



The British Astronomical Association Historical Section

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From the Director

Mike Frost, Director

Our newsletter is coming out a little earlier this spring as we want to tell you about our next section meeting, on Saturday 28 March at the National Maritime Museum, Greenwich. It's a joint meeting with our sister society, the Society for the History of Astronomy, and we have a stellar line-up:-

- 09:30 Doors Open
- 10:00 Mike Frost and Kevin Kilburn (SHA Chair) – Welcome and Introduction
- 10:05 Tony Kinder – A survey of the historical membership of the BAA and of the SHA
- 10:45 Roger Jones and Kevin Johnson – An introduction to the SHA County survey of astronomy
- 11:25 Prof. Jay Pasachoff – Galileo Galilei and Simon Marius: their 1609/10 observations of our Moon and Jupiter's moons
- 12:05 Lunch
- 13:20 Welcome back
- 13:25 Bob Marriott – William Dawes and William Rutter Dawes
- 14:20 Dr Stuart Clark – Richard Carrington and the 1859 Solar Flare
- 15:20 Break
- 15:50 Dr Bill Sheehan – Mars, from the Canals to Curiosity
- 16:50 Closing Remarks
- 17:00 The NMM closes

Sorry about the early opening time, forced on us by the opening hours of the National Maritime Museum.

We are fortunate indeed to have not one but two of the leading astronomical historians from the United States, Jay Pasachoff and Bill Sheehan, both of whom are good friends of the BAA. Jay and Bill are both

“over here” for the solar eclipse of 20 March (which, like Jay Pasachoff, I will be attempting to view from Svalbard) and we are grateful to them both for agreeing to speak to us.

The National Maritime Museum want to have names of all attendees, so attendance is by prior booking. Please use the booking form at www.britastro.org/historical2015.

Unfortunately parking at the NMM is extremely limited – blue badge holders only, by prior arrangement. Please consider using the rail links, underground or Docklands Light Railway.

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One name is missing from the line-up above. Madeline Cox, the Chair of the Society for the History of Astronomy, passed away suddenly and completely unexpectedly on Monday 12 January. Our thoughts are with her partner, Les, and her family. Madeline was a librarian who studied the history of science and became a Fellow of the Royal Astronomical Society. She was a founder member of the SHA, and contributed several papers to the SHA's journal, *The Antiquarian Astronomer*, concentrating on astronomers from Nottinghamshire, where she lived, and on women in astronomy. In addition to chairing the SHA, she was also librarian of the SHA's Sir Robert Stawell Ball library at the Birmingham and Midlands Institute.

Madeline became chair of the SHA five years ago, at the same time as I became director of the BAA Historical Section. We have worked together closely for these five years, and two years ago we agreed that the time was ripe for a joint meeting between our two societies. Sadly, Madeline will not now be at Greenwich to see that joint meeting; the SHA's Vice-Chair Kevin Kilburn will be co-chairing the meeting in her place.

I'm sure that March's meeting will be a suitable tribute to Madeline.

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On a much happier note, I am delighted that this year's recipient of the Royal Astronomical Society's Jackson-Gwilt medal is Dr Allan Chapman. Allan has been an inspiration to so many of us who love the history of astronomy, through his books and television appearances, but especially through the many talks he has given down the years: to astronomical societies around the U.K., to the annual AstroFest in London,

and not least as the keynote speaker at our Section meeting in May 2012, when he spoke to us at Soho House, Birmingham, about 'James Nasmyth – Astronomer of Fire'. As I have said before elsewhere, it was listening to Dr Chapman lecture on Edmond Halley that led me to realise that studying the history of astronomy was a great way to enrich my knowledge of the subject.

Congratulations Allan! It's a richly deserved award.

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Later on in this newsletter, you'll come across a letter from James Dawson, recommending a book by Christina Koning. We're very pleased to pass on recommendations for reading, and indeed are delighted to feature book reviews such as the one by Brian Sheen in the last edition of the newsletter.

I was intrigued that Koning's book is actually a work of fiction, inspired by the life of Caroline Herschel. I think this is quite an intriguing idea – dramatized science biography. It's a genre that works well on TV or on film – I'm thinking *Longitude*, *Challenger*, *Einstein and Eddington* – but is under-represented in literature.

