



The British Astronomical Association

Historical Section

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From the Director

Mike Frost

Thank you to everyone who came along to our section meeting in Ipswich in May. We had a great weekend! I kicked off proceedings on Friday evening with a lecture to our hosts, the Orwell Astronomical Society, about my visit to the Yerkes Observatory in Wisconsin. Saturday was a busy day – we had a superb speaker programme, featuring Paul Whiting, Jack Martin, Andy Gibbs and Bill Barton. Paul, Andy and Bill concentrated on locally-themed topics – aurorae in East Anglia, a history of the Orwell Park observatory, and the astronomical activities of Basil Brown, the archaeologist who excavated Sutton Hoo.

Our keynote speech was by Dr George Seabroke, great-great grandson of the BAA President of the same name, about a beautiful telescope which had been the family since the elder George Seabroke's time. I'm hoping there will be a paper in the Journal about this telescope in due course. George brought along the 'scope in question, and it attracted a lot of interest from the participants. I was particularly impressed by the attempts to determine the nature of the objective lens by shining a torch in and counting reflections – very practical!

Thank you to all the speakers, who made it a great day.

Orwell AS invited us to Ipswich to celebrate the 150th anniversary of the Orwell Park observatory, which they look after. So, on Saturday evening, a group of us visited the observatory, on the roof of a private school to the south-east of Ipswich. We spent a happy evening observing with the telescope. How often does the weather co-operate? Well, it did

for us. On the Sunday, a smaller group made it to Playford, a village to the east of Ipswich, which was the summer home and resting place of Sir George Biddell Airy, the 7th Astronomer Royal. There is a plaque on his house and a memorial in the village church.

And finally, a date for your diaries for 2025. Next year's section meeting will take place on Saturday May 31st in Devon, I hope at the Devon and Exeter Institution, Exeter. This is the home of the remarkable Moon globe produced by Roger Langdon (1825-1894), the stationmaster astronomer – I rather suspect Bill Barton will be telling us about his life. I have a provisional booking for the Institution, but this is dependent on the successful conclusion of renovations which are currently in progress. I also hope that (on Sunday June 1st), we will have a section visit to the Norman Lockyer Observatory in Sidmouth, a few miles to the east of Exeter.

Hope to see you there!

Another of our speakers in Ipswich was Jack Martin, whose observatory is named for William Huggins, spectroscopy pioneer. It was the two-hundredth anniversary of Huggins's birth this year, and so Jack told us about his research into the life of Sir William Huggins (and his wife and collaborator, Margaret, nee Murray). Outside of the history of astronomy community, they are largely unknown these days, but they were significant figures in the scientific world in the mid- to late- Victorian era.

Christopher Taylor, also present at our meeting, lectured to our sister society, the Society for the History of Astronomy (SHA) in 2022 about the astronomical origins of atomic theory, and pointed out, amongst other things, that the Hugginses observed and recorded nine separate spectral lines from the hydrogen Balmer series. This was five more than Balmer knew about, but he noticed the curious mathematical relationship between the frequencies of the lines – they are in the ratio $(1/2^2 - 1/3^2) : (1/2^2 - 1/4^2) : (1/2^2 - 1/5^2) : (1/2^2 - 1/6^2)$. This was a major piece of evidence for the quantum structure of the hydrogen atom – and the Hugginses were first with the experimental evidence.

William and Margaret observed from an observatory in their house in Tulse Hill, South London. Apparently, they lived quite a bohemian lifestyle there! Unfortunately, the house was demolished as a result of damage during the blitz and replaced with nondescript 60s housing. There is no plaque to mark where they lived, and little knowledge in Tulse Hill of their achievements. Of course, London is famous for its blue plaques, which commemorate so many people from the history of the city. BAA president David Arditti was present at the unveiling of a recent plaque at the Greenwich home of Annie and Walter Maunder, for example. Christopher made enquiries with Lambeth Council about putting up a plaque, but didn't get a positive response, I think he was hampered by the lack of a physical property to attach the plaque to.

Surely the section can do something to commemorate the Hugginses.



In my last editorial, I published a request to the membership for assistance in the renovation of the Alvan Clark refractor at the Temple Observatory, Rugby School. Thanks to the several people who responded, from both sides of the Atlantic. The Society for the History of Astronomy visited Rugby, my hometown, for their annual picnic on June 21st. We visited the observatory and were able to take a preliminary look at the telescope. Several SHA members, including some who responded to my original request, will, I hope, be involved in the evaluation for restoration.

I'm going to make a second appeal, this time for a telescope in Cambridge, at Newnham College. This college, like Girton, was established in the late 1800s to educate women. In 1890 Mary Boreham bequeathed to the college a telescope owned by her late father-in-law William Wakeling Boreham, a Justice of the Peace, Brewer, Maltster and Farmer of Haverhill, Suffolk (you can read about his life at <https://shasurvey.wordpress.com/wp-content/uploads/2012/08/william-wakeling-boreham-society-for-the-history-of-astronomy.pdf>). Boreham had many interests but prime amongst them was astronomy, and he built an observatory at his farm. The telescope at "The Mount", which was given to Newnham, was a 6-inch refractor. There is no maker's name on the 'scope but the objective lens is thought to have been made by Carl Kellner of Wetstar, Hesse, Germany, in 1854. At Newnham, the telescope is known to have been a popular acquisition and was used by many of the students. It was in use for amateur astronomy until the 1980s. There are records of Arthur Eddington visiting it in the 1930s; perhaps Cecilia Payne, a student at Newnham from 1919-1923, also looked through it.

The dome is no longer operable so it's unlikely that the 'scope will ever be used again for observation, but various members of the college are considering options such as putting it on display in the college. Are there any members of the section in the Cambridge area who might be interested in assisting with the evaluation and possible renovation of this telescope?

I promise that I am not going to use every editorial I write to plug books I have been involved in! However... 2024 has been a good year for me. "Eclipse and Revelation: Total Solar Eclipses in Science, History, Literature, and the Arts", for which I was a contributor and latterly technical editor, is now published worldwide and doing well. After 30 Zoom calls, I finally met Henrike Lange, the named editor, when she joined the Astro-Trails trip to the Waco eclipse, where I was guest astronomer.

Somewhat to my surprise, a second book I contributed to will be published at the end of October, by Pen and Sword Press, namely "Who's Who in the Moon". The driving force behind this is Brian Jones, who produces the annual Yearbook of Astronomy (also from Pen and Sword) which I have provided articles for from time to time. Katrin Raynor is a co-editor.

If the title sounds familiar to you, it should be! "Who's Who in the Moon" was the very first Historical Section memoir, produced in 1938 but not actually published until after the Second World War because of paper shortages. It's a series of potted biographies of everyone who has a crater named after them on the Moon (and there are some very obscure people with lunar craters named after them). The original Who's Who was edited by my predecessor Mary Evershed, and featured contributions from many BAA members, most notably the selenographer Mary Adela Blagg (see the article later about her).

