgh University and went on to a distinguished legal profession, details of which are given in his various biographies. He became QC, Lord Advocate, Judge of the Court of Session and Liberal MP for Wigtown and for the City of Edinburgh.

However, he had many scientific interests, botany and meteorology as well as astronomy. He was a Director of the high altitude weather observatory on Ben Nevis, set up by the Scottish Meteorological Society of which he was President. He had considerable mathematical ability and wrote ten papers for the Royal Society of Edinburgh, one on equations of curves, surfaces of lenses and atmospheric refraction. He was elected FRSE in 1869 and was Vice-President three times.

Like his father, he was a supporter of the Royal Observatory and friend of Charles Piazzi Smyth, then when Smyth retired he became a member of the committee to found the new Royal Observatory at Blackford Hill and to arrange the transfer of Lord Lindsay's instruments and library from Dunecht. His legal expertise was invaluable in these negotiations. He had his own observatory but it is not certain whether it was in the garden of

Lord McLaren was awarded the LL.D. by the Universities of Edinburgh (1882), Glasgow (1883) and Aberdeen (1906). A much respected figure and by all accounts an amusing and friendly companion he was a great friend of Professor Peter Guthrie Tait, Lord Kelvin and many other men of science. Despite further delicate health in later life he managed to reach the age of 79. He died of influenza in Brighton on 6 April 1910 and is buried in Grange Cemetery, Edinburgh. He was survived by his wife Otilie Schwabe, three daughters and of three sons.

[DNB; Scotsman 7 April 1910; Proc. RSE XXXI 694; Piazzi Smyth's notebooks at ROE]  
Dave Gavine

# Edinburgh International Science Festival 6 to 17 April 2001

There will be a number of items of astronomical interest in the Festival this year. A full programme may be obtained free at the public libraries, the Assembly Rooms and other outlets. Or visit the Science Festival Website at <http://www.sciencefestival.co.uk/>

- **Time Travelling**  
Dr R Lambourne; Sunday 8 April, 2pm to 3pm, Royal Museum.
- **The Latest on the Search for Extraterrestrial Life**  
Dr B Jones; 8 April, 4pm to 5pm, Royal Museum.
- **The Northern Lights: Illuminating Near -Earth Space**  
Dr S Milan; Tuesday 10 April, 7pm to 8:30pm, Fruitmarket Gallery.
- **The Magnetic Sun**  
Dr L Fletcher; Wednesday 11 April, 7pm to 8:30pm, Fruitmarket Gallery.
- **Is There Anybody Out There?**  
Prof. A Sargent; 11 April, 8pm to 9pm, George Square Theatre. Free by ticket only.
- **Magnetic Appeal**  
Dr I Mann; Thursday 12 April, 7pm to 8:30pm, Fruitmarket Gallery.
- **A Window on the World**  
Dr Mary Cleave (NASA); Friday 13 April, 7pm to 8:15pm, George Square Theatre. Free by ticket only.
- **Unfolding Our Universe**  
Iain Nicolson; Saturday 14 April, 8pm to 9pm, Royal Museum.
- **Big and Beautiful** (The Hubble pictures)  
Prof. D Kurtz; Sunday 15 April, 8pm to 9pm, Royal Museum.
- **Three Roads to Quantum Gravity**  
Prof. L Smolin; Tue 17 April, 6:30pm to 7:30pm, Theatre B David Hume Tower.
- **Royal Observatory Open Days**  
13 April, 6pm to 9pm; 14 April, 2pm to 6pm. ROE Visitors' Centre. Free.

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## Where has the Aurora gone?

Mid latitude observers had been commenting that geomagnetic and auroral activities have been very low in December, January and February in spite of proximity to the peak of the sunspot cycle. An inspection of British records kept since January 1976 confirm that there are, on average, low levels of auroral and geomagnetic activity in December and January with peaks of activity generally in the spring and autumn periods. The summer observing period in UK is affected by twilight conditions but a secondary average low level auroral period appears in North Dakota observations, where skies are darker in summer. There is also a similar effect in the global geomagnetic activity.

