

**JAMES CLERK
MAXWELL
FOUNDATION**

JAMES CLERK MAXWELL FOUNDATION

ANNUAL REPORT

Year ended 31 December 2023

JAMES CLERK MAXWELL FOUNDATION

(Scottish Charity Number SC 015003)

Trustees' Annual Report and Accounts for the year ended 31 December 2023

TRUSTEES

Dr Alan Walker MBE (Chair until April 2024; Treasurer from April 2024; Member of Property and Outreach Committees)

Mrs Catherine M. Booth (Secretary until April 2024; Member of Property Committee; Visits Coordinator)

Professor Dugald B. Duncan (Webmaster; Chair of IT Committee)

Professor Isobel Falconer, MBE (Member of IT Committee; Trustee until April 2024)

Dr Howie Firth, MBE (Trustee and Chair of Outreach Committee until April 2023)

David O. Forfar (Newsletter Editor and Trustee until April 2024)

Professor Martin A. Hendry, MBE (Member of Outreach Committee)

Dr Susan P. Hezlet (Treasurer and Trustee until April 2023)

Dr David Kerridge, MBE (Chair of Governance Committee; Chair of Foundation from April 2024)

Dr James C. Rautio (Member of Outreach Committee)

Dr Chris Pritchard (Trustee from November 2023; Secretary from April 2024)

Dr Catherine Dunn (Member of Outreach Committee; Trustee from April 2024)

Dr Steve Drasco (Member of Property Committee; Trustee from April 2024)

Dr Matjaz Vidmar (from April 2024)

Bookkeeper: Mrs Jemma Brown (until April 2024)

Contact address

James Clerk Maxwell Foundation, 14 India Street, Edinburgh, EH3 6EZ.

Recruitment and appointment of Trustees

Trustees are selected from suitably qualified persons who have an interest in the works of James Clerk Maxwell.

Governing document

Revised Deed of Declaration of Trust (2021).

Charitable purposes

As set out in Deed of Declaration of Trust, 4th Schedule.

Activities and achievements

See Trustees' Report for the year ended 31 December 2023.

Reserves

At 31 December 2023 the Foundation had bank account funds of £22,984 (2022: £23,971) plus investments valued at £64,342 (2022: £57,190) giving a total reserve of £87,326 (2022: £81,161).

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

TRUSTEES

Both Dr Susan Hezlet and Dr Howie Firth resigned as Trustees in April 2023.

We welcomed Dr Chris Pritchard as a new Trustee appointment in November 2023. Chris is a mathematics education leader, author and editor, and a historian of Victorian mathematics with specialist knowledge of James Clerk Maxwell's lifelong friend and 'sounding board', Peter Guthrie Tait, about whom he has spoken at the Royal Society of Edinburgh and at India Street.

FELLOWS, FRIENDS, AMBASSADORS AND VOLUNTEERS

We value the support and enthusiasm that all our Fellows, Friends and Ambassadors contribute to the Foundation, and are very grateful for the help which our volunteers give us.

Dr John Arthur, both Fellow and our Curator, continues to be an invaluable consultant and source of advice for enquiries received by the Foundation. Some of our Fellows, namely Professors Peter Grant, Alastair Gillespie and Alan Shotter, continue to lead tours and talk to visitors. All of them have given the Foundation long service, and have a wealth of knowledge and experience, which they readily share with current Trustees. Peter in particular is frequently the host who delivers an introductory talk to appreciative audiences when large groups visit the Foundation.

A fairly recent and very welcome volunteer has been former Physics Lecturer, Dr Steve Drasco. He quickly assimilated the required background knowledge and became one of our established tour guides. His experience in dealing with problems in rented properties has also meant that he has been an ideal and valuable recruit to the Property Committee.

Other volunteers have provided assistance in various ways. We drafted in some India St neighbours and enthusiastic former visitors to help us with Doors Open Days, for which we were also grateful to have student volunteers.

CHARITABLE GRANTS AWARDED

In 2023 we had to undertake and pay for further major maintenance work in the house, so our funds for disbursement were limited to:

- Contribution, along with one from the Institute of Mathematics and its Applications, towards a 4-yearly prize awarded on the occasion of the Congress of International Council for Industrial and Applied Mathematics (ICIAM). In 2023, the recipient was the Chinese mathematician, Weinan E.
- Maxwell Prize (awarded with the Mackinnon Macneill Trust) to Heather Thomson
- Support for the Scottish Mathematical Challenge competition (pledged in 2022)
- Edinburgh Academy Maxwell Physics Prize, a cheque and book, to Jennifer Lane

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

PUBLIC ACTIVITIES IN 2023

Doors Open Days

In September 2023, the building was open to the public for two afternoons, when we welcomed over 300 visitors, with lots of positive feedback. This is an occasion where most of our visitors appear to be local, while throughout the year, individual visitors and those in groups tend mostly to be from overseas.