The new book of the same name is meant as an homage to the original Who's Who and contains excerpts from it. It's meant to celebrate the spectacular advances in lunar observation and exploration which have taken place since 1938, including of course the Apollo lunar landings. The book was originally slated for publication in 2020 but was caught in the pandemic and has only just resurfaced. I was asked to provide an introduction and was very pleased to do so.

You can find details of the book at <https://tinyurl.com/whoswhointhemoon>

Which does raise the question: what can our section publish next?

Mike Frost

PS (a late addition) – the long-promised web page listing BAA members who have asteroids named after them is finally up-and-running, in "beta test" version. Please check out

https://britastro.org/section_information_/asteroids-named-after-baa-members

From the Deputy Director

Bill Barton

A new resource in astronomical history has just become available. The paper archive held by our association is being scanned and made available online. The records break down into the following areas: -

- 1, BAA Publications, Handbooks (1922-2024), and Circulars (1923-2015)
- 2, Archives of individual astronomers (P B Molesworth (1890-1905), R L T Clarkson (1906-1954), A W Heath (1953-1966), W Goodacre (1932-1937), T G E Elger (1880-1900) W F Denning (1903), R Waterfield (1940-1950), A P Lenham (1950-1994), & B M Peek (1955-1965).
- 3, BAA Office and Administration Records, Council meeting records (1897-1910 paper records are missing, hence not scanned, 1980 being the most recent ordinarily available).
- 4, other areas, yet to be populated.

The project is in cooperation with Max Communications of Woolwich, London. A catalogue of the entire collection is here [BAA Archive Catalogue](#)

A login is required if you'd like to use this resource, the gatekeepers are the two BAA Archivists (John Chuter and Richard McKim).

In a separate development the letters of Sir John Herschel Have been made available online by the Royal Society. [John Herschel letters](#)

Daniel O'Connell SJ

Mike Frost

As regular readers of my newsletter editorials will know, I am a mathematician as well as an astronomer. Most years, I attend the splendid MathsJam conference for maths nerds, www.mathsjam.com/gathering/, and indeed I have given five-minute talks to the conference on astronomical topics.

It's a weekend conference, and on the Saturday evening there are a wide variety of activities, including the MathsJam Jam, a singalong of mathematical songs ("American Pi" was one of my favourites). One of the Saturday activities at last year's conference was a round-table discussion on the history of mathematics, which of course I joined. Almost immediately, I was made aware of the excellent MacTutor maths history resource at the University of St Andrews: <https://mathshistory.st-andrews.ac.uk>

This website includes a searchable map of the world, so that you can find out if there are any famous mathematicians connected to your hometown (the Society for the History of Astronomy's County Survey is organised in a similar geographical manner).

Of course, I looked to see if there was anyone from the town where I live, Rugby. I was astonished to discover that the sole Rugby entry was for an astronomer; an astronomer who I had no idea had any connection to England, let alone Rugby; an astronomer who I referenced approvingly in one of my oldest talks. So let me tell you about Father Daniel O'Connell SJ.

Daniel Joseph Kelly O'Connell was born in Rugby on July 25th 1896. His father, also Daniel O'Connell, born in Ireland, was an Inland Revenue officer; his mother, Rosa Susannah Helena Kelly, was English, from Kings Norton, Birmingham. I contacted my friend Chris Hicks from Rugby's Local History Group, and he looked through Rugby directories and found the house where the family lived. It's Number 33 Hillmorton Road, "The Poplars", which is still standing. It's 500m (550yd) east of 11 Hillmorton Road, where Revd George Fisher, another Rugby-based astronomer, lived in the 1870s. It would appear that the O'Connell family didn't stay in Rugby very long after Daniel was born, as the 1901 census has them living in Hornsey, Middlesex.

Unfortunately, Daniel's parents both died before he was 11. He moved to a Jesuit-run boarding school in County Kildare, Ireland, and then Tullabeg School in Rahan, County Offaly, and Rathfarnham Castle in Dublin. At Rathfarnham he helped a teacher design a seismograph, which instilled in him a lifelong love of seismology.

He studied mathematics and physics as an undergraduate, and then a master's degree in pure mathematics, at University College Dublin. His professor, Arthur Conway, who taught him relativity, was a member (the first from Ireland) of the Pontifical Academy of Science, of which O'Connell later became president.

O'Connell was offered a place to study for a doctorate, under Arthur Eddington, at Cambridge University, but had to turn it down because of ill-health. He was advised to move to somewhere with a warmer climate, and, after a stint studying philosophy in the Netherlands, chose the Jesuit College of St Ignatius at Riverview, then in the northern outskirts of Sydney, Australia. Between 1922 and 1926, he taught mathematics and physics, and was assistant director of the Riverview Observatory. His boss at Riverview was Edward Francis Pigot.

In 1926, O'Connell returned to Ireland to complete his theological studies. He was ordained on July 31st 1928. To become a full member of the Society of Jesus he had to undertake a tertianship (theological studies and self-reflection) which took place in St Bueno's College, Denbighshire, Wales.

Once this was complete O'Connell moved to Harvard University, to develop his career as an astronomer. He was only at Harvard from 1931-33, but during this time he attended lectures by Fred Whipple, Cecilia Payne Gaposkin, Harlow Shapley, H. H. Plaskett (later professor at Oxford) and Bart Bok. A friend among the students was Eric Mervyn Lindsay, who went on to become director of the Armagh Observatory in Northern Ireland. There was also an IAU meeting at Harvard in 1932 at which he met Arthur Eddington and Georges Lemaître.

O'Connell returned to Riverview Observatory in 1933, studying the light curves of variable stars and carrying out studies in seismology. He became observatory director in 1938. His major discovery at Riverview, published in 1951, was the "O'Connell effect", an asymmetry in the light curves of certain eclipsing binaries, which has still not been fully explained. In Australia he became friends with Richard van der Riet Woolley, the

Commonwealth Astronomer, and when Woolley later became 11th Astronomer Royal, O'Connell was a frequent guest at Herstmonceux Castle.

In 1952, he was appointed director of the Vatican Observatory at Castel Gandolfo, 20 km to the south-east of Rome, a post he held until 1970. He was made a member of the Pontifical Academy of Sciences and became president in 1968, succeeding Georges Lemaître. During his time as director, he modernised the observatory, installing a Schmidt Camera.

I knew about Daniel O'Connell because of some observations he made from Castel Gandolfo in 1958. The observatory has a sea view, and so many nights he was able to view the Green Flash, the elusive last ray of light from the setting Sun. In 1958, it was an open question as to whether or not the Green Flash was a genuine phenomenon or a trick of the eye. Leslie Comrie, of the BAA, had written in Nature that it was simply an after-image from staring at the setting Sun. O'Connell believed the Green Flash was a genuine optical phenomenon, and set out to photograph it.