In fact, the only other author that I can think of who writes fictionalised science biography is one of our speakers in March, Dr Stuart Clark. Stuart has written conventional science biography – *The Sun Kings* is about Richard Carrington – but in recent years he has had great success with a trilogy of novels, *The Sky's Dark Labyrinth*, *The Sensorium of God* and *The Day Without Yesterday*, tracing the development of cosmology.

Can anyone recommend any other books in this genre?

Allan Chapman wins RAS medal

As Mike has noted in his Editorial above, renowned astronomical historian (and BAA Historical Section member) Dr Allan Chapman of the University of Oxford has been awarded the prestigious Jackson-Gwilt Medal of the Royal Astronomical Society for 2015.

To quote from the RAS website: 'The Jackson-Gwilt Medal is awarded for single investigations of outstanding merit in either: the invention, improvement or development of astronomical instrumentation or techniques; achievement in observational astronomy; or in the history of astronomy.'

Allan Chapman needs little introduction to most BAA Historical Section members. He is well-known for his television programmes and as a lecturer at astronomical societies up and down the UK on many aspects of the history of astronomy. He is also the author of numerous books, notably *The Victorian Amateur Astronomer: Independent Astronomical Research in Britain 1820-1920*, surely the standard history of British amateur astronomy in the nineteenth century.

Sculpture of Jeremiah Horrocks

Phil Garrett



Sculpture of Jeremiah Horrocks by Phil Garrett.

Phil Garrett is currently working on a sculpture of Jeremiah Horrocks (c. 1619-1641), the seventeenth-century astronomer who, with William Crabtree, was the first to observe a transit of Venus in 1639. The sculpture, pictured above, is of particular interest, because there exist no certified likenesses of Horrocks. To quote from Phil's e-mail:-

'I thought I would forward you my initial sketch which is a work in progress. It can be altered or amended at this stage. I have to add fine details to the drapery, face, hands and build the wooden apparatus.

I am making a T-shaped bracket to fit in Jeremiah's hands which is different from the smaller astronomical radius described in references from the day.

I think that it may have been simpler in appearance, just a letter T shape but was 11ft wide. It would have therefore had between one and three supporting legs into the ground to keep it in the same position. It must also have been kept in the same position for continued observation and measuring of the movement of planets each night.'

Yerkes Observatory

Mike Frost

My day job – systems engineering in the steel industry – takes me all round the world, from South Wales to New South Wales. I spent the last three months of 2014 in the United States, installing an automation scheme in a steel works in East Chicago, Indiana (just

across the state line from Illinois). Steel rolling is a 24-hour process, so we don't get a lot of time off, but the mill goes down one day a week for maintenance, and when I'm not sleeping or doing my laundry, I try to do some sightseeing.

I have worked in the Chicago area before, so I have visited many of the museums and other attractions there. For astronomers, there are lots of options. The Adler Planetarium is world-class, as is the Field Museum of Natural History. My favourite is the Museum of Science and Industry, which is home to the Apollo 8 Command Module.

But on this trip I took time to visit somewhere I had not been to before, the Yerkes Observatory in Williams Bay, on the northern shore of Geneva Lake. It's a two-hour drive to the north-west of Chicago, five miles north of the Illinois-Wisconsin state line.

The Yerkes Observatory is owned and run by the University of Chicago, and offers tours to the general public on Saturday mornings, and by appointment for visiting parties at other times. Through the winter months, there are scheduled evening observing sessions, when the Moon and weather co-operate. There was one scheduled for the evening I visited, but even if I had been able to stay, it was already booked up.

I visited on a rather gloomy November Saturday, in the middle of the Midwest's unseasonably early start to winter; as I travelled north into Wisconsin I started to see snowdrifts. I arrived at the observatory at 11 a.m. and immediately joined a tour group of 15 people. Our guide began the tour with a history of the observatory.

The University of Chicago was established in 1892 and wanted to make its name as a leading research establishment. They hired George Ellery Hale, from MIT, as professor of astronomy. Hale, not surprisingly, wanted to found an observatory. He managed to acquire two huge 40-inch diameter blanks for lenses, made by Alvan Clark, from the University of California, and resolved to build the world's largest refracting telescope.

