The Royal Society Journals Archive

1,278 volumes  45,883 articles  740,000 pages

Over 330 years of science.

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Image: Illustrations from a letter to Sir Hans Sloane Bt, President of the Royal Society, from Dr Steigertahl FRS, giving an account of a "narhual" or "unicorn fish", published in 1738.
Introduction

With newly digitised full colour images of original peer reviewed scientific articles from 1665 to 1996 the Royal Society Journals Archive provides a fascinating insight into the development of science. No other archive has material from a scientific journal published continuously for over 330 years.

Careful curated digitisation led by our library team has resulted in a high-quality resource with added features.

• Comprehensive metadata for indexing and discoverability.
• Annotations, illustrations and additional material captured from our original collections.
• Image plates, maps, and end matter material.
• Additional content not previously available.
• MathML rendering of mathematical formulae to facilitate search.

The Journals Archive is available as a one-time purchase with no ongoing fees. Please contact sales@royalsociety.org for more information.

The equivalent of over 53 metres of shelf space

Over 740,000 pages
4,588 articles
1,278 volumes

Images (clockwise from top left): Illustration from, An extract from the minutes of the Royal Society, March 16, 1731, containing an uncommon case of a distempered skin, published in Philosophical Transactions of the Royal Society of London, in 1731; Rosa rubra (red rose), from Herbarium Blackwellianum, by Elizabeth Blackwell, 1750; and figures showing how best to improve the microscope, from Micrographia: or some physiological descriptions of minute bodies made by magnifying glasses with observations and inquiries thereupon, by Robert Hooke, 1665.
A flexible resource

The interests of the Royal Society have always been broad and varied, and the journals have published the work of many people active in different areas of society. This means the archive covers an enormous range of subjects from Egyptian mummies to the diet of the Navy from birds to volcanoes.

The archive has been used as a corpus of early English by linguistics researchers at Universität des Saarlandes to study linguistic densification in the evolution of scientific writing in English from the 17th century to the present. It offers unparalleled opportunities for text mining and machine learning.

Read the theme issues Celebrating 350 years of Philosophical Transactions: life sciences and Celebrating 350 years of Philosophical Transactions: physical sciences papers for commentary on some key works and themes. For examples of the types of academic work for which the journal archive is a vital resource see the active research projects in the History of Science that we support.

Image:
Four figures showing the ocean tracks of the first and second tsunami waves generated by the eruption of Krakatoa, the island in the Sunda Strait, Indonesia on 27 August 1883. Figures taken from The eruption of Krakatoa, and subsequent phenomena. Report of the Krakatoa Committee of the Royal Society, edited by G J Symons and published in 1888.
Inside the journals archive

The journals archive contains foundational knowledge for many scientific disciplines, incredible experiments, fascinating (but now debunked) theories, and articles on unexpected topics. We’ve picked out five themes that illustrate the breadth of material in the archive; measuring the weather; public health and protection for workers; exploration, discovery and colonisation; rebuilding Europe; and colour and light.

Measuring the weather

After James Jurin called for submission of meteorological observations in 1722, contributors sent their daily weather observations from all continents. These direct observations were abstracted, condensed and analysed by the editor of the Philosophical Transactions for decades and turned into scientific publications which are still useful to modern day climatologists who use such historical records to understand long-term climatic trends.

Image: Mr Henson’s flying machine, from Animal locomotion or walking, swimming and flying, with a dissertation on aeronautics, by James Bell Pettigrew, 1873.

Image: An abstract of the meteorological diaries, communicated to the Royal Society, with remarks upon them, by the Rev Mr Tho. Consett. Observations were made from 24 November 1724 to 23 June 1725.

For more information, contact sales@royalsociety.org
Public health and protection for workers

After the Royal Society received official instructions from the Home Office to investigate the effects of glass working on workers’ eyes, clinical investigations led to fundamental research in ophthalmology and in the physics of transmission of light and heat. This led to crucial developments in workers’ health protection, as glassworkers consequently benefitted from a state pension.

Follow the links below to read the articles online:
- Report of the glass workers’ cataract Committee
- The preparation of eye-preserving glass for spectacles
- The Transmission of Infra-Red Rays by the Media of the Eye and the Transmission of Radiant Energy by Crookes and Other Glasses
- Investigation on the Crystalline Lens

Exploration, discovery and colonisation

From early scientific expeditions to more recent analyses, the pages of the archive provide fascinating insight into scientific discovery achieved through daring adventures and dangerous expeditions.

As the United Kingdom embarked on imperial expansion and colonisation correspondence published in Philosophical Transactions reflects many different aspects of Britain’s changing relationship with the world and its integral role in the Atlantic slave trade.