The result of this project was a book, "The Green Flash and other Low Sun Phenomena" by D. J. K. O'Connell S.J., featuring 80 colour photographs by C. Treusch, S.J., published in 1958 by the Vatican Observatory. I have a copy of this book (the illustrations are beautiful) which I reference in my ever-popular talk on the Green Flash.

Of course, the 1960s were a momentous time for astronomy, as men landed on the Moon. The Vatican Observatory web pages have some great historical articles on these days. For example, Daniel O'Connell appears in a photograph, showing Pope Paul VI the Sea of Tranquillity through a telescope at the observatory on the night of the Moon landings. In another picture he welcomes Frank Borman, commander of Apollo 8, on a visit to the observatory.

The current director of the Vatican Observatory is Brother Guy Consolmagno S.J., the author of "Turn Left at Orion". The Vatican Observatory now has a dark-sky site in Arizona, but Brother Guy does still spend time at Castel Gandolfo. I had the huge pleasure of meeting Brother Guy when we both gave talks at the British Science Festival at Aston University in 2010. He is a charismatic speaker and very good company.

Fr Daniel O'Connell retired as observatory director in 1970 and resigned from the Pontifical Academy in 1972. Eric Lindsay offered him a research fellowship at the Armagh Observatory, but he decided to remain in Rome. He passed away there in 1982.

Not a bad career for a Rugby lad!

I'll conclude with an excerpt from an extensive interview which O'Connell gave to Spencer Weart of the Neils Bohr Library & Archive in 1976, in which he describes how he came to observe and photograph the Green Flash from Castel Gandolfo.

www.aip.org/history-programs/niels-bohr-library/oral-histories/4801

Weart:

OK, Now, I haven't asked you yet about the Green Flash, how you got interested in that.

O'Connell:

Well, that's a pure hobby. I tell you what it was. I suppose you wouldn't remember, but there was quite a hot controversy among astronomers as to whether the Green Flash was objective, or was it all in your eye?

Weart:

Right.

O'Connell:

We had some very distinguished men, like Lord Kelvin, who'd seen it very clearly in the Alps one day, and he was convinced it was all in your eye. All subjective. I remember another well-known astronomer, L.J. Comrie, in England, and he had been to New Zealand. He was a New Zealander, and when he came back from New Zealand - he'd seen it at sea - he wrote an article for NATURE where it was purely subjective.

Well, that annoyed me, because looking from my study window in Castel Gandolfo across the Mediterranean, I could see it any time I wanted to. So I said, "Why not try and photograph it in color?" So, we had two very good photographers there, one especially, and he said, "Well, we'll try it" So we started a program very carefully chosen to make sure there were no spurious effects of the spectrum.

We started off with a reflector, a Cassegrain, pretty long focus, and at once we got some very pretty things in color. Then later on, once we established that there were no spurious effects introduced, we worked with the refractor.

Weart:

Ah, I see, this is why you started with a reflector, to guarantee that it was - [a genuine effect]

O'Connell:

Yes. With the refractor I had a longer focal length, it gave us a bigger image. It was useful from that point of view So most of the later observations were taken with the refractor, The conditions were very good then. It would be impossible now.

Weart:

Oh, has it changed so much?

O'Connell:

Oh, the atmosphere now near Rome is appalling.

Weart:

Because of industrial pollution?

O'Connell:

Industrial pollution, and oil heating and petrol and fumes.

Weart:

What's going to become of the observatory?

O'Connell:

Oh, the observatory's not so bad. It's not as good as it was when I went there first, but, of course, we look down on the smog.

Weart:

Yes, it's one thing to look towards the horizon -

O'Connell:

- that was out to sea, you see, and you don't get the clear atmosphere you used to get.

Weart:

I remember reading the article in SCIENTIFIC AMERICAN [see below] on the Green Flash. In fact, I've watched for it ever since. I've seen it twice.

O'Connell:

I tell you, that's good.

Weart:

Only twice, and then only because I've watched for it.

O'Connell:

You have to watch for it, because if you don't know what to look for, it's not so easy. Because it's almost instantaneous, very rapid.

Weart:

That must have been a lot of fun for you.

O'Connell:

A lot of fun. It was a pure hobby, but I thought it would be a nice thing to give a definite proof. It was the first definite proof.

Weart:

Yes, people were surprised by it.

O'Connell:

Yes.

Sources:

I'd like to thank, as often, Chris Hicks of the Rugby Local History Group for his assistance.

The Scientific American article referred to in the interview is:

"The Green Flash" - D.J.K.O'Connell, Scientific American Vol 202 (1960)

Interview of Daniel J. K. O'Connell by Spencer Weart on 1976 August 31, Niels Bohr Library & Archives, American Institute of Physics, College Park, MD USA.

www.aip.org/history-programs/niels-bohr-library/oral-histories/4801

The University of St Andrews' maths history website was where I found out that Daniel O'Connell was born in Rugby.

<https://mathshistory.st-andrews.ac.uk/Biographies/OConnell/>

Two articles on the Vatican Observatory website feature O'Connell during the time of the Moon landings:

<https://www.vaticanobservatory.org/sacred-space-astronomy/a-saint-a-telescope-and-a-man-on-the-moon/> (showing Pope Paul VI the Moon Landing site on the night Apollo 11 landed)

<https://www.vaticanobservatory.org/sacred-space-astronomy/%E2%93%9C-a-familiar-tale-for-a-new-audience/> (includes picture of O'Connell with Frank Borman, astronaut)

"Life-history of a telescope: the 17.8-cm refractor at the Riverview Observatory in Sydney", by Wayne Orchiston, tells the story of the main telescope at the Riverview Observatory, used by O'Connell.

Advertiser Rugby Postal Directory – 1900

Private Residents - O'Connell Mr. D., The Poplars, Hillmorton Road

Commercial & Artizan - O'Connell D, Inland Revenue Officer, The Poplars, Hillmorton Road

Kelly's Directory of Warwickshire - 1900

O'Connell Daniel, Inland Revenue Officer, 33 Hillmorton Road

(For reference, Chris Hicks found much more information about O'Connell and his family, which I will be happy to pass on to anyone who wants to know more).

Charles Jefferies (1838-1902) and His Note Books, A story from the Liverpool Astronomical Society Archives *Gerard Gilligan and Mrs. Julia Hatto*

In April 2023 the society [Liverpool AS] was contacted by Mrs. Julia Hatto, from Horsham, West Sussex. Mrs. Hatto reported that following the sad death of her mother in October of the previous year, she had been given the responsibility of going over her late mother's documents and effects. Within these effects she had found three Victorian Journals, about 124 years old, one of which contains photographs, another his own self-composed stories and poetry. All three volumes belonged to a relative of her stepfather.