To do this required finance. Hale and the University president, William Rainey Harper, managed to convince financier Charles Tyson Yerkes to fund an observatory. According to our guide, this involved some questionable tactics – for example, announcing that Yerkes had agreed to finance an observatory, when he had only agreed to pay for the telescope. Yerkes donated half-a-million dollars, and further funds were provided by the Rockefeller foundation. Williams Bay was chosen as the site for the observatory because it was close to Chicago, but in open country, with good seeing and clear skies.

The architect was Henry Ives Cobb, who was also university architect. Cobb produced an extraordinary building, with ornate decoration. Our guide showed us many of the carvings which decorate the columns of the building. In addition to astronomical themes, there are caricature figures. Some bear a resemblance to Charles Tyson Yerkes, whose bust looks proudly over the foyer; others to William Rainey Harper. Perhaps the most intriguing are those which look like John Rockefeller, except for an unusually large nose. The

carvings of Rockefeller also used to feature a bee, with the implication that the Rockefeller foundation had been 'stung' for enough money to fund lavish decoration; no doubt a good joke at the time – until Rockefeller announced that he was coming to visit, at which time all the bees were chiselled off.



The 40-inch refractor at Yerkes Observatory.

The 40-inch refractor was displayed at the Columbian Exposition of 1893 in Chicago and the observatory was dedicated in October 1897. The final stop on our tour of the observatory was the dome, 90 feet in diameter, which houses the 40-inch refractor.

It's a stunning sight. Our tour group seated themselves around the wall of the dome. In front of us was the huge raiseable floor which enables astronomers to get to the eyepiece or prime focus with ease. At the centre of the dome, completely dominating the building, was the Yerkes refractor. To give some idea of the scale of the building, a life-size 'Spiderman' figure had been placed at the pinnacle of the dome; it seemed tiny from the floor.

The Yerkes refractor is an extraordinary instrument, but in a number of ways it marked the end of the line for nineteenth-century astronomy. To begin with, it's a refractor, the largest ever used for professional astronomy (a larger lens was exhibited in the Paris Exhibition of 1900, but was never used for observation). But even today it's still not possible to build a useable larger lens, because lenses deform under their own weight. Astronomy has moved down the route of reflecting telescopes, whose mirrors can be supported from behind. Yerkes was also the last major observatory to be sited close to its sponsoring university for convenience – Geneva Lake is a good

place to observe from compared with downtown Chicago, but quality of weather and seeing pale into insignificance compared with mountaintop sites in, say, California or Hawaii. Hale understood this, and had wanted to build a mountaintop observatory in California, but was constrained by university politics. Hale went on to establish, first in 1907, an observatory at Mount Wilson, Pasadena, and then the iconic observatory on Palomar Mountain, both of which were at the forefront of twentieth-century astronomy.

But any deficiencies in observing conditions were amply compensated for by the quality of the people who worked there. After the conclusion of the tour I spent a happy half-hour in the observatory museum, where I was suitably impressed by the famous names who worked at Yerkes. Edwin Hubble, for example, studied at Yerkes under Hale before being recruited for Mount Wilson. Edward Emerson Barnard, discoverer of Amalthea and Barnard's Star, and the documenter of dark nebulae in the Milky Way, was an astronomer at Yerkes. Barnard's photographic atlas of selected regions of the Milky Way was completed, after Barnard's death, by the second Yerkes director Edwin B Frost (no relation) and Mary Calvert. Frost has a special place in the history of Yerkes; in later years he went blind, but continued as observatory director; a rope guideway was built for him between the observatory and his residence. Frost was succeeded by Otto Struve, the renowned Russian-American astronomer, and then by Gerard Kuiper, the planetary astronomer who discovered Miranda and Nereid and gives his name to the Kuiper Belt. Struve's students included Nobel Prize winners Subrahmanyan Chandrasekhar and Gerhard Herzberg. Kuiper's students included Carl Sagan.



The Yerkes 40-inch telescope dome.