As well as collecting specimens, white scientists also collected knowledge from indigenous and enslaved people, who were more familiar with the medicinal properties of plants. While the vast majority of these people are anonymous, the pages of the archive do name some individuals for example, Onesimus, an African-born enslaved man in New England, introduced the practice of inoculation in 1716. He had been gifted to Cotton Mather, a Puritan Minister in 1706, to whom he described the method.

For more information, contact sales@royalsociety.org
Explorers shared both their scientific results and what they learned about how to carry out expeditions:

The method taken for preserving the health of the crew of his Majesty’s ship the Resolution during her late voyage round the World by by Captain James Cook FRS, addressed to Sir John Pringle Bt., President of the Royal Society. Read online.

The Scientific advantages of an Antarctic Expedition. Read online.

Special editions of Philosophical Transactions have collected knowledge on particular themes from the Antarctic to the Great Barrier Reef:

Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences: Volume 252, No 777, a special issue on the terrestrial Antarctic ecosystem. Read online.

Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences: Volume 284, No 999, on the Great Barrier Reef. Read online.


For a more in-depth introduction to the history of black scientists and the Royal Society see the Society’s Google arts and culture exhibition: A celebration of black science.

“...there is almost certainly a continent at the south pole.” John Murray, 1898, from, The scientific advantages of an Antarctic expedition.

For more information, contact sales@royalsociety.org.
Rebuilding Europe

Much of the work done by the Royal Society during World War I and World War II was not published, (and was highly classified) but this fascinating article reports back on the state of scientific and university laboratories as seen by representatives of the Society assess the damage done to scientific learning during the war.

Visits to Liberated Countries by Representatives of the Royal Society

With the liberation of the countries of Europe approaching completion, the Royal Society appointed a committee early in 1945 to consider the many problems connected with the re-establishment of contact with foreign academies and learned societies. These included visits of British scientists to foreign countries and return visits to this country, the organization of exchange of information, and of possible assistance to countries whose scientific institutions had suffered depredations at the hands of the Germans. It was decided that the Foreign Secretary of the Society or failing him other Fellows, should visit the countries of Europe which had been liberated to convey the greetings of the President, Council and Fellows of the Royal Society to the men of science of those countries, and to explore the means by which the Society might assist in the rehabilitation of science in those countries.

Visits were paid by various Fellows to Norway and Denmark, Czechoslovakia, Belgium and Holland, and France, and their reports follow.

Report by Professor A. V. Hill on his Visit to the Royal Danish Academy of Science, Copenhagen, and the Norwegian Academy of Science, Oslo, 26 June – 3 July 1945

All arrangements went exactly as planned, except that the return journey from Oslo had to be made to Edinburgh instead of London. The British Legation in Copenhagen and the British Embassy in Oslo gave every possible help and courtesy. In Copenhagen I was met at the airfield by the First Secretary of the Legation, by Professor Johs. Pedersen, the acting President (in place of Professor Niels Bohr) of the Academy, and by Professor Einar Lundsgaard (a former colleague of mine) and his wife. Thereafter Lundsgaard acted, as he put it,

Colour and light

Newton’s papers on the science of colour in the Philosophical Transactions between 1672 and 1676 launched a fascinating debate around optics which developed through letters with Christian Huygens and further in the pages of the journal. Light and colours were later the object of Bakerian lectures by William Herschel, Thomas Young and James Clerk Maxwell, the latter two opening their analyses by praising Newton’s original contribution. In Philosophical Transactions this scientific conversation continued for nearly two hundred years.
<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1671</td>
<td>A Letter of Mr Isaac Newton, Professor of the Mathematicks in the University of Cambridge; Containing His New Theory about Light and Colors; and Here Recommended to the Industry of the Lovers of Experimental Philosophy, as they Were Generously Imparted to the Publisher in a Letter of the Said Mr Newtons of July 8, 1672.</td>
</tr>
<tr>
<td>1672</td>
<td>Mr Isaac Newtons Answer to Some Considerations upon His Doctrine of Light and Colors; Which Doctrine Was Printed in Numb. 80. of These Tract.</td>
</tr>
<tr>
<td>1673</td>
<td>Some Experiments Propos'd in Relation to Mr Newtons Theory of Light and Colors; Which Doctrine Was Printed in Numb. 80. of These Tract.</td>
</tr>
<tr>
<td>1674</td>
<td>An Extract of a Letter Lately Written by an Ingenious Person from Paris, Containing Some Considerations upon Mr Newtons Doctrine of Colors, as Also upon the Effects of a Different Refractions of the Rays in Telescopical Glasses.</td>
</tr>
<tr>
<td>1675</td>
<td>A Letter of the Learned Franc. Linus, Written to the Publisher from Liege the 25th of Febr. 1675 st.n. being a Reply to the Letter Printed in Numb. 110. by Way of Answer to a Former Letter of the Same Mr Linus, Concerning Mr Isaac Newtons Theory of Light and Colours.</td>
</tr>
<tr>
<td>1676</td>
<td>A Particular Answer of Mr Isaac Newton to Mr Linus his Letter, Printed in Numb 121. p.499. about an Experiment Relating to the New Doctrine of Light and Colours. This Answer Sent from Cambridge in a Letter to the Publisher Febur. 29. 1675/6.</td>
</tr>
<tr>
<td>1678</td>
<td>An Account of Rings Consisting of All the Prismatic Colours, Made by Electrical Explosions on the Surface of Pieces of Metal, by Joseph Priestley, LL. D. FRS.</td>
</tr>
</tbody>
</table>