That relative was one Charles Jefferies (1838 – 1902) who was born in the Oxfordshire village of Shrivenham in 1838, the son of a Master Shoemaker, and the youngest of six children. But from 1857, Charles had been a resident in North-West England in Liverpool, working in the local postal service. Mr. Jefferies wrote in his daily journal, or memoranda, between 1885-1902, having retired from the postal service after 41 years, ending his working life as a postal inspector in the late 1880's. Charles died in 1902 and is buried in Liverpool's Toxteth Park Cemetery. However, his grave is unmarked.



Mrs Julia Hatto with her antecedent's notebook.



Charles Jefferies (1838-1902)

Among its handwritten pages is clear evidence that he became a member of Liverpool Astronomical Society during the society session of 1901-02. There are several society documents, notification of meetings and events, plus a receipt for his payment of his society membership subscription of 5 shillings glued to the pages of his notebook. Within this particular volume were various notes on several aspects of science of the day, namely oceanography, geology, weather observations, together with personal experiments in the movement and velocity of sound in the air due to atmospheric conditions. As you might suspect Charles also had an interest in astronomy. Again, his interest in studying the night sky is wide-ranging, with evidence of solar, planetary and meteor observations and records of observed bright fireballs, seen both at night and in daylight.

Following an exchange of several emails between myself, Mark Galvin, the LAS Secretary, and Mrs. Hatto, it was soon established that these journals and notebooks could be an important and valuable addition to the LAS archive. Therefore, at the wish of Mrs. Hatto, the two notebooks and one photographic album were to be donated to the LAS; but not to be sent to Liverpool by post; rather, arrangements were made to collect them in person. So, in mid-July I (Gerard) travelled to London and the items were handed over to me at a meeting with Mrs. Hatto at the café in the British Library, near Euston railway station.

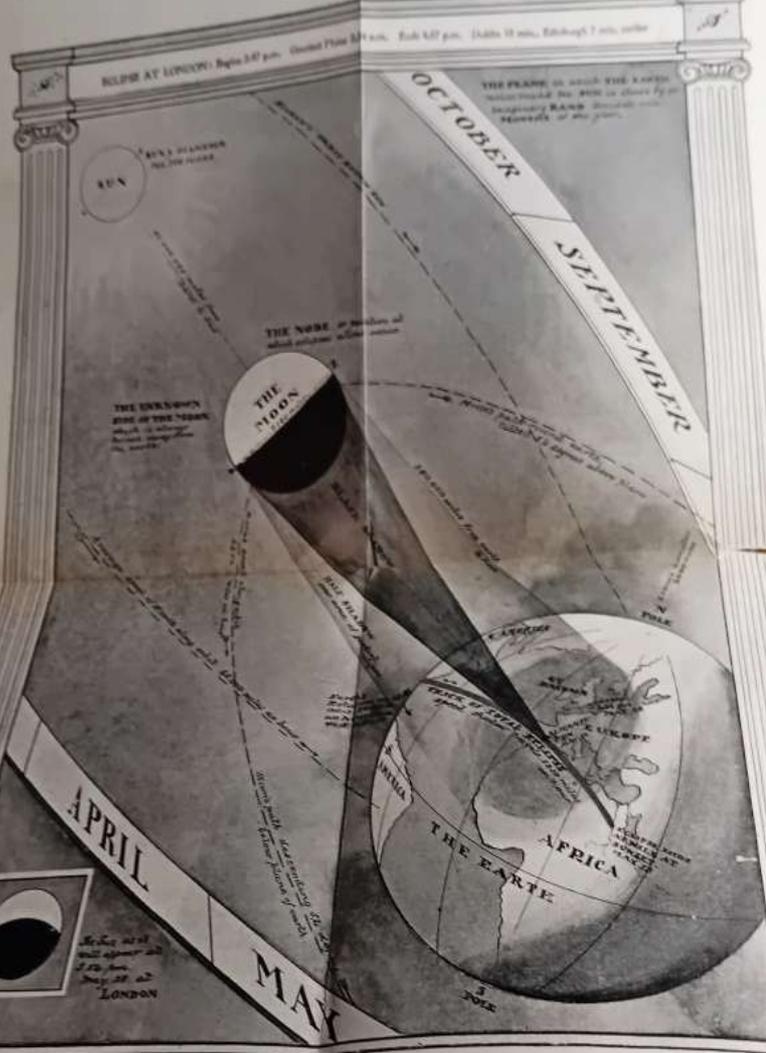
The notebook which we will call the "Science Volume" contains the following: -

- Notes on the orbit of the newly discovered Asteroid Eros (13th August 1898).

- Handwritten copies of various articles from the magazine “Knowledge: An Illustrated Magazine of Science”, articles related to Oceanography, & Geology
- Records related to an experiment to record the velocity of sound, and its effects caused by weather and associated atmospheric conditions.
- Observation of partial solar eclipse observed from Liverpool on 28th May 1900.
- Magazine and newspaper cuttings reporting and detailing 28th May 1900 total solar eclipse.
- Observations of a meteor seen from Liverpool and associated newspaper cuttings.
- Postcard received from William F. Denning related to daylight meteor observation.
- Notes related to the Bidston Observatory, located on the Wirral peninsular.
- Documents, letters, members of Society Council for session 1901-02, and related to Charles Jefferies membership of Liverpool Astronomical Society - November 21st 1901.
- Notes and newspaper cuttings related to Leonid meteor shower - November 1899.
- Notes and details related to the two moons of the Planet Mars.
- Details and Mr Jefferies’ notes on a meeting, or “Soiree”, of Liverpool Astronomical Society which took place in December 1901.
- A list of astronomical illustrations that appear in issues of the magazine

The long-term plan hopefully is to deposit the three books into the society archives held at the local History Department within Liverpool Central Library, located in the city. However more research and study of the notebooks and photographic album, plus additional research into the Jefferies family, is intended.

THE SPHERE
 THE ECLIPSE OF THE SUN ON MONDAY, MAY 28
 Astronomy for the Non-Astronomical.



The Monday, May 28, an exceptionally interesting total eclipse of the sun will take place. The black shadow of the moon will first strike the earth in the Pacific S.W. of California at sunrise. It will describe its first semi-circle from the point of passing observer. The shadow will sweep N.W. across the western states of America, passing a little E. of Washington. Tens of thousands of intelligent observers will therefore observe a total eclipse for the first time. The shadow will then traverse the Atlantic at its usual pace of 1,875 miles an hour and will cross Portugal near Oporto, leaving the coast of Spain near Alicante, where Sir Norman



SIR NORMAN LOCKYER

Lockyer, in company with a large number of other astronomers, will observe the eclipse. For then the sun will be totally obscured at 4 o'clock in the afternoon. The eclipse will next be seen from the harbour of Algiers and will finally disappear as a total eclipse on the banks of the Nile at sunset. In London the eclipse will be visible as a partial one—considerably more than half the sun's disc being obscured (68% of the sun's diameter). So extensive an eclipse has not occurred since 1870. The last total eclipse seen from London occurred in 1715. The next one near London will occur on August 11, 1999.

the moon is seen passing at a speed of 2,272 miles an hour through the node, the point at which the plane of the moon's orbit cuts that of the earth. It is only at these periods that eclipses occur.

