

WILLIAM HERSCHEL SOCIETY ANNUAL GENERAL MEETING 2 MARCH 2019: CHAIRMAN'S REPORT FOR 2018

I am pleased to report that the Society is in good shape, with many useful activities and several important developments over 2018.

Our lecture programme continues to thrive, with all but one as usual being delivered as one of Bath's Royal Literary and Scientific Institute's themed lecture series. Most of them were lectures about astronomy/space science or its history. But we also tried a chat-show approach in one case, and in another had a lecture prepared by a member with much help from two committee members on a topic of interest. We have also been getting rather more systematic about identifying and approaching potential lecturers from a variety of sources. Tony Symes, our lecture organiser, looks after the programme very effectively. You can see the detail in his report at Annex A.

Most of our observing programme is badged as Bath Astronomers because much of the appeal is to a rather different demographic, such as young families. Simon Holbeche, our Observing Coordinator, over the year has led, organised or helped an amazing range and quantity of observing sessions, workshops, talks, and school visits, quite a few of them in cooperation with the Herschel Museum. You can see the detail in Simon's activity log at Annex B.

Our music representative, Dr Matthew Spring of Bath Spa University, has continued to organise concerts of Herschel's music and help us address other potential musical collaboration opportunities. He has also proposed, and we have agreed, some first steps in collaboration with his university to put together the first digital catalogue of Herschel's music. Detail at Annex C.

I will be brief on the Herschel Museum as we will discuss it as a separate item later. Suffice it to say that there is wide range of successful collaboration at all levels from strategic planning to individual events. One fruitful chance encounter was with an American visitor to the Museum who brought gifts of small telescopic mirrors he had made from speculum metal; he is now working with us to produce full size speculum mirrors for the replica Herschel telescope at the Museum.

The initial year of the Caroline Herschel Prize Lectureship proved very successful, with a good number of high quality candidates, a winner (Dr Sarah Rugheimer) declared on schedule, and an excellent lecture delivered at the University of Bath in November. Professor Diana Worrall has now taken over as chair of the selection committee, and we have agreed the arrangements for the 2019 Prize Lectureship, with only very minor changes.

The major development on our Starlit Skies collaboration was the publication in June of our educational video on the importance of good lighting and what can be done to achieve it. This has been very well received, with growing local interest, and opportunities ahead. We are still looking to recruit a Dark Skies representative for our committee, and have published a role description to see if that will help.

Over the year I have been getting a better understanding of the various available sources of documents and information about the Herschels beyond this city. This led to very interesting discussions with archivists at both the Royal Astronomical Society and the Royal Society, both of whom are keen to increase collaboration with us. And Will and Cassie Herschel-Shoreland came to Bath in June to tell us about the family archive – this in effect substituted for the presentation we would have had at last year's AGM if the weather had allowed it. This was all very enlightening. One simple outcome is the Herschel Resources page on the Society website, which for the first time offers in one place website links to all the key sources of historical information on the Herschels. Doubtless it will develop further in time.

The Journal continues to thrive under the editorship of Tony Symes with assistance from Fred Schlesinger, while Fred continues to run the production and distribution side.

As envisaged last year, Simon Holbeche has put our Membership arrangements onto Membermojo, ensuring that they are both effective and compliant with modern legislation. His report on membership numbers is at Annex D.

Jim Foreman continues to run our website and social media accounts very efficiently. At the turn of the year our Facebook Group had 52 members and our Twitter account had 276 followers. He also bears the considerable burden of being the secretary for our committee meetings and from this AGM takes over the same role for this function, too.

My thanks to those mentioned above and all committee members for their contributions over the past year. I will say a bit more about the future when we come to the elections item.

Charles Draper

Chairman

William Herschel Society

21 February 2019

ANNEX A

WHS Lecture report for 2018

In 2018 we managed a programme of 9 lectures. We omitted January when we were unable to find a speaker, and March when the WHS Annual Lecture had to be rescheduled because of snow. However we were able to put on an “extra” lecture in July, taking advantage of the visit of Dr Daniel Batchelor of the Florida Institute of Technology.

Average attendance was down a little, though it picked up at the end with 85 at the last talk of the year and 82 in January this year (not counted in the 2018 average). The average figures are:

2014	2015	2016	2017	2018
40	41	56	57	51

Kew Observatory and the birth of solar-terrestrial physics

Date: Thursday 1 February 2018.

Lecturer: Dr Lee Macdonald.

