



*Astronomy, and the musical family
that did so much to pioneer it.*

CHAIRMAN'S REPORT on 2020

For the second year running I start by recording the deaths of two colleagues who have contributed greatly to the success of the Society. Michael Tabb, who died in November, has an enduring memorial in the replica 7 foot telescope that has been a key attraction for the Herschel Museum since it's opening almost exactly 40 years ago. He had also been a major figure in the local Dark Skies movement. He remained an active member of our Committee until the end. There is a fuller appreciation of his contribution in the current issue of our Journal. This edition also included a report that Jim Foreman, who for many years had undertaken secretariat and communications roles for the Society had resigned because of ill health. Sadly, I have to report that he, too, has now died. Jim was one of those quiet, self-effacing people who would get things done without fuss, and was a friend to all. We will miss them both.

2020 has been the year of covid for everyone, of course. It has been devastating for the Herschel Museum, like all such attractions. We have stayed in close touch with our colleagues there, and were more than glad to provide substantial financial support at a key moment last summer, as well as practical support for and engagement with the limited activity plans that have been feasible. Claire Dixon will give much more detail on this at the meeting.

In other respects, the effects of covid have been more mixed. As Tony Symes' lecture report (Annex A) explains, after a few months of cancelled BRLSI lectures, they have now developed a very effective on-line alternative. While we very much miss attending in person, this does mean that lectures can be delivered from afar, and of course more distant audiences can also access them, sometimes in much greater numbers.

This was true of the Caroline Herschel Prize Lectureship, won this year by Dr Becky Smethurst. The normal audience of about 70 became a total of about 400 on-line and streaming. It helped, of course, that Dr Smethurst (as Dr Becky) already had a very high online profile. We intend to try to get the best of both worlds once lecturing in person is allowed again.

Our Starlit Skies group has continued to grow and develop, particularly getting more recruits from individuals with a range of interests and expertise, reflecting the widespread impacts of light pollution on so much of our environment. Dr Bob Fosbury has produced a very useful note, based partly on his own research in collaboration with UCL, on the threat to health of blue artificial light. We have used this, together with an excellent and comprehensive paper on wildlife impacts compiled by another colleague, and the very



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useful report from the All Party Parliamentary Group on Dark Skies, in evidence sent to BathNES Council to persuade them to take that threat to human and animal welfare of light pollution seriously. We will also be organising a Panel Discussion on this at the on-line National Astronomy Meeting being hosted this July by the University of Bath and the Royal Astronomical Society.

Matthew Spring's report on music at Annex B sets out achievements this year despite covid, and our ambitions for the future.

Members will by now have seen the Spring copy of our Journal put together by Tony Symes. I hope you will agree it is full of interest.

One of our activities this past year has been implementing the decision at last year's AGM to change our name to the Herschel Society. We realised that this also meant changing our logo and that it would make sense to publicise the change once this had been done. We commissioned a local designer (Dominika Jarowcki) to help us with this, and after a lively debate settled on the logo and strapline that you now know. It has been very well received. We have now commissioned Dominika to advise us on how best to apply to the new logo to the next edition of our Journal.

I have now taken over responsibility for our website and social media, which have also of course been changed to reflect our new branding. I am hoping in time to develop it further as a useful resource for all things Herschellian. The website has been more important this year. It has been noticeable that several important overseas contacts have reached us that way over the past year, with useful collaboration as the outcome.

Simon Holbeche's report on membership is at Annex C. We have lost some numbers over the past couple of years. We are in a fast changing world and will keep an eye on trends over the next few years.

My thanks to everyone on our Committee for all they have done over the past year to keep the Society in good shape, and adapting effectively to this new world.

Charles Draper



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Annex A - HS Lecture report for 2020

In 2020 we managed a programme of 6 lectures after the abrupt cessation of physical lectures in March due to the covid pandemic. We restarted the lecture programme with online only Zoom lectures in September. Although we mostly long to return to physical lectures, there are undoubted advantages of live streaming such as global reach which mean that we will seek to do both in the future. Note that online lectures are recorded and freely available on the BRLSI YouTube channel one month after the event.

The yearly attendance figures (excluding this year's exceptional CH Prize lecture) are:

Year	2014	2015	2016	2017	2018	2019	2020
Lectures	10	9	8	7	9	8	6
Attendance	40	41	56	57	51	50	43

Dark Matter and Current Direct Detection Experiments

Date: Friday 7 February 2020.

Lecturer: Dr Cees Carels.

Mode: Physical

Attendance: 57

Dr Cees Carels travelled from Belgium and gave an excellent lecture on Dark Matter. He started with the observations that gave rise to the need to postulate dark matter which seems to contribute nearly 5 times as much mass to the Universe as regular baryonic matter. He then ruled out some of the candidates for what makes up dark matter including dim stars and standard model particles and discussed experiments for detecting exotic particles such as WIMPS. Finally he explained the LUX-ZEPLIN experiment that he had been involved with – a large xenon filled scintillation detector a mile underground in South Dakota.

The WHS Annual Lecture – Astronomy in an Age of Revolutions: The Foundation and Founders of the Royal Astronomical Society 1820

Date: Friday 6 March 2020.

Lecturer: Prof. Mike G. Edmunds

Mode: Physical

Attendance: 52

Mike Edmunds started off by giving us the historical context of the formation of the RAS and the opposition of Joseph Banks who was president of the Royal Society. He then went through each of the 14 characters who came together in the Freemasons' Tavern in 1820. These people came from different classes and included a young Polish astronomer named Peter Slawinski, Charles Babbage of Difference Engine fame, and Henry Colebrook of the East India Company and a Sanskrit scholar who became the society's first president. Some of the first fellows were mentioned including 2 with a connection to Bath.