LIVERPOOL ASTRONOMICAL SOCIETY



* SESSION 1901-2. *

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through pieces of smoked glass.

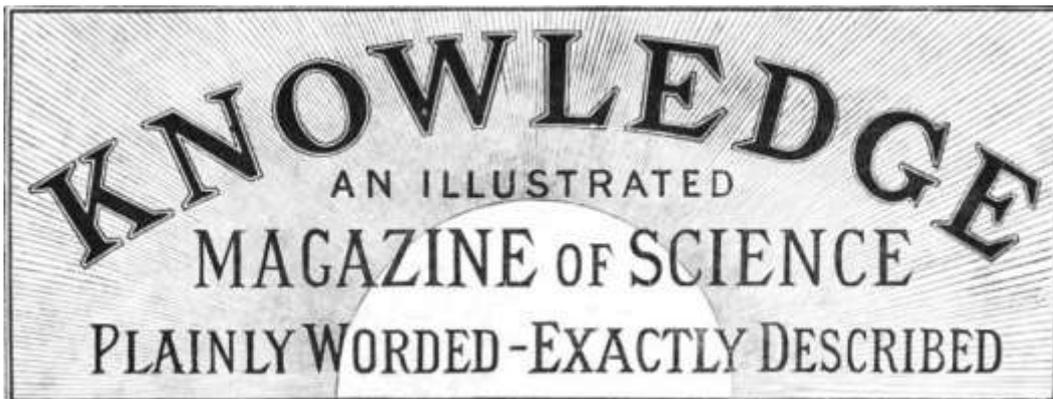
BRITISH ECLIPSE EXPEDITION AT ALGIERS.

PROGRAMME SUCCESSFULLY
CARRIED OUT.

[REUTER'S TELEGRAM.]

Algiers, Monday.—The last total eclipse of the century was observed here, under fine conditions. Great anxiety had been felt during the previous days, as these had tended to be cloudy, but the sun on the day of the eclipse rose on a sky which was almost cloudless, and though not of the deep blue usually associated with the Mediterranean, yet fairly transparent. There are many parties of astronomers here for the eclipse, Great Britain, France, Germany, Italy, and Switzerland, all being represented. The largest was that of the British Astronomical Association, some of whom observed from the roof of the British Vice-Consul's house, but the great majority from that of the Hotel de la Regence. Here a splendid view was obtained of both the harbour and the town, including the Place du Government. It was curious to mark, as darkness approached, that the Place, usually so thronged, became almost deserted, whilst the flat roofs of the houses, rising terrace above terrace, were crowded with spectators. The effect as the eclipse approached totality was inexpressibly weird. As darkness crept over the earth the sea lost its deep blue, and became of a spectral grey, while the vivid green of the sub-tropical foliage turned to a funereal purple hue just as the last sun ray faded. The corona instantly shone forth, unusually large and brilliant, extending as far as the planet Mercury, which was shining with an intense white lustre about two degrees away from the sun's disc. The shape of the corona was almost exactly that of the eclipse of 1878 as seen in the United States, with two great wings, one shooting almost vertically upwards, the other downwards, both almost exactly on the solar equator. It was a corona typical of the time of sun spot minimum. The programme of photography was carried out completely without a hitch by Mr. and Mrs. Walter Maunder, Mr. and Mrs. Crommelin, and the Rev. Mr. Davies, who were with the party at the Hotel Regence; but some atmospheric glare was present, which was not favourable to photographs of the outer coronal streamers or of the partial phase of the eclipse. Most interesting observations of the shadow bands were obtained by Mr. and Mrs. Brook. The bands travelled in the same direction both before and after the eclipse, not, however, in continuous lines, but in separate spots, like the passing of a flock of birds.

100 Egerton Road Bristol
Sept. 6 1900
I am greatly obliged to you for the
Newspaper cuttings relative to the brilliant
daylight meteor of Sep 2 last - I trust
that I shall receive some further descriptions
& that it will be possible to compute the real
path of the object. There is a great
probability that this fireball was directed
from a radiant in Pegasus or in the S.
vicinity of that constellation.
Yours sincerely
W. F. Denning



"Knowledge: An Illustrated Magazine of Science"

Images: With thanks to Gerard Gilligan, Wikipedia images, Ancestry.com
With much appreciation to Mrs Julia Hatto and family.

Gerard Gilligan

Cheadle Moon

Mike Frost

Cheadle is a small town of 10 000 people, in the Staffordshire Moorlands to the east of Stoke-on-Trent (it is NOT the same place as Cheadle in south Manchester). If you park in the main car park in the town centre, you will soon find out the name of one of the town's most famous inhabitants. In the centre of the car park is a metal Armillary sphere, a type of sundial. The plaque reads:

*Millennium
Armillary Sphere
Designed & constructed by
James W Plant
This ARMILLARY SPHERE (Sun Dial) representing the
great circles of the heavens, was created to mark
the beginning of the 3rd millennium.
It stands as a reminder to all, that as the sun
tracks across it's time scale,
Time does not stand still.
TEMPVS FVIT EST ET ERIT
Translated to read
TIME HAS BEEN IS AND IS TO BE
Unveiled on Friday 4th May 2001
By
Sir Francis Graham Smith F.R.S.
Astronomer Royal 1982-1990
Cheadle has long been associated with Astronomy
as a small crater on the Moon in the
sinus Medii (middle Sea) is named Blagg after
Mary Adela Blagg (Selenographer) 1858-1944
A native of the town.*

Turn round and you will see a second plaque, this time directly commemorating Mary Adela Blagg:

*Mary Adela Blagg (1858-1944)
Of Cheadle, Staffordshire
Selenographer, Variable Star Analyst and Observer
One of the first women to be elected a Fellow of the Royal Astronomical Society
A lunar crater is named Blagg in her honour*

Below it is a secondary plaque, with some familiar names:

*The Commemorative Plaque to
MARY ADELA BLAGG
WAS UNVEILED ON THE 29th APRIL 2018 BY
James W. Plant
WHO DESIGNED, SPONSORED & SUPERVISED THE PROJECT
Made possible by: CHEADLE DISCOVERY GROUP THE ROYAL ASTRONOMICAL SOCIETY
MANCHESTER ASTRONOMICAL SOCIETY THE SOCIETY FOR THE HISTORY OF ASTRONOMY
DR. JEREMY SHEARS FRAS KEVIN KILBURN FRAS*

... and more

So, who was Mary Blagg? She was born in Cheadle on May 17th 1858 and spent almost her entire life in the town, bar a year studying in a finishing school in Kensington, London. Her family were well-to-do and educated all the children at home. The boys went off to have careers, but Mary remained in the family house. However, her education continued. In the latter half of the nineteenth century, there was a thirst for knowledge in the provinces, and peripatetic lectures such as Robert Stawell Ball and Richard Proctor made a good living touring the country lecturing on astronomy (if only it was the same these days!). Around 1904-05, Mary Blagg attended a lecture course on astronomy given by Joseph Hardcastle, William Herschel's grandson. This ignited a lifelong interest in the subject, and she asked Samuel Saunder of Oxford University to recommend research for her to undertake.