Attendance: 39

Originally built in 1769 to enable King George III to observe that year’s transit of Venus, Kew Observatory became one of the most important scientific institutions in nineteenth-century Britain and left an enduring legacy in the history of science. Its activities encompassed meteorology, geomagnetism, instrument-testing and solar physics. In this talk, Dr Lee Macdonald explores how a group of astronomers and science devotees – notable among them Sir John Herschel (1792-1871) used Kew Observatory as a site for the world’s first systematic programme of daily solar photography in tandem with observations of the Earth’s magnetic field. The work was a precursor of the ground- and space-based solar imaging and space weather monitoring that we take for granted today. The talk also described the observatory’s influential role in the development of meteorology and how Kew Observatory became the originating institution of the present-day National Physical Laboratory.

Caroline Herschel and the nearly all male world of eighteenth century science

Date: Thursday 5 April 2018.

Lecturer: Dr Emily Winterburn, former Curator of Astronomy at Royal Observatory Greenwich

Attendance: not recorded

Based on her book, Dr Emily Winterburn considered Caroline Herschel and her various tactics for encouraging support for her work. Between 1788 and 1797 Caroline discovered comets, became the first woman to be published in the journal of the Royal Society and assisted her brother in his research. Women had tried to get their work heard before, indeed all over Europe there were women quietly working in science, more often than not silently, and unacknowledged for their male relatives, Caroline however was the first to get her voice truly heard.

A longer summary of this lecture is in the Spring 2019 edition of the WHS Journal (v18.1)

The Apprentice – Memories of the Bronze Age of Space Science

Date: Friday 11 May 2018.

Lecturer: Dr Roger Moses, University of Bristol

Attendance: not recorded

This drew a small but select audience and was a fascinating personal insight into research into cosmic rays which started off using Victorian methods such as stacked photographic plates on helium balloons and then modernised rapidly.

Rescheduled Annual Lecture: The Great Quasar Debate 1963 – 1984

Date: Friday 18 May 2018.

Lecturer: Professor Mike G. Edmunds, University of Cardiff

Attendance: 29

This was the postponed (snowed off) Annual Lecture and ended up competing with “The Party in the City” at the opening of the Bath Festival, which had a negative effect on attendance.

This is a story that ranges over much of modern astronomy. It is a classic illustration of how radical scientific developments are established as new observational evidence accumulates. It shows how unusual theoretical ideas – even an idea as extreme as a black hole of a billion solar masses - become accepted. The Cambridge University radio astronomy group published their third major catalogue of radio sources in 1959. By 1963 attempts at identifying visible objects associated with the radio sources showed up two objects – 3C 273 and 3C 48 - which looked star-like, but whose properties were very hard to understand. Were these very distant and extraordinarily luminous objects? Or were they comparatively nearby, but moving at relativistic velocities? Either choice led to major problems. The debate over the nature of these “quasi-stellar objects” or “quasars” raged through the 1960s and on into the 1970s, but was finally over by 1986.

An excellent lecture, throwing light on some larger than life personalities like Fred Hoyle. Some very well-informed questions and contributions from the audience, although a two people remarked to me as they left that it was a bit advanced for them. It was clearly impossible to satisfy the full range present.

A longer summary of this lecture is in the Spring 2019 edition of the WHS Journal (18.1).

Paler Blue Dots: Technology Developments on ISS for Finding Earth 2.0

Date: Friday 13 July 2018.

Lecturer: Dr Daniel Batchelder, Florida Institute of Technology

Attendance: 38

We were lucky to have Dr Daniel Batchelder for the second time (last in 2014) to talk to us about the incredibly challenging problem of imaging exoplanets. He was brought up locally and attended King Edwards School, but now works at the Florida Institute of Technology. The last decade has seen a giant leap in the number of known planets around other stars. As we improve our technologies, and invent new ones, we have been getting better and better at finding these exoplanets. To date, we have uncovered some incredible statistics that have fundamentally changed our understanding of planetary systems; Jupiter-like planets can be close to their host stars, Earth-like planets are very common. The Kepler Space Telescope has been responsible for finding most of the known exoplanets, and the TESS mission is attempting to find the closest stars with planetary systems. These data will be used by the James Webb Space Telescope to point at those planets that might tell us something fundamental about their atmospheres. The imaging of these planets, however, is incredibly difficult and has only happened in a handful of cases. Recently, we have been testing technologies that should massively simplify future attempts to image exoplanets. We have carried out observations in Florida and on the Canary Islands, and have recently completed an ISS mission to demonstrate a key technology. During this lecture, our current understanding of exoplanets, the techniques used to detect them, and the status of our ISS mission will all be discussed.

The Herschel Space Observatory – An Engineer’s Story.

7th September Luke Lucas in conversation with Charles Draper –

Date: Friday 7 September 2018.

Lecturer: Luke Lucas in conversation with Charles Draper.