Group visits

Throughout the year, we provided pre-arranged talks and tours of the exhibits to several different larger groups. We do not charge for these, unless we provide refreshments, but the Foundation always welcomes donations.

These groups included:

- **Edinburgh Blue Badge Guides**

Around 40 tour guides attended, following their request to us to provide a briefing event for them on Maxwell's life and work. Several had recognised that their overseas visitors knew far more about Maxwell than they did!

- **New Scientist Travel Tour**

As happened last year, a visit to 14 India Street was included as one of the attractions in a programme of scientific travel organised by the *New Scientist* magazine. 25 people were in this group, mostly from the USA, and gave us positive comments.

- **Ouachita Baptist University, Arkansas - science travel tour**

We welcomed 12 students and staff on this tour. The students were particularly appreciative, as most of them had never before travelled outside the USA.

- **Image Sensor workshop**

Around 30 international delegates from this meeting attended, many of whom took particular interest in Maxwell's work on colour.

- **Awardees of the IEEE/RSE James Clerk Maxwell medal**

Although only 4 actual medal awardees attended, accompanying guests took the number of visitors to approximately 14, visiting over 2 days. Most had never before seen Maxwell's birthplace, and it was gratifying to see how much this experience meant to these prestigious individuals.

- **Choir from North Carolina**

A more surprising request came from a member of a choir on a concert tour. From an initial estimate of 4-6 visitors, the numbers ended up being around 12, who came on a Saturday afternoon. It seems that this choir attracts people with science and mathematics backgrounds, all of whom were delighted to have the opportunity to visit us.

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

PUBLIC ACTIVITIES IN 2023

Group visits (cont'd)

• Local organisations

We were very pleased to arrange visits requested by various local bodies who wanted to know about James Clerk Maxwell, and his life and work. These seemed to be much appreciated by the attendees, and included:

- Universities Retired Staff Association (27 people)
- Norwegian Scottish Association (16 people)
- Friends of the City Art Centre (19 people)
- Morningside Heritage Association (23 people)

• Neighbouring bodies

• Moray Feu

Our Moray Feu neighbours have been very supportive and generous. In 2023, three of us delivered lectures to their members on our premises. They charged for the event, and passed on the proceeds to the Foundation. About 20-30 people attended on each occasion. Topics covered by these lectures were:

- James Clerk Maxwell's life and work (Peter Grant)
- Trailblazing Women of Science (Catherine Booth)
- From Maxwell to Higgs (Alan Walker)

• India Street Association

We now have a warm reciprocal collaboration with our neighbours in the India Street Association. We have been happy to allow them to hold committee meetings on our premises, and they respond willingly when we occasionally ask for their help.

INDIVIDUAL MUSEUM VISITS

Over 2023, as well as the Doors Open and group visits noted above, we welcomed around 238 people, either as individuals or in small groups, for regular one-hour, pre-booked, tours of the house. Many visitors take advantage of our regular offer of a visit on a Tuesday afternoon, but we are frequently asked to host tours on other days when visitors, especially from overseas, have only a limited time in Edinburgh. A small team of volunteers lead these tours, and our Visitors' Book reflects warm appreciation. In early 2023, we started to offer tours on one Saturday each month which we advertise on our website, and these have been popular.

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

INDIVIDUAL MUSEUM VISITS (cont'd)

Individual visitors included:

- Ms Christina McKelvie MSP, the then Minister for Culture, Europe and International Development, who was given a conducted tour by Dr Alan Walker and Dr Isobel Falconer
- A Canadian businessman who had named his company after James Clerk Maxwell, because Maxwell's science is at the centre of all its work
- A descendant of the Wedderburn family. Maxwell's father's sister was a Wedderburn, who helped to bring him up after his mother died
- Reverend Bruce Ritchie, who was writing a biography of Maxwell, entitled *James Clerk Maxwell : Faith Church and Physics*, due for publication in early 2024. Reverend Ritchie wanted to consult items in the Foundation Library which he could not easily find elsewhere. Our Curator pinpointed the principal sources, and two Trustees made the necessary administrative arrangements
- A ten-year old primary schoolboy, who had chosen Maxwell as his Victorian hero, and had learned a lot about him before he came. His comment was that his visit had been 'cool'!

TENANCY

We are pleased that our continuing tenants in 14 India St are researchers associated with the International Centre for Mathematical Sciences (ICMS), who occupy the second floor offices. Those Trustees and others who conduct tours and otherwise spend time in the house enjoy meeting the visiting mathematicians or scientists when they come to work in research collaborations.