In contrast, the record of shock waves in the solar wind impacting the Earth's magnetic field does not show any marked average seasonal variation.

Because the Sun's rotational axis lies at an angle of 7.25 degrees to the perpendicular of the ecliptic the Earth tends to face the effects of activity on the Sun's southern hemisphere in springtime and the northern hemisphere in autumn. At mid winter and mid summer the Earth faces the Sun's equatorial regions which are less active and contain the magnetically neutral zone. These effects may account for the long term average variations in geomagnetic and mid -latitude activity.

Ron Livesey

P.S. Faint auroral arcs were seen March 19/20 and 20/21.

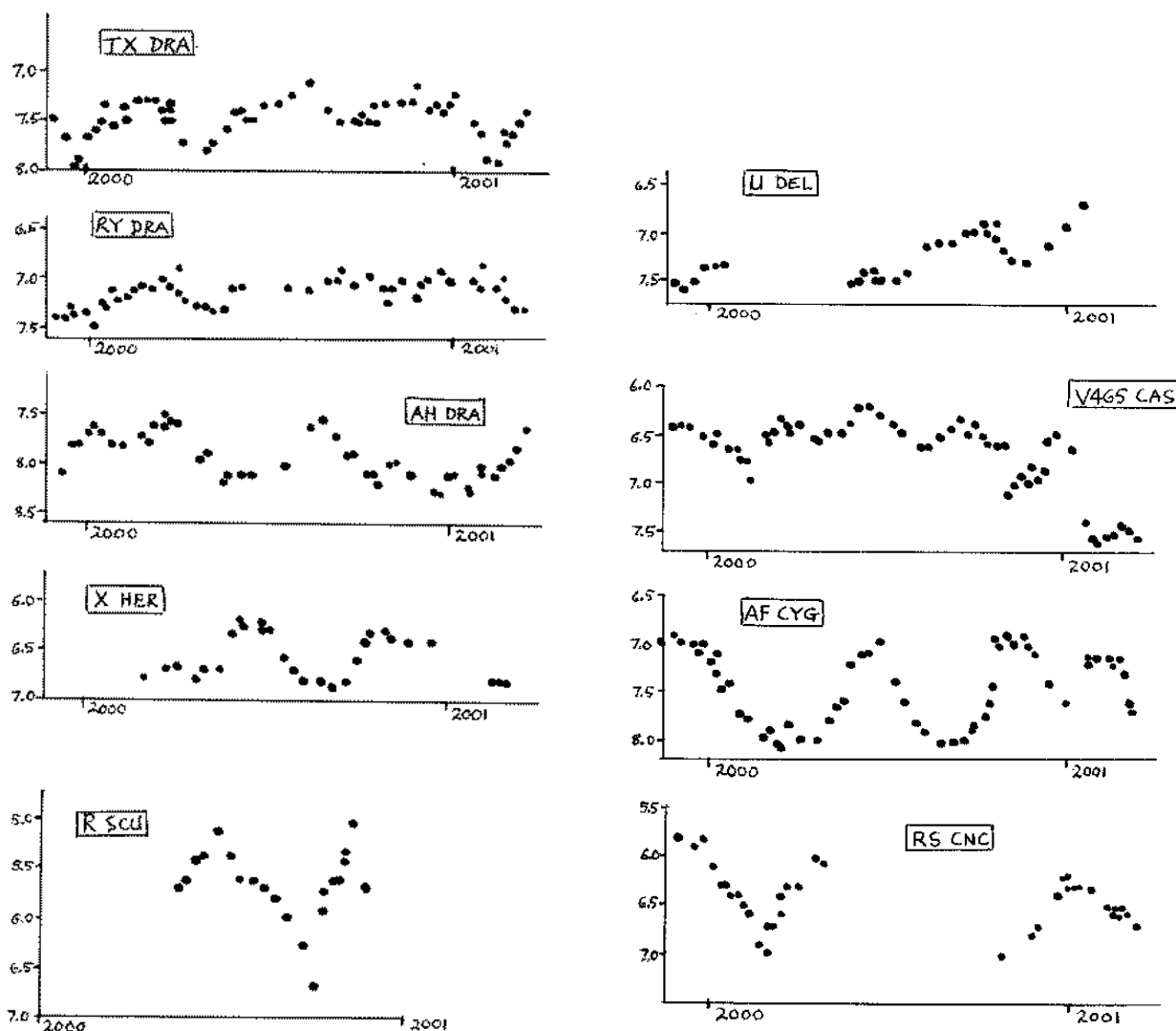
A major aurora was seen on the night of Mar 31/Apr 1. Magnetometers were reactive all over the country, and the auroral light was first seen by Dave as it started to get dark at 2000. There were several coronal peaks with long red blue and green rays to the zenith, but it wasn't particularly bright and had long quiet intervals between bursts of activity which included pulsations and flaming. (Editor)