After purchasing a few souvenirs in the gift shop, I had a long chat with the guides, in particular Richard Dreiser. I played my BAA card and introduced myself as the Historical Section director, and was taken to meet Richard Kron, a former director of the observatory, with whom I had a fascinating conversation. I'm grateful to all the staff for making my day so enjoyable.

The future of Yerkes Observatory is by no means assured. In 2005, the University of Chicago wanted to realise a real estate asset in a prime location, and made plans to sell the site for housing. Fortunately for astronomy, a concerted campaign led to the observatory being saved – at least for now. Plans are being developed for a science centre on the Yerkes site, which hopefully will continue to include the 40-inch refractor and the historic buildings.

I concluded my visit to the Yerkes Observatory by taking a walk around the estate; there are a number of smaller domes, and houses for observatory staff. The ground underfoot was snowy and wet, so it wasn't the best day for a stroll. Nonetheless, I enjoyed my look around the grounds. This is a place that oozes history – the chance to walk in the footsteps of Hale, Hubble, Barnard, Kuiper, Struve, Chandrasekhar and co. is not to be missed.

Albert Einstein visited the observatory once, in May 1921. In a short tour around the United States, he had one day off. He was offered the choice between a visit to Niagara Falls and a visit to the Yerkes Observatory. He chose Yerkes, and I can understand why.

Do try to visit if you are ever in the area.

Variable Stars – an historical novel

Letter from James Dawson

I've just read an historical novel called *Variable Stars* by Christina Koning:

http://www.amazon.co.uk/gp/aw/d/0956521444/ref=mp_s_a_1_1?qid=1415979233&sr=8-1&pi=AC_SY200_QL40

It is mostly about Caroline Herschel but also includes side stories about those around her.

It is a fascinating read, and informative, gritty, and very moving.

I'm sure other members of the historical section would be interested in it.

Regards

James Dawson

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Wolfgang Schroeder

An enquiry from Giovanni Anselmi

Dear Mike,

Our astronomy magazine is interested in having biographical information about Wolfgang Schroeder, the author of the book "Practical astronomy" (Laurie, 1956). Can you help?

Thank you in advance!

Giovanni Anselmi

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A search on the digital archive of the BAA Journal indicates that Wolfgang Schroeder (address: The Wayfarer, Burham, Rochester, Kent) was elected a BAA member on 27 April 1944. (Proposer: Clifford E Bugler). If anyone has any information on Schroeder, particularly dates of birth and death, please contact Giovanni.

Early Solar System Maps

An enquiry from Philip Stooke

Philip Stooke, a cartographer at the University of Western Ontario in Canada, is writing a paper on the history of solar system cartography in the 19th century. He requests assistance with two particular points, early mapping of the Sun and Jupiter (solid bodies are fairly well documented already). It appears that Richard Carrington was the first to apply coordinates to the Sun's surface and to produce global maps (i.e. not instantaneous views of one hemisphere). Can anybody help identify maps earlier than those by Carrington? After his work, did other observers continue systematic observations? For Jupiter, a strip-chart by A S Williams appeared in 1887, but can anybody help identify earlier strip-maps of Jupiter? Any information gratefully accepted and will be given appropriate credit. Please send any communications to Professor Stooke at pjstooke@uwo.ca.

Further dates for your diary

Saturday 28 March 2015 Joint SHA / BAA Historical Section Meeting at National Maritime Museum, Greenwich. See Mike Frost's Editorial on page 1 of this newsletter for details.

Saturday 4 July 2015 SHA Summer Picnic, Woolsthorpe Manor (home of Sir Isaac Newton) near Grantham, Lincolnshire. To include a tour of the house and a visit to Colsterworth Church. Full details TBA – see SHA website:-

<http://www.shastro.org.uk/>

Sunday 23 to Friday 28 August 2015 INSAP IX, the ninth international conference on the Inspiration of Astronomical Phenomena, to be held at Gresham College, London. A conference bringing together scientists, humanities scholars and artists to discuss the inspiration of astronomy in culture. For details see:-

<http://www.insapix.org/>.

Saturday 31 October 2015 SHA Autumn Conference and AGM 2015. Birmingham and Midlands Institute, Birmingham.