Saunder suggested that she might assist on the standardisation of lunar nomenclature. Ever since the invention of the telescope, astronomers had drawn Moon maps, and of course, they had named features to commemorate friends, colleagues, and people they looked up to. There was some agreement on many of the features, seas oceans and mountains, in the maps drawn by Riccioli in the seventeenth century, but on smaller features such as craters there was much disagreement. Saunder and Blagg began the long process of deciding what name belonged to which crater, across the Moon.

In parallel, Professor Herbert Hall Turner recommended work on variable stars. In the previous century, increasing numbers of these had been discovered. Some, like the Cepheid variables and RR Lyrae stars, had regular periodicity, but in others the periodicity was difficult to discern; and in any case, bad weather, daytime, and the seasons made the collection of data difficult. The Manchester astronomer Joseph Baxendell had begun to categorise variable stars, but without any mathematical rigour. Mary, who had learnt mathematics from her brothers' textbooks, was able to use harmonic analysis to tease out periodicity. Turner published a series of papers in the Monthly Notices of the Royal Astronomical Society (RAS), in which he acknowledged the assistance of Blagg in the preparation of the data. Turner was helpful in progressing the careers of several of the

early women astronomers. He proposed Blagg for membership of the British Astronomical Association (BAA), fellowship of the Royal Astronomical Society not being open to women at the time.

The Great War brought about many social changes, including suffrage and the admission of women to the learned societies. Mary Blagg was one of the first five women to be admitted to fellowship of the RAS on January 16th 1916 (some sources say four, but there were five – Mary Blagg, Ella Church, Grace Cook, Irene Toye Warner, and Fiammetta Wilson. All were BAA members).

Mary's contributions to selenography continued. In the 1930s she became part of the International Astronomical Union's commission on lunar nomenclature, and worked with Karl Muller, from the Czech Republic, to produce the definitive list of lunar features. She worked with Mary Evershed, my predecessor as the first director of the BAA's historical section, on the section memoir, "Who's who in the Moon" (Memoirs of the BAA vol. 34 (1938), pt. 1 pages 3-130), a series of potted biographies of everyone who had a lunar crater named after them (see my editorial for news of a modern-day version of this work). I've seen the Mary Evershed files in the RAS library archive, and there are many hand-written notes from Mary Blagg for inclusion in Who's Who.

As a result of the IAU work, she had a small crater on the Moon named after her. It is almost in the centre of the Moon as we see it from Earth.

Mary never married, and apart from a couple of visits to conferences, she never left Cheadle in the latter half of her life. As the plaques show, she is well-remembered in her hometown. So, when Outside Arts, an arts group charged with organizing events in the Staffordshire Moorlands, talked to the Cheadle Discovery Group, they found that Cheadle were keen to run something to commemorate the 80th anniversary of her death, which occurred on April 14th 1944.

And so was born "Cheadle Moon", a month-long programme of events in the town in March and April 2024. There were lunar-themed talks, screening of films such as "Hidden Figures" and "An American Werewolf in London", a concert featuring music from Star Wars and other Sci-Fi films, lunar-themed sketching and yoga workshops. The centre of all these celebrations was Cheadle's parish church, St Giles the Abbot, where Mary and her family worshipped and where she is buried. Outside Arts made the inspired decision to display "The Museum of the Moon", the wonderful inflatable globe of the Moon built by Luke Jerram; this immense globe was suspended from the ceiling of the nave of the church. You might have seen it when it was used as the central prop in the BBC programme "The Wonders of the Moon" (on display in Coventry Cathedral). I was one of the extras for this programme, filmed pointing and gurning.

In St Giles church, the globe was equally popular, the backdrop to many selfies and posed photographs "holding up the Moon". There were a series of display boards around the church detailing Mary's life and achievements, and you could hire headphones which

played a summary of her life. Volunteers from the church made refreshments for the many visitors.

So why was I there? Well, Outside Arts approached the RAS to ask if they could provide speakers to be part of the program. Sian Prosser, the RAS librarian, suggested Jeremy Shears (whose name appears on the plaque above) and me. Jeremy was unavailable as he was working away, so I stepped up, and suggested that I gave them my talk on “The Pioneering Women of the BAA”. As you know, one aspect of the historical section’s “Lady Pioneers” project was to name a number of asteroids, discovered by the Catalina Sky Survey (CSS) in America, for our lady pioneers (I’ll acknowledge the work done by Rik Hill, retired from the CSS, to do this). This included asteroid 50753 Maryblagg, approximately 3.4 km in diameter, which orbits harmlessly in the main belt of asteroids between Mars and Jupiter. (The CSS is looking for Earth-crossing asteroids, which could potentially collide with Earth in future. Maryblagg is not one of these).

The talk went well, I think. I had a “congregation” of over a hundred – the first time I’ve lectured in a church, and on Good Friday too! (don’t they have other things to do on Good Friday?) In their publicity for Cheadle Moon, Outside Arts mentioned that a “planet” had recently been named for Mary, and I was able to clarify that even though asteroids are sometimes called “minor planets”, in Mary Blagg’s case it was more “minor” and less “planet” - and certainly not the home of microbial life or malevolent aliens, more likely a rubble pile held together loosely by gravity. I was really impressed with the Outside Arts team, who were very enthusiastic about their project. Kate and Vicky looked after me very well.

I finished by paying a quick visit to Mary’s grave. She’s buried in the family plot, not far from the church entrance. Her name is at the bottom of the family headstone, presumably because she survived longer than the others. It’s an unassuming memorial, but I suspect Mary would have liked it that way. I have no idea what she would have made of inflatable lunar globes, commemorative asteroids and screening of werewolf movies – but I suspect she would have been quite pleased that she is still remembered, with pride, in the town where she spent her life.