# Binocular Variable Stars in 2000 -2001

Dave Gavine and Lorna McCalman continue to monitor selected variable stars using 80mm binoculars but it is hoped to replace some of the CCD equipment eventually. The present "repertoire" of about 32 stars has recently been extended to include RY, ST and Z Ursae Majoris and V Ursae Minoris, useful stars because they are circumpolar and can be observed all year round, like the star of Draco. In addition Ron Livesey has a programme of telescopic variables in which he is experimenting with different observing methods, including filters, to try to counteract the problems of the retinal response to red stars which he sees very brightly.

Light curves based on our (binocular) observations are represented. Notable events during the year were the unusual dimming of V465 Cas and the steep dive of R Coronae Borealis (not shown). R CrB is a frustrating star! It always decides to go into one of these deep fades when the star is disappearing in the western twilight in late autumn. Needless to say we missed it - again.

All the stars were followed using the BAA charts which may be seen, together with light curves and the information on each star, in the Variable Star Section Archive on the BAA website:  
<http://www.ast.cam.ac.uk/~baa/>.



Dave Gavine

# Postcard from Earlyburn

Inspired by Nikki MacLeod's talk at last year's Members' night [1], I went out and got myself a webcam to use as a cheap CCD astrocamera. To acquire images from the camera I use the AstroVideo application [2] on Windows 98, on a Pentium II 267 MHz laptop. Individual exposures are necessarily much shorter than one second; AstroVideo can add up a number of such frames before writing the image to disc, and it can take a sequence of such images with a single button click. The output is appropriately stored as 32-bit FITS rather than an 8-bit graphics format.

The immediate adding of frames that AstroVideo does will not take care of movement of the object across the detector due to tracking errors. So part of the summation has to take place later (offline) when there is time to determine the shifts between the constituent images. For this data reduction I use the Red Hat Linux installation on my laptop and various applications from the Unix Starlink Software Collection [3].

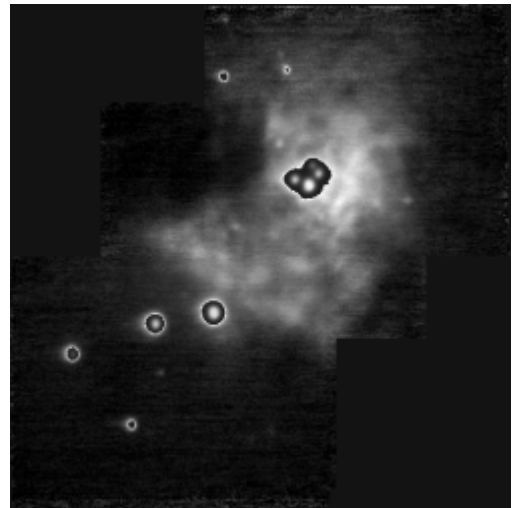


Image of the Orion nebula

The webcam had its original lens removed and a standard M42 photogear glued on. It can therefore be used with any M42 photolens, but also with my Celestron 8 in prime focus eyepiece projection. Since the individual frames are so short, accurate polar alignment or guiding are not strictly necessary. I have even taken images with just a 50 mm lens on a stationary tripod - not tracking at all. On the other hand, more disc space and time must be spent on collecting and combining the images.