UPKEEP OF THE HOUSE

Major work carried out on the premises during 2023 included:

- Completion of work to the roof, with the re-glazing of the cupola, which we trust will no longer leak. This was followed by re-painting of the interior ceiling area around the cupola
- Investment in a new central heating boiler. The two old ones were constantly breaking down, and it was no longer cost effective to have them repaired
- Replacement of fluorescent with LED lighting in the display cases, and replacement of the deteriorating lining of these cases
- Purchase of a large TV screen, suitable for presentations either for Foundation events, or for groups who wish to rent our premises. This has made a major improvement to our projection facilities
- Installation of WiFi, which is working fairly well, though it is recognised that the further installation of a system to improve connectivity, including remote communication with the central heating timer, would be a positive benefit

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

FINANCIAL POSITION

We had significant expenditure this year on the property, as noted above, but as well as necessary repairs, this has much improved our facilities.

The statement of accounts for the year ended 31 December 2023 shows an overall income of £50,381. Our total expenditure of £51,368 included the above charitable donations totalling £3,640. Foundation development and outreach of £1,006 for outreach activities and web hosting was also included here.

The value of our investments at the year end was £64,342.

In summary the balance of our reserves over 2023 was £87,326.

TRUSTEE PRESENTATIONS AND PUBLICATIONS IN 2023

- Glasgow University Physics Society, 31 January. *Our Marvellous Universe* (Martin Hendry to 40 attendees)
- SIGMA (Moray Astronomy Society), 3 February. *Listening to Einstein's Universe* (Martin Hendry to 30 attendees)
- IOP South-East Branch, Hatfield, 22 February. *Listening to Einstein's Universe* (Martin Hendry to 150 attendees)
- Aith High School, Shetland, 29 March. RSE schools talk. *Dark Side of the Universe* (Martin Hendry to 100 attendees)
- Shetland Museum, Lerwick, 30 March. RSE public lecture. *Dark Side of the Universe* (Martin Hendry to 100 attendees)
- London, 26 April. IOP lecture. *Einstein Goes to Hollywood* (Martin Hendry to 50 attendees)
- Sabhal Mòr Ostaig, Skye, 28 April. RSE schools talk. *Reach for the Stars* (Martin Hendry to 40 attendees)
- Airdrie Astronomical Society, 5 May. *Listening to Einstein's Universe* (Martin Hendry to 40 attendees)
- SETU, Carlow, Ireland, 15 May. *Listening to Einstein's Universe* (Martin Hendry to 25 attendees)
- Craigmount High School, Edinburgh, 14 September. *Exploring the Dark Side of the Universe* (Martin Hendry to 300 attendees)
- Dalgety Bay Astronomy Society, 26 September. *Listening to Einstein's Universe* (Martin Hendry to 30 attendees)
- Hereford Astronomy Society, 2 November. *Listening to Einstein's Universe* (Martin Hendry to 25 attendees)
- Aberdeen Astronomical Society, 14 November. *Listening to Einstein's Universe* (Martin Hendry to 40 attendees)

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

TRUSTEE PRESENTATIONS AND PUBLICATIONS IN 2023 (cont'd)

- Our Lady's High School, Motherwell, 17 November. *Exploring the Dark Side of the Universe* (Martin Hendry to 200 attendees)
- BAA Annual Meeting, London, 9 December. *Listening to Einstein's Universe* (Martin Hendry to 100 attendees)
- IOP Manchester Branch, 13 December. *Our Marvellous Universe* (Martin Hendry to 80 attendees)
- University of the 3rd Age (U3A) Edinburgh, Zoom lecture, 19 January. *Big Idea: A Thread Across the Ocean* (Alan Walker)
- James Gillespie's High School, 26 January. *Cloud Chamber Workshops* (4 sessions) for schools and families (Alan Walker)
- Dumfries Museum, 13 April. *Cloud Chamber Workshops* (4 sessions) (Alan Walker)
- Orkney International Science Festival, 7-9 September. *Cloud Chamber Workshops* (5 sessions) for schools and families (Alan Walker)
- University of the 3rd Age (U3A) Edinburgh Napier University, 19 October. *CTR Wilson Lecture and Cloud Chamber Workshop* (Alan Walker)
- Presentation [in Florence] for book: *Roots of Maxwell's "A Dynamical theory of the Electromagnetic Field"* by Giuseppe Pelosi and Stefano Selleri, 17 May. Talk delivered over Zoom on: *James Clerk Maxwell and the Foundation*. (James Rautio)

NEWSLETTERS

We published one Newsletter during the year.