Mike Frost

<https://outsidearts.org/events/cheadle-moon-15-mar-to-5-apr-2024/>







Recent Publications about Australian and New Zealand Astronomical History

Wayne Orchiston

During 2022-2024 the following research papers about Australian and New Zealand astronomical history were published, or are in press:

- Anderson, P.E., and Orchiston, W., 2022. John Beebe and the development of astronomy in Queensland, Australia. *Journal of Astronomical History and Heritage*, 25(3), 481–502.
- Anderson, P., and Orchiston, W., 2023. Arthur Anthony Page: at the forefront of Queensland astronomy during the second half of the twentieth century. *Journal of Astronomical History and Heritage*, 26(4), 833–864.
- Baggaley, J., and Orchiston, W., 2004. New Zealand's contribution to international science: the role of the University of Canterbury's Rolleston research station. *Journal of Astronomical History and Heritage*, 27(3), in press. [Mainly about radar meteor astronomy.]
- Evans, R.W., and Orchiston, W., 2023. Accredited meteorites of New Zealand. 1: The Makarewa Meteorite. *Southern Stars*, 62(3), 7–15.
- Lomb, N., Orchiston, W., Kinder, T., and Stevenson, T., 2024. Early members of the New South Wales Branch of the British Astronomical Association. *Journal of the British Astronomical Association*, 134(3), 187–198.
- Orchiston, W., 2022. Govind Swarup, Potts Hill and the Kalyan Array: India's first radio telescope. *Journal of Astronomical History and Heritage*, 25(4), 773–801. [Has a lot about Australian radio astronomy.]
- Orchiston, W., 2022. Some musings on the names we assign optical telescopes, and the changing nature of the historic 'Cooke' refractor at Carter Observatory. *Southern Stars*, 61(2), 14–38.
- Orchiston, W., and Drummond, J., 2022. The 1989 Opotiki Bolide: accumulated evidence for a new carbonaceous chondrite meteorite from Aotearoa / New Zealand. *Journal of Astronomical History and Heritage*, 25(2), 277–289.
- Orchiston, W., George, M., Slee, B., and Wielebinski, R., 2022. Early low frequency radio astronomy in Australia. In Shi, Y., and Chu, F.L. (eds.). *Astronomical Heritages in Asia-Pacific Areas: Proceedings of the Eighth International Conference on Oriental Astronomy*. Hefei, University of Science and Technology of China. Pp. 234–256.
- Orchiston, W., 2023. The marine telescope made by J.H. Marriott in 1844: New Zealand's first telescope. *Southern Stars*, 62(4), 13–18.
- Orchiston, W., and Drummond, J., 2024. The remarkable tale of Comet C/1861 J1 (Tebbutt), the Great Comet of 1861. *Southern Stars*, 63(1), 6–18.
- Wendt, H., and Orchiston, W., 2024. The history of early low frequency radio astronomy in Australia. 11: The Shain Cross at Fleurs field station near Sydney. *Journal of Astronomical History and Heritage*, 27(4), in press.
- Wendt, H., George, M., and Orchiston, W., 2024. The history of early low frequency radio astronomy in Australia. 12: Reber, Higgins and the mooted all-sky survey with the Shain Cross. *Journal of Astronomical History and Heritage*, 27(4), in press.

Copies of these papers can be downloaded from the ADS or JAHH web sites, otherwise contact me and I can provide e-copies.

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History of Astronomy at the 2024 Annual Conference of the Royal Astronomical Society of New Zealand
Professor Wayne Orchiston (Director, RASNZ Historical Section)
Glen Rowe (Deputy Director, RASNZ Historical Section)
wayne.orchiston@gmail.com; growe511@outlook.com

Especially since the founding of the Historical Section of the Royal Astronomical Society of New Zealand in November 2022, history of astronomy has been a prominent component of annual conferences of the Society. The 24-26 May 2024 Conference was no exception. This was held in charming, historic South Island coastal city of Nelson (near Rutherford's birthplace)

Between them, members of the Historical Section and their collaborators presented five different oral papers:

"A review of New Zealand observations of Comet 1P/Halley in 1910" by John Drummond

"Astronomy in Nelson: An Historical Overview" by Wayne Orchiston, Ralph Bradley and Dennis Goodman

"Eighteen years of observations with MOA-2" by Ian Bond

"Retrofitting the Gifford Observatory to become online: some of the challenges" by Duncan Hall

"The 1874 Transit of Venus Expedition to Aotearoa New Zealand by the United States: Marking 150 Years of Scientific Partnership Between the Two Nations" by Luise Piggin, Joshua Stewart, David Johnton and Jocelyn Powell

In addition, the following colourful Historical Section posters were on display throughout the conference:

"Welcome to the RASNZ's Historical Section: researching the past to understand the present and the future" by Wayne Orchiston and Glen Rowe

"Alan Maxwell and the monitoring of 100 MHz solar emission in 1947-1948: towards the world's first known MSc thesis on radio astronomy" by Wayne Orchiston and Scott Parkins

"Ashburton and the 'Canterbury Project': New Zealand radio-meteorological research following WWII" by Glenn Vallender, Alistair Perkins and Wayne Orchiston

“Celebrating the 150th anniversary of the 1874 transit of Venus: Arthur Stock and his little books” by Wayne Orchiston and Darunee Lingling Orchiston

“Celebrating the 150th anniversary of the 1874 transit of Venus: inspiration for 2004” by Emma Fairweather and Wayne Orchiston

“Celebrating the 150th anniversary of the 1874 transit of Venus: the American party at Queenstown” by Wayne Orchiston, Steve Dick, and Tom Love

“Celebrating the 150th anniversary of the 1874 transit of Venus: the British party at Burnham” by Wayne Orchiston, Glenn Vallender and William Sheehan

“Celebrating the 150th anniversary of the 1874 transit of Venus: the German party at the Auckland Islands” by Wayne Orchiston and William Sheehan

“Christchurch’s first astronomical society and the founding of the Townsend Observatory” by David Hill

“Grigg, Skjellerup and their comet: the Kiwi connection” by Wayne Orchiston and John Drummond

“In search of New Zealand’s missing meteorites: the role of ‘Papers Past’” by Wayne Orchiston, James Scott, Jim Rowe and Steve Wyn-Harris

“Introducing Peter Read: the ‘Patrick Moore of New Zealand astronomy’ by Gordon Hudson, and Wayne Orchiston

“Passion, politics and personalities: the sad saga of Nelson’s Cawthron Solar Observatory” by Wayne Orchiston, Martin Bush, Hamish Barker and Dennis Goodman

“Researching New Zealand meteorites: collaborative research by the RASNZ’s Fireballs Aotearoa and Historical Sections” by Wayne Orchiston, James Scott, Jim Rowe and Steve Wyn-Harris

“The 1874 transit of Venus expedition to the Chatham Islands” by David Johnston, Louise Piggitt, Joshua Stewart, Jocelyn Powell, Jenny Stein, and Ken Gledhill

“The astronomical paintings and sketches of the Nelson artists Edwin and Emily Harris” by Wayne Orchiston, Catherine Field-Dodgson, Michele Leggot, Ian Cooper and John Drummond

“The historic 18-inch Brashear Telescope at the Dark Sky Project, Lake Tekapo: an overview” by Kate Garner and John Hearnshaw