Click on the article names to view the article online.

For more information, contact sales@royalsociety.org

Investigation of the Powers of the Prismatic Colours to Heat and Illuminate Objects; With Remarks, that Prove the Different Refrangibility of Radiant Heat. To Which is Added, an Inquiry into the Method of Viewing the Sun Advantageously, with Telescopes of Large Apertures and High Magnifying Powers. By William Herschel, LL. D. FRS.

An Account of Some Cases of the Production of Colours, Not Hitherto Described.


Image: Chromatic scale of colours arranged as a chart, from A new elucidation of colours, original prismatic, and material, showing their coincidence in three primitives, yellow, red and blue... by James Sowerby, in 1809.
The scientists

Since publishing our first journal in 1665, many eminent scientists have published with the Royal Society.

Click on the images to view their papers online.
Philosophical Collections

Edited by Robert Hooke FRS, Philosophical Collections was published between 1679 and 1682, at which point the journal title changed back to Philosophical Transactions.

As Curator of Experiments Hooke was authorised by the Royal Society Council to publish correspondence and other material. A distinct and fascinating period in publishing from the Royal Society, Philosophical Collections closely reflects the interests and correspondents of its editor; inventions, practical experiments and early observations using microscopes.

Philosophical Collections contains particularly fascinating letters from Antoni van Leeuwenhoek, inventor of the single lens microscope. Hooke and Leeuwenhoek were both working with microscopes, and Philosophical Collections includes many articles on new ways to observe the world. Hooke’s preoccupations with practical experimentation, inventions and mechanics are evident throughout the journal.

Never before available online as a journal, articles from Philosophical Collections are far rarer than those from Philosophical Transactions, and it is unlikely that libraries will hold all seven numbers.

Follow the below links to read the abstracts online of:
• mechanical wings;
• an airship;
• astronomical observations from the first Astronomer Royal, John Flamsteed FRS; and
• details of a lamp invented by Robert Boyle FRS.

Naming history

Over the long history of the Royal Society the journals have changed names many times, often for short periods of time. In the journals archive minor name change are treated as the same journal, making the collection easier for readers to search.

The first issue of Philosophical Transactions was published on 6 March 1665, under the visionary editorship of Henry Oldenburg. In 1886, the breadth and scope of scientific discovery had increased to such an extent that it became necessary to divide the journal into two: Philosophical Transactions A, covering the physical sciences; and Philosophical Transactions B, covering the life sciences.

<table>
<thead>
<tr>
<th>Journal title</th>
<th>Year range</th>
<th>Volume range</th>
<th>Starting date</th>
<th>Title abbreviation for citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophical Transactions</td>
<td>1665 – 1678</td>
<td>1 – 12</td>
<td>1665</td>
<td>Phil. Trans.</td>
</tr>
<tr>
<td>Philosophical Collections</td>
<td>1679 – 1682</td>
<td>1 – 7</td>
<td>1679</td>
<td>Phil. Coll.</td>
</tr>
<tr>
<td>Philosophical Transactions</td>
<td>1683 – 1775</td>
<td>13 – 65</td>
<td>1683</td>
<td>Phil. Trans.</td>
</tr>
<tr>
<td>Philosophical Transactions of the Royal Society of London</td>
<td>1776 – 1886</td>
<td>66 – 177</td>
<td>1776</td>
<td>Phil. Trans. R. Soc. Lond.</td>
</tr>
<tr>
<td>Philosophical Transactions of the Royal Society of London (A)</td>
<td>1887 – 1895</td>
<td>178 – 196</td>
<td>1887</td>
<td>Phil. Trans. R. Soc. Lond. A</td>
</tr>
<tr>
<td>Philosophical Transactions of the Royal Society of London. Series A, Containing Papers of a Mathematical or Physical Character</td>
<td>1896 – 1934</td>
<td>187 – 233</td>
<td>1896</td>
<td>Phil. Trans