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Hunting Outbursting Young Stars

Date: Friday 4 September 2020.

Lecturer: Dr Dirk Froebrich

Mode: Online Zoom

Attendance: 19

This was the first lecture that we gave as a live Zoom lecture with the help of the BRLSI. Attendance was disappointing, but what we lacked in numbers we made up for with global reach as our audience locations included Northumberland, Scotland and Japan (Dr Sadaharu Uehara).

In a fascinating lecture, Dr Froebrich took us through the principles of star formation and described how we can image the accretion disc in nearby cases down to about 5 AU. Further details can be revealed by studying the periodic dimming of the star. Depending on the period observed, these may be due to cool or hot spots on the star itself or due to orbiting structures in the accretion disc. By gathering data from all possible observations by amateurs, it is possible to tease out the different periods involved and learn what is going on well within the 5AU imaging limit. This is a citizen science project which is relatively easy for observers to enter.

First Steps to Interstellar Probes- i4is Project Glowworm (for World Space Week jointly with the BIS)

Date: Friday 2 October 2020.

Lecturer: John I Davies

Mode: Online Zoom

Attendance: 23

John Davies gave us a most stimulating talk on the past, present and future of concepts for interstellar travel. The past being about massive nuclear powered spaceships, and the future being about tiny cubesat based probes powered by light sails and lasers.

How the Sun Paints the Sky (jointly with the BRLSI Visual Arts Group)

Date: Friday 6 November 2020.

Lecturer: Dr Robert Fosbury

Mode: Online Zoom

Attendance: 64

Bob's much anticipated lecture, postponed from May, lived up to expectations and drew in the widest audience that we have ever had, with the second highest number of tickets sold for any BRLSI online event. The combination of beautiful images of the sky and sunsets, some from the Atacama with the fascinating Physics behind the colours was very rewarding.



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The Caroline Herschel Prize Lecture: Supermassive Black Holes: The Ultimate Galaxy Killers?

Date: Wednesday 18 November 2020.

Lecturer: Dr Rebecca Smethurst, University of Oxford.

Mode: Online Zoom and YouTube

Attendance: 400 estimated

This lecture was hosted by the University of Bath as usual and with their reach and the large number of Dr Smethurst's social media followers the takeup exceeded the Eventbrite/Zoom limit of 250. Those that failed to get tickets were encouraged to connect via YouTube.

Dr Smethurst explained that there was a discrepancy between simulations of galaxy formation and observation. Adding supermassive black holes to galaxies in simulations reduce the number of bright galaxies to those actually observed. From this a picture emerges of how galaxies evolve from flat spirals without central bulges to those with central bulges (after merging with other galaxies) and finally to elliptical galaxies, with diminishing star formation.



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Annex B – Music Report for Herschel Society AGM from Matthew Spring, Feb 2021

The year 2020 -2021 has seen some challenges as a result of covid and restrictions on performing and researching Herschel's music. The planned concert for July 2020 that was to have been part of the RAS National Astronomy was abandoned as the conference was postponed. It is hoped that a concert of Herschel's more intimate music can be produced for the online conference that is to take place in July this year. The hope is that a concert with introductory talk can be recorded in the Herschel museum and made available as part of the conference.

The Journal of the Herschel Society for Spring 2021 (vol 20 no.1) included an article titled 'William Herschel's Musical Summer of '78' which I produced. The article traced the origins of part of the collection of Herschel's autograph music in the Cambridge University to the Herschel family's musical activities in Bath's Spring Gardens in the summer of the 1778. William produced a set of 12-part books for a band of up to 8 instruments and 4 singers in his own hand. The collection includes 21 very varied pieces that are witty and humorous. Most famous of the set was his 'Echo Catch' which was later published in London and achieved some popularity. The article discussed the set and the family circumstances in which it was produced.

The new Herschel society website will include areas on the musical life and output of the main Herschel family members. In time it will include links to a catalogue of Herschel's music. Dominique Proust with help from Gus Orchard have produced a transcription and a general view of the text in the context of eighteenth-century music. It hoped that the discussion could be produced in the Journal and whole text made available through the website.

Work on the catalogue on Herschel's music is progressing though this has been somewhat curtailed by lack of access to archives and library collections during the past year. Much of the keyboard and chamber music has been added. The symphonies have collected but some of the music will need to await the end of lockdown to gain access.

On the horizon a conference celebrating 250 years of the Bath Assembly Rooms is projected for September 2021 and it hoped that live music and dance will be part of the event. There may be opportunities for papers on Bath's music at the time of Herschel and for hearing his music in the rooms. Herschel was the director of the concert series in the years up to his departure for Slough.



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Annex C - Annual Membership Report 2020- 2021

The society has 198 current members as of 22nd February 2021. The breakdown of membership types is illustrated below:

Expiry Year	Membership Type				Total
	Herschelian (digital)	Herschelian (paper)	Honorary	Volunteer HMoA (Hon)	
2021	41	101			142
2022	8	11			19
2023		3			3
2026		1			1
Not Applicable			19	14	33
Total	49	116	19	14	198

13 new members joined in the last 12 months. 53 memberships were not renewed in the same period, of which 5 memberships lapsed in the past month or so and may rejoin.

All but 17 members have been confirmed in the new membership types of either Digital or Paper Herschelians. These have been classed as Paper Herschelians in the table above. 32 members have been contacted regarding incorrect subscriptions following subscription amount changes in March 2020, of which 17 have had memberships extended pro rata based on amount paid.