More information about using webcams for astro-imaging can be found at or through two Websites ([4] and [5]) that are listed below. Much more specific to how I use the webcam is [6].

The image of the Moon on the front cover was taken on 2001/01/13 from Earlyburn with an  $f=400\text{mm}$ ,  $f/6.3$  telephotolens. Since the field of view is only  $25''$  by  $19''$ , this is a mosaic of 9 images. These in turn are added up from 16 frames, which should increase the dynamic range of the camera from 7 bits to 11 bits. The final mosaic was also fed through an unsharp -masking algorithm. This suppresses large -scale features and emphasises the finer detail and thereby gives a sharper appearance.

The image of the Orion nebula was taken on 2001/02/12 from Earlyburn in the prime focus of the telescope, hence  $f=2000\text{mm}$ ,  $f/10$ . Since the field of view is only  $5.0''$  by  $3.8''$ , this is a mosaic of three images showing only the innermost part of the nebula. For each of the three fields up to 256 frames from the webcam are added up, 8 frames per image on -line and 32 such images off -line.

Just above and to the right of the centre is the Trapezium, the quadruple star  $\theta^1$  Orionis. The light heats the surrounding gas to 8000 or 10000 ° and causes it to shine. To the left of the Trapezium is the 'dark bay', where cold dark gas obstructs the bright nebula. Below the centre is the star  $\theta^2$  Orionis A. Just above it runs the shock front where the bright nebula and the starlight plough from the top into the dark cloud below.

## References

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Horst Meyerdierks

# Astronomical Publishing in Edinburgh in the 19th Century

[Based on the talk given at the January 2001 meeting of the Society]

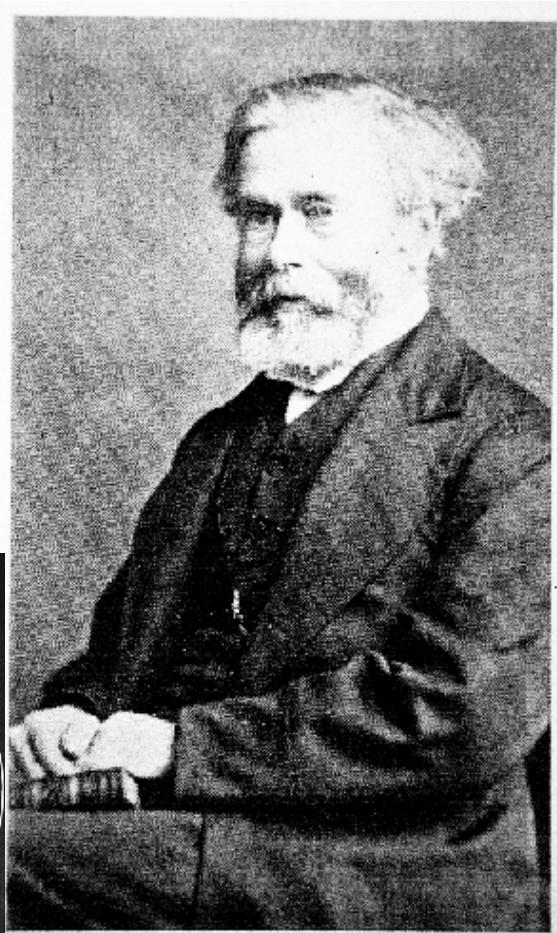
I'd like to start by welcoming members to the 21st century. The topic of this talk came to mind last year when I gave a talk on Thomas David Anderson and Hector Macpherson Junior, both of whom had been influenced in astronomy by books published by **Gall and Inglis**, publishers. I wanted to know more about this small Edinburgh firm. I started by searching our Library for books that they published and began to realise that there quite a lot either published in Edinburgh or by authors with connections with Edinburgh.

The result is a rather odd mix of history, biography and, much more interesting I'm sure, pretty pictures (only some of which I have been able to include here).