“The historic 18-inch Brashear Telescope at the Dark Sky Project, Lake Tekapo: the American era” by Richard Taibi, Wayne Orchiston, Darunee Lingling Orchiston

“The historic Carkeek Observatory: a lifeline emerges to save observatory remains” by Ray Lilley and Tom Love

“The potential for archival investigation of New Zealand auroral reports: a case study of the Carrington storm of 1859” by Hisashi Hayakawa, Bob Evans, Ross Dickie and Wayne Orchiston

“The space weather event of 30 October-1 November 1903: a review of the New Zealand evidence” by Wayne Orchiston, Hisashi Hayakawa, Ross Dickie and Bob Evans

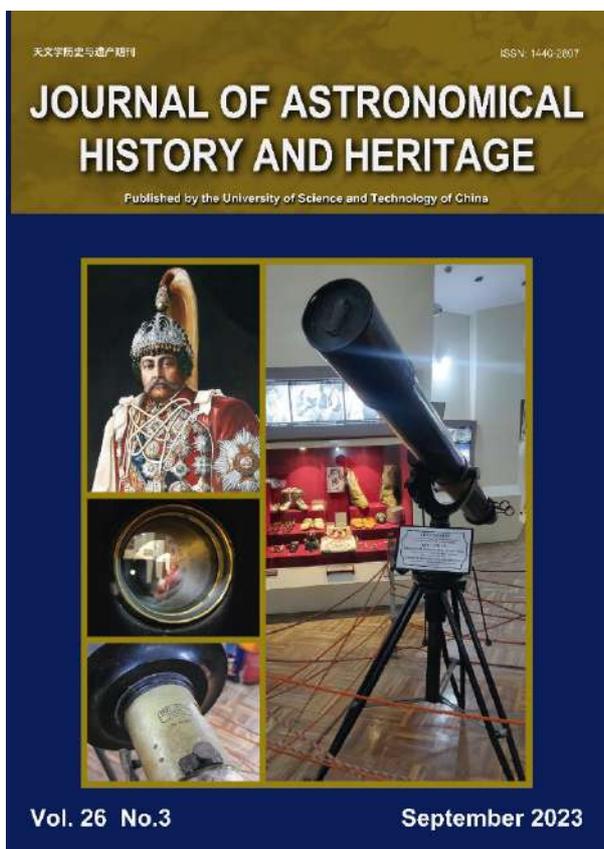
“The world’s first female radio astronomer: Dr Elizabeth Alexander, and the mysterious ‘Norfolk Island Effect’” by Wayne Orchiston, Mary Harris and Graham Frazer

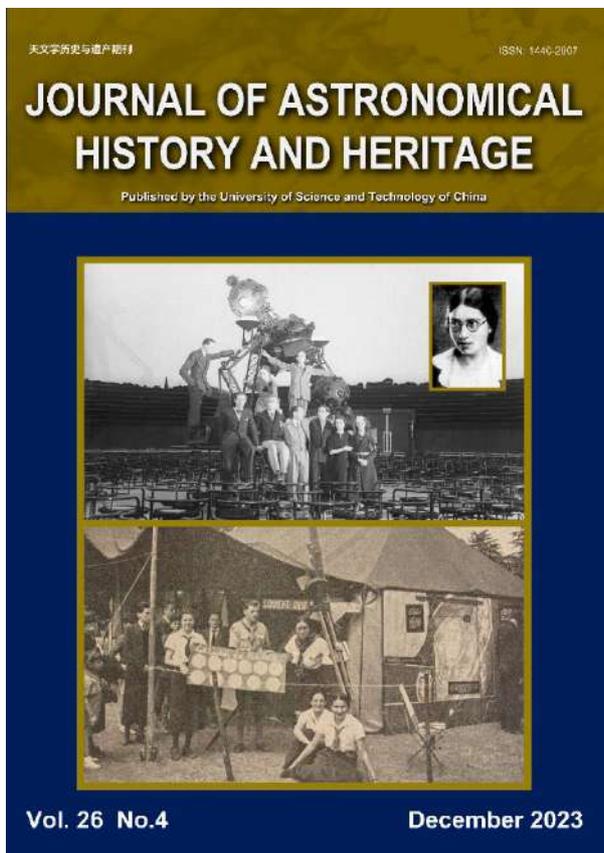
“William Wales and Astronomers’ Point, Dusky Sound: Southland’s first scientific observatory” by Wayne Orchiston, Darunee Lingling Orchiston and Glen Rowe

As can be seen from these titles, one of the objectives was to publicize New Zealand's involvement in the 1874 transit of Venus, as part of the international celebrations of the 150th anniversary of this important event. Another objective was to highlight some of the accomplishments of NZ-based scientists during the early days of radio astronomy, and a third objective was to celebrate Nelson's historical involvement in astronomy (through an oral paper and two posters).

Note that pdf copies of all of the above posters, along with other historical posters displayed at earlier RASNZ Conferences, are now on the Historical Section's web site, and can be downloaded free of charge (go to <https://www.rasnz.org.nz/groups-and-sections/historical-section-1>, click on Poster Papers and then the poster of your interest).

Meanwhile, the September 2024 issue of Journal of Astronomical Heritage and History is almost completed, and contains a wide range of papers, including on early Solar System maps by James Ferguson, William Whiston and others; Cambridge radio astronomical observations that led to the discovery of millisecond pulsars; the changing role of the Library at the South African Astronomical Observatory; and papers on early Australian, New Zealand and US radio or radar astronomy. More about this issue of JAHH in the next Historical Section Newsletter.





Dates for your diary

Society for the History of Astronomy (SHA) Webinar, Wednesday October 16th 2024, from 8:00pm, “The Astronomer’s Library”, by Karen Masters.

SHA Autumn Conference, Saturday October 26th 2024, 10:00am to 4:30pm, Birmingham & Midland Institute, 9 Margaret St., Birmingham. Booking essential, email meetings@shastro.org.uk to attend.

RAS Diary Talk, part of an A&G Highlight’s Meeting, Friday December 13th 2024, 4:00pm to 6:00pm, Burlington House, London (also online?) usually on an historic theme.

RAS Discussion Meeting, “The role of the Skylark sounding rocket in astrophysical and geophysical research”, Friday February 14th 2025, 10:30am to 3:35pm, Burlington House, London (also online?).

A joint SHA-Société Astronomique de France conference in Paris sometime in March 2025, further details TBA.

RAS Discussion Meeting, Communicating astronomy at historic observatories, Friday April 11th 2025, 10:30am to 3:35pm, Burlington House, London (also online?).

The SHA Spring Conference 2025, Saturday 26th April 2025, further details TBA.

BAA Historical Section Meeting 2025, Saturday 31st May 2025, in Exeter, and Sunday 1st June, Norman Lockyer Observatory, Sidmouth, further details TBA.