- Newsletter 19, Winter 2023: *Dark matter : a cosmic ghost story*, by Dr M Bothwell, Institute of Astronomy, Cambridge University

This article is published, along with the full archive of Newsletters, on our website. The following articles were republished during 2023 by the IEEE Microwave Magazine: <https://ieeexplore.ieee.org/xpl/issues?punumber=6668&isnumber=10058747> :

An introduction to black holes, by Naomi C. Robertson. IEEE Microwave Magazine vol 24, no. 4 (April 2023)

Dark matter : a cosmic ghost story, by Matthew Bothwell. IEEE Microwave Magazine vol 24, no. 7 (July 2023)

To receive a new Newsletter, and/or occasional Foundation news by email, including Maxwell-related events, we ask interested persons to register (free) on our website: <https://membermojo.co.uk/jcmf/joinus>. Printed copies of Newsletters can be mailed on request. It is appreciated by the Foundation that printing of the Newsletters has been undertaken, pro bono, by LEONARDO, Crewe Toll Edinburgh.

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

JAMES CLERK MAXWELL LEAFLET

In June 2023, a few of us collaborated to produce a tri-fold leaflet on Maxwell, aimed at those who know very little about him already. It very briefly summarises his career and principal achievements, and gives the Foundation website details for further information. It has already been very popular with casual visitors.

IT DEVELOPMENTS IN 2023

Digitised Print Images, mostly of historical scientists

In early 2023, we added in to our public website watermarked versions of the collection of 280 scanned or photographed high resolution print images prepared collaboratively by our Curator, John Arthur, and Fellow, James Gentles. Enquirers wishing a high resolution copy of any of these without the JCMF watermark are requested to contact us.

Panoramic Photography of Maxwell-related Locations in Galloway and Edinburgh

During 2023, Foundation Fellow, James Gentles, with two assistants, visited several locations in Galloway and Edinburgh closely associated with Maxwell, including his home at Glenlair, his grave at Parton Church and Kirkyard, and memorials at Corsock Church. They took thousands of images, and James has been working since to format them into 360 degree views both inside and outside the buildings. Pop-up explanations give further information, and snatches of music have also been incorporated. This work has been done voluntarily, and we are incredibly grateful to James and his associates for the enormous amount of time they have spent, and are still spending on this. The results will eventually be available to view as a feature on our website, which will almost certainly become a major highlight. We hope that this may happen towards the end of 2024.

PRESENTED TO FOUNDATION ON LONG-TERM LOAN

We were very fortunate to receive, on long-term loan, a beautiful oil painting of Elizabeth Cay (née Liddell) [Maxwell's maternal grandmother] by Sir John Watson-Gordon PRSA RA (1788-1864). The Foundation already possesses pastel portraits of herself and her family drawn by Elizabeth Cay (1770-1831), but is particularly pleased to be able to display this fine painting, thanks to the generosity of descendants of the Cay family.

TRUSTEES' REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

ITEMS DONATED TO FOUNDATION

- 50 copies of following book, for Trustees and others associated with the Foundation: Pelosi, Giuseppe and Selleri, Stefano. *Roots of Maxwell's "A Dynamical theory of the Electromagnetic Field" : Scotland and Tuscany 'twinned by science'*. Firenze University Press, 2023. Published under the Creative Commons CC BY 4.0 license and able to be freely downloaded from: <https://books.fupress.com/catalogue/the-roots-of-maxwells-ia-dynamical-theory-of-the-electromagnetic-field/12906>
- Artwork, *E M Waves*, by artist, Liz Alzona <https://www.lizalzonaart.com/>. The piece is on canvas, made using open-sourced printed material, acrylic paints and stencils

BICENTENARY OF MAXWELL'S BIRTH, 2031

Preparations for this major anniversary are progressing. The Scottish branch of the Institute of Physics (IOP Scotland) have initiated meetings, and Alan Walker and Martin Hendry have lead roles. The anniversary is designated: **ClerkMaxwell@200**

STATEMENT OF TRUSTEES' RESPONSIBILITIES

Under the Trust Deed, the Trustees are required to obtain independent examination of financial statements for each financial year which properly represents the state of affairs of the Foundation and of the excess of income over expenditure.

The Trustees have assumed responsibility for the preparation of the financial statements for examination.

In preparing those financial statements the Trustees are required to:-

- Make judgements and estimates that are reasonable and prudent,
- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the accounts,
- Prepare financial statements on the going concern basis, unless it is inappropriate to presume that the Foundation will continue its activities.

The Trustees are required to act in accordance with the Trust Deed and within the framework of Trust Law. They are responsible for keeping accounting records which disclose with reasonable accuracy the financial position of the Foundation and to enable them to ensure that the financial statements comply with the Charities and Trustee Investment (Scotland) Act 2005 and with the Charities Accounts (Scotland) Regulations 2006 (as amended) ("the 2006 Regulations"). They are also responsible for safeguarding the assets of the Foundation and hence for taking reasonable steps for prevention of fraud and other irregularities.

The foregoing Report and Accounts were examined and approved by the Trustees,

Date :- 7 September 2024

Trustee:-

David Kerridge
Chair of the James Clerk Maxwell Foundation