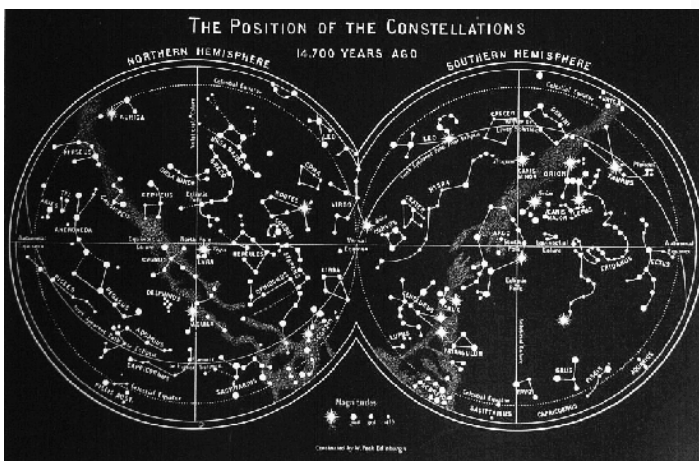
## Gall and Inglis publishers

In 1874 **James Gall** established a printing firm specialising in religious works. When in Paris in 1825 he saw specimens of French books for the blind and decided to design a script which could be used by blind and sighted people alike. This was taken up by the Edinburgh Blind Asylum (which he helped to found) as well as similar institutions in London and Glasgow. He was Master of the Merchant Company in 1850.

In 1810 his son, also called James Gall, had joined the firm but left in 1874 when he decided to pursue a career in the church. As **Rev James Gall Jr** he founded the Carrubbers Close Mission. As well as writing on religious matters (often from a rather unorthodox standpoint) he had an interest in astronomy. It was his "*Easy Guide to the Constellations*" and his "*People's Atlas of the Stars*" that brought him to my attention.



JAMES GALL, JR.



As part of his work in trying to get the celestial sphere onto flat paper he developed a special map projection in which tries not to distort the shapes of the constellations too much. Another advantage of this was that it didn't distort the sizes of continents as much as the commonly used Mercator projection. It was re-invented by Arno Peters in 1967 and it was adopted by UNESCO.

Most of Gall's work was on religion but there is a fascinating book called "*The Stars and the Angels*" in which he not only argues for the existence of other inhabited planets but describes the view that Gabriel would have had on his way from heaven to earth to tell Mary that she would have a baby next Christmas. He died at the age of 87 in 1895.

When James Gall Jr left the firm his place was taken by his future brother-in-law, **Robert Inglis**. The firm later passed to his family line although the Gall name was kept alive by the sons.

-in-law, **Robert Inglis**. The firm

**James Gall Inglis**, Robert's son, was a partner in the firm from 1880. At that time the main business was publishing '*Ready Reckoner*' tables - used commonly until the advent of the pocket calculator. He was a member of the ASE, its librarian, and from 1930 to 1932 its President. He was on the committee to deal with the Lorimer Bequest. He was a friend of **AP Norton** and became the publisher of "*Norton's Star Atlas*".

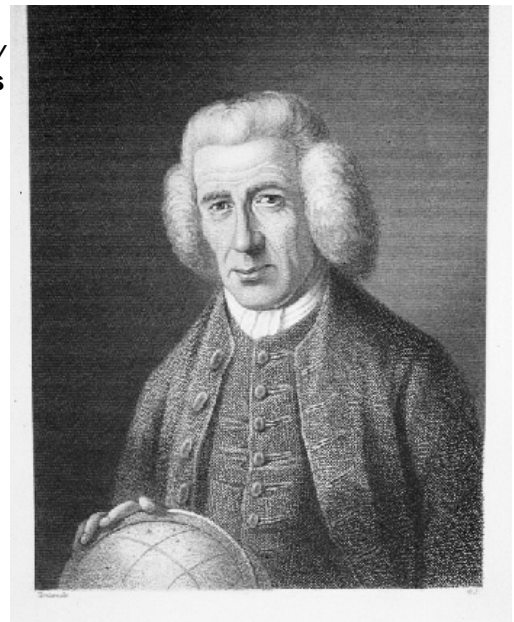
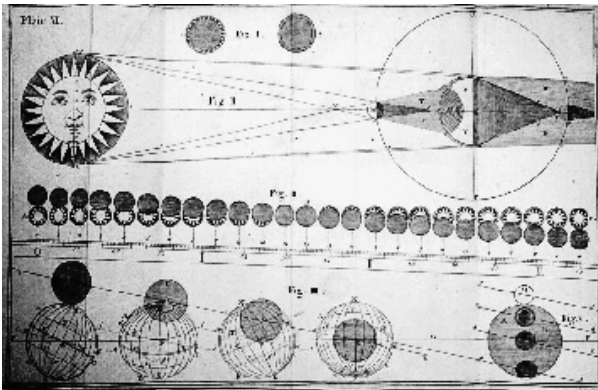
**Harry Robert Gall Inglis** was James's younger brother and produced "Contour Road Atlases". He was a keen mountaineer. Both James and Harry died in 1939.