Attendance: 54

Luke Lucas spoke about her career in conversation with Charles Draper of the William Herschel Society. Making a connection with Caroline Herschel’s discoveries of comets and nebulae over 200 years ago, Luke Lucas worked with the Herschel Space Observatory prior to launch, through launch, commissioning, and then finally routine operations. Herschel, the largest infrared telescope ever launched, was investigating previously unseen cold regions of Space, where stars are born. Her responsibilities included mission planning and the SPIRE instrument. The conversation continued about her present work with the Mars Express, which has been orbiting Mars and achieving outstanding science since 2003.

This was a unique opportunity to learn from first-hand experience in planning and managing an interplanetary space mission.

The interview format worked well, and the lecture provided a good insight into working within ESA.

Joint WHS & BIS Lecture: To Mars via Kazakhstan Beagle2, lost on Mars but found 11 years later

Date: Friday 5 October 2018.

Lecturer: Terry Ransome.

Attendance: 40

The final highlight in Terry Ransome's working life was to work at the Russian Baikonur Cosmodrome in Kazakhstan from where Yuri Gagarin embarked on the first human spaceflight. It is still busy today launching astronauts and cosmonauts to the International Space Station and lots more.

He took with him the UK's Mars Lander Beagle2, the probe that was 'lost' on Mars on Christmas 2003, but 'found' 11 years later.

In this talk he told of his Beagle2 and Kazakhstan experiences and how Beagle2 was eventually found and identified on the Red Planet. A postscript tells of the latest (2016) European attempt at a Mars landing and looks ahead to the future.

The BIS continue to provide us with excellent speakers, but I don't think that so many of their members showed up as on previous occasions.

A longer summary of this lecture is in the Spring 2019 edition of the WHS Journal (18.1).

The Caroline Herschel Prize Lecture: Hues of Habitability - Characterising Pale Blue Dots around Other Stars

Date: Wednesday 21 November 2018 at Bath University.

Lecturer: Dr Sarah Rugheimer.

Attendance: 75

A very successful first Caroline Herschel Prize Lecture. Dr Sarah Rugheimer explained how new research on the spectra of the atmospheres of exoplanets may help to detect the signature of life.

The lecture covered such things as the difficulty of matching exoplanet spectra of gases which haven't yet had their spectra fully analysed at the appropriate temperature on Earth.

Early Indian Astronomy and the Birth of Zero.

Date: Friday 30th November 2018.

Lecturers: Dr Peter Ford and Deepali Gaskell.

Attendance: 85

This talk started in Georgian Bath where former members of the British East India Company came to take the waters and exchanged ideas about the mathematics that they had found in Bengal. It traced the development of Indian Mathematics and the vital concept of Zero from its origins in ancient astronomy to its use in commerce and science

A very well attended lecture covering a wide range from the ancient Indian Vedas to the beginnings of modern mathematics with Fibonacci in Italy.

It is planned to publish a summary of this talk in the Autumn 2019 edition of the WHS Journal (v18.2).

ANNEX B

BATH ASTRONOMERS ACTIVITY LOG FOR 2018

WHEN	WHO/WHERE	WHAT
11 th Jan	BRLSI	Beginner's Workshop: Observing the Sky -10 attendees including Charles Draper and Simon Holbeche speaking about the practicalities on how to plan your observing and how to view categories of objects.
13 th Jan	Simon at Young BRLSI	Roving the Solar System. 7 attendees
23 rd Jan	BRLSI	Beginner's Workshop: Knowing the Sky
25 th Jan	Percy Community Centre	BA Meetup
21 st Feb	Bristol Planetarium	Explore the Galaxy 3D
22 nd Feb	Percy Community Centre	BA Meetup
29 th Jan	Weston	Observing for Weston Guides
13 th Mar	Limpley Stoke	talk – 30 people
17 th Mar	Bath Taps into Science	250 people
29 th Mar	Percy Community Centre	BA mtg Andy Burns talk 20 people
7 th Apr	Tunley	Telescope workshop – 10 people
14 th Apr	BRLSI	BRLSI workshop for Young Scientists on James Webb
14 th Apr	Wellow	observing – 2 people
22 nd Apr		World Heritage Day – 150 people
26 th Apr	Percy Community Centre	BA mtg Pete Richardson Talk – 15 people
19 th May	Wellow	8 attendees
31 st May	Percy Community Centre	BA Meetup
22 nd to 24 th Jun	National Trust Top of the Gorge Festival	Organised by Space Detectives and with Wells and Mendip Astronomers with 100+ attendees;
28 th Jun	Percy Community Centre	BA Meetup - Talk on Solar Astronomy;
27 th Jul	Herschel Museum of Astronomy with Charles, Tony V, Jon and Joe/BPT	The replica was in action as well as Tony V's Dobsonian and a live NASA feed of the lunar eclipse;
3 rd Aug	Odd Down P&R with Jenna, Anna, Gillian, David, Charles and Simon	They got to see Jupiter (OK), Saturn (Excellent – Cassini's Division all round, Titan+3 moons, clear distinction between rings in front and behind), and Mars (disappointing - could just see S Polar cap and some faint dark markings) Also M13, the Ring, Dumbbell, and Veil Nebulae, Epsilon Lyrae and Albireo Double stars, Mu Cephei (Herschel's Garnet Star) , and M81 and M82 galaxies. Lots of meteors – mostly Perseids, and I saw one anti-Perseid!
27 th Sep	BA Meeting at the Herschel Museum	4 visitors/members
16 th Oct	Westfield Primary	KS2 workshops on the Solar System and Gravity
25 th Oct	BA Meeting – 46P/Wirtanen at the Herschel Museum	3 visitors/members
10 th Nov	BRLSI	Young Astronomers workshop – Our Solar System
11 th Nov	Packhorse Inn, South Stoke with Jenna, Chris B and general public (20+)	One spectacular fireball Northern Taurid. We got to see the Milky Way, the constellations to the south and overhead, Mars, globular cluster M2, planetary nebula M57, galaxy M81, the Perseus Double Cluster, Double star Albireo, open cluster the Pleiades M45 and the Andromeda Galaxy M31. Oh, and 15+ Northern Taurid meteors and a few sporadics.