**Robert Morton Gall Inglis** was James's son and took his father's interest in astronomy and his uncle's in mountaineering. He also continued the family tradition of involvement with the Church.

He was President of the ASE between 1971 and 1973 and donated the Star Finder made by Sir William Peck which we have on display in the Playfair Building. He also collaborated with Norton and, following Norton's death, produced revised versions of the Atlas. He died in 1975 and the firm passed out of the family. It was wound up some time afterwards. In his will he left a substantial bequest to the ASE.

## Other Authors and Publishers

Of course, astronomical publishing in Edinburgh didn't start in the 19th Century. We have in our library a 12th edition of "*Astronomy explained upon Sir Isaac Newton's Principles*" by **James Ferguson**. This was first published in 1756 and was a favourite work of William Herschel. Ferguson (25/4/1710 - 16/11/1776) was educated at Edinburgh University despite being self-taught before that. He was supported by his patron, Maclaurin. He later worked as an instrument maker in London and gave lectures on astronomy. He became a Fellow of the Royal Society in 1763.



**Sir David Brewster** (11/12/1781 - 10/2/1868) was Principal of St Andrews University and later of Edinburgh University. He was Secretary of the Edinburgh Astronomical Institution in 1815 and founder of the Royal Scottish Society of Arts. He was a Fellow of the Royal Society, the Royal Society of Edinburgh and the Royal Astronomical Society. He wrote on many aspects of physical sciences, especially polarisation and optics. In 1865, he published "*More Worlds than One*" discussing the problem of determining whether life existed only on the Earth.

Another Professor who had a great influence on astronomy in Edinburgh was **Professor John Playfair** (10/3/1748 - 19/7/1819), founder of the Astronomical Institution. He wrote and contributed a section on "Physical Astronomy" for the

**Professor John Playfair**  
"*Outlines of Natural Philosophy*"

*Encyclopaedia Britannica*.

An interesting book in the Society's library is "*A Series of Discourses on the Christian Revelation viewed in connexion with the Modern Astronomy*" which was published by John Smith & Son in Glasgow in 1817. This was by **Rev Thomas Chalmers** who was one of the leading lights in the Church of Scotland and later led the 'Disruption' and the setting up of the Free Church. He had given a series of sermons including this material, in which he stressed the 'plurality of worlds' - that is the belief that God had created many inhabited worlds. Brewster took up this view as did many of the revangelicalists such as Rev James Gall Jr.

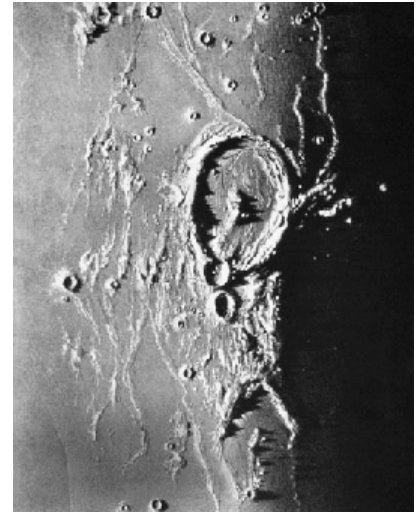
We have two copies, one of which was presented to the ASE by J Gall Inglis and was owned by one of his ancestors in 1843 (when Chalmers chaired the Disruption Assembly of the Church of Scotland). It was originally presented by Chalmers himself!

**James Nasmyth** is best known as the inventor of the Steam Hammer which was one of the major developments of the Industrial Revolution. He was born in Edinburgh and brought up in York Place, where he used his father's spy-glass telescope to look at the moon. Later, when he was living in England he continued his astronomy, inventing a particularly odd form of mounting which allowed the telescope to move in altitude and azimuth without the observer having to get up from his seat.

He co-authored "*The Moon*" in which he compared the effects of shadows on mountains, especially volcanoes, in order to illustrate the shape of lunar features.



My favourite picture by Nasmyth, however, has to be in his autobiography. In 1827 the Society of Arts (later the RSSA) gave him a grant of £60 to build a steam carriage. He built this and drove it up and down Queensferry Road. Then he scrapped it as there was not thought to be any commercial value in it.



The **Royal Observatory** itself generated a certain volume of publications over the years. Of particular note are the official "*Edinburgh Observations*" - mostly written by **Charles Piazzi Smyth**. Quite a few of these contained the results of Thomas Henderson's work. Some volumes of these are in our library. The annual reports of the Astronomer Royal make fascinating reading in that they contain material about all the problems Smyth was having with the Observatory and his accounts of the times service which I covered in my talk a couple of years ago. After the move to the Blackford Hill we also see a complete catalogue of the Crawford Library being produced. We have a copy of this in our library as well.


Smyth, of course, didn't just produce official reports. We have a copy of his "*Teneriffe, an Astronomer's Experiment*" published in London in 1858. This was the first book to contain stereographic photographs. This is an account of a trip he made, having borrowed a friend's boat, and the astronomical observations he made at the foot of the mountain and at its peak. This led to the suggestion that observatories should not be in or near cities but at the tops of mountains - something that seems so obvious now. He also wrote extensively about the Great Pyramid and we have a reprint of his "*The Great Pyramid - its secrets and mysteries revealed*".

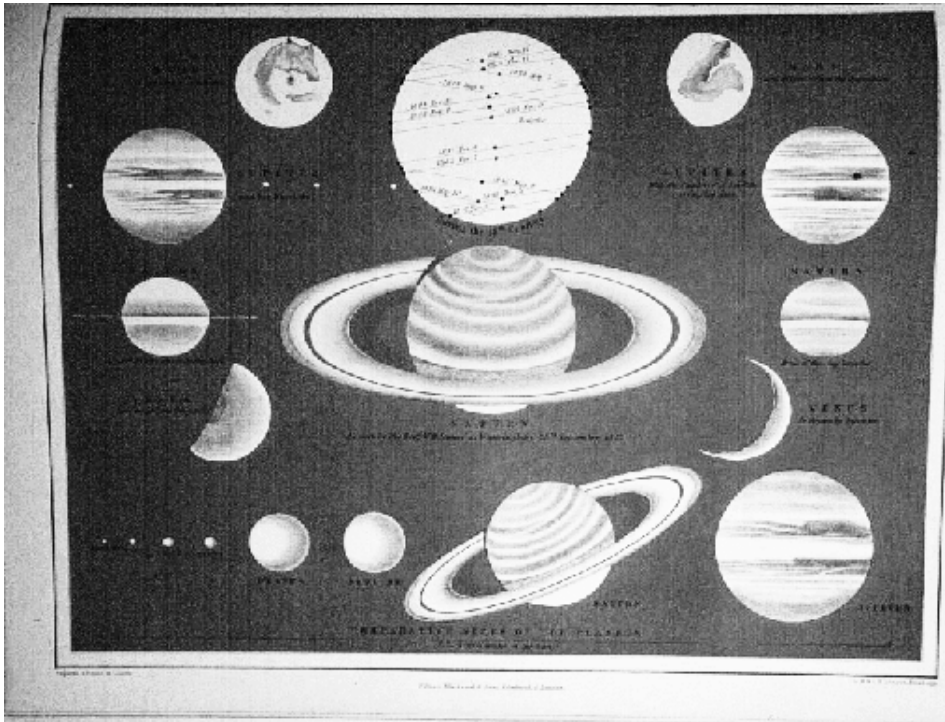
Matters of interest to astronomers also appeared in the publications of the **Royal Society of Edinburgh** and the **Royal Scottish Society of Arts**. Indeed most of the details of the times service appeared in the Transactions of the RSSA - written by Smyth, Frederick Ritchie and Edward Sang.

One of the great map-making dynasties in Edinburgh was **the Bartholomews**. They produced engraved plates of maps for other publishers before going into their own publishing business. John Bartholomew kindly gave me a couple of photocopies of star maps. As John is one of four members I felt that it would be a bit cheeky to try to tell the story of his family business. Something that I found particularly interesting was that it was one of his ancestors who is credited with reviving the name 'Antarctica' for the southern continent which was only just being mapped. One great project of the firm was to produce a seven-volume "*Physical Atlas*" the final volume of which was to be written by **Prof Ralph Copeland**, the Astronomer Royal for Scotland. (I have since been told that this project was never completed.)

Bartholomew maps were supplied to **Thomas Nelson and Son** who produced many atlases and text-books.

"*A Popular History of Astronomy in the Nineteenth Century*" appeared in 1887, published by Adam & Charles Black of Edinburgh. This was written by **Agnes Mary Clerke**. You may remember a talk given about her by Dr Mary Brück a few years ago.



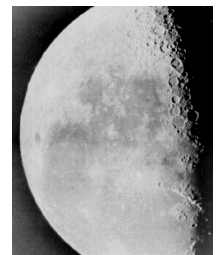


When I was in London at the Royal Astronomical Society Library in December I came across a beautiful "Atlas of Astronomy" by **A. Keith Johnston** of Edinburgh, published in 1855. This didn't just have maps in it but many wonderful illustrations. Later, when I was going through some of the Society's library I realised that we had an 1869 "School Atlas of Astronomy" by Johnston. This has many plates that are the same as the earlier work but a greatly expanded text. It also had added engravings covering the 1866 Leonid Meteor Storm and Spectroscopy.

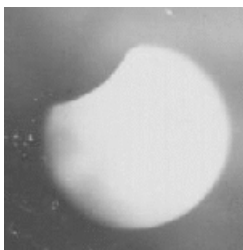
**William Peck** was born in Castle Douglas in 1862 and, although not having any formal education in astronomy, by the age of 21 was giving lectures in Edinburgh. He became a Fellow of the Royal Astronomical Society in 1885. He was employed by Robert Cox MP to run a private observatory at Murrayfield where he used a 13 inch Newtonian reflector, now at the Calton Hill.

Following the grand opening on 24th October 1898, of the City Observatory, Peck ran it on behalf of the City making use of the 22 inch reflector that was the City Dome. He gave regular lectures on Astronomy at the observatory and around the city and had frequent visitors come up to see through the telescopes. He always tried to encourage the study of astronomy, was involved with at least three local astronomical societies and was President of the British Astronomical Association's East of Scotland Branch.

Knighted in 1917 he was Honorary President in 1924 of the newly formed Edinburgh Astronomical Association. This association changed its name in 1938 to "The Astronomical Society of Edinburgh". He died on 8th March 1925 and is buried at Warriston Cemetery.



Peck published a number of popular works on Astronomy, many of which were technically in the 20th Century but one of particular interest is his "Popular Handbook and Atlas of Astronomy" published by Gall and Inglis in 1890.



We have a number of original glass plates of the Moon in the Society's collection taken by Peck with the 6 inch Cook telescope. We also have some plates that, as far as I can tell, were never published in the 19th, or even the 20th Centuries. Solar eclipses in Edinburgh always bring bad weather and we have an example of a cloudy sun in eclipse. These were taken at this observatory near the end of the 19th century  
-on 28th May 1900.

-on 28th

## Exhibition of books

Many of the books that I have referred to are available in our library for your inspection them away as most are for reference only.

-please don't take

Graham Rule