WHEN	WHO/WHERE	WHAT
14 th Nov	Herschel Museum of Astronomy	Supporting BPT
15 th Nov	Heywood Prep	Astro Workshops
20 th Nov	Weston	Astro Workshop for Weston Guides;
23 rd Nov	Twerton Junior School	Astro Workshops supporting BPT
29 th Nov	Percy Community Centre	Making Rainbows talk with Hugh Allen
7 th Dec	Herschel Museum of Astronomy	Supporting BPT
9 th Dec	Wellow	Goinggazing adhoc event;
17 th Dec	Hayesfield School	Remote observing from Australia using iTelescope;
12 th Jan	BRLSI	Young Astronomers workshop – Our Galaxy
12 th Jan	Tunley	Telescope workshop
23 rd Jan	St Marks	Supporting BPT school visit
24 th Jan	Bristol Planetarium	Winter Skies 3D
27 th Jan	Wellow	Public Stargazing
29 th Jan	St Philips Primary	KS2 workshop on Apollo 11
31 st Jan	New Inn Public House	Bimonthly meet up
9 th Feb	BRLSI	Young Astronomers workshop – Moon Landings

ANNEX C

Music Report for 2018

1. December 2017 saw the end of the Jubilate Concerts – a series of 5 concerts in various venues in Bath celebrating and featuring Herschel's music. To celebrate 250th anniversary of WH taking up the post of Organist at the Octagon Chapel.
2. Correspondence (Sept and ongoing) with Andre Penyugin and about his Festival events in St Petersburg. Festival in September in Russia. Several concerts were given by Andre's group, and other groups that featured Herschel's music. He desires to put on an all Herschel Festival but lacks money and a home for it.
3. May 2018 – Correspondence from Jaspar Morvaridi – Herschel Ensemble played some Herschel chamber music in the Royal Albert Hall's Elgar Rooms May 10 2018
4. Correspondence (via Charles) with Robert Hollingsworth on the Echo Catch – in which I sent him two versions of the piece.
5. Correspondence with George Frazer (Feb-April) who is interested in putting on a concert in 2019 of music from Bath (including Herschel) in Armagh – which is eighteenth-century city with some cultural links with Bath.
6. Performing of Herschel in concerts by Matthew. Talk for the Lute and Gamba Society in sept 2018 in London on the lute and gamba in Bath and Wells in the 18th century – which touched on Herschel's teaching in Bath.
7. Sounding Space' Concert by Sirinu in History of Science Museum April 2018 and forthcoming concert in the Purcell Room for 2019.
8. Herschel Catalogue Project. Extensive correspondence and engagement with proposing a digital catalogue of William Herschel's music. The project received approval for partial funding from Bath Spa University to start the project in December 2018.

ANNEX D

Membership Report for 2018

39 expired memberships of which 11 this year.

	7 th July	27 th Aug	31 st Oct	31 st Dec 2018	11 th Feb 2019
Total Membership	253	257	252	257	247

Expiry Year	Membership Type					Grand Total
	Individual (UK)	European Individual	Overseas Individual	Honorary	Volunteer HMoA (Hon)	
2019	165	7	16			188
2020	16	2	1			19
2021		1	1			2
2022			1			1
2023		1				1
2026	1					1
Unlimited				21	14	35
Grand Total	182	11	19	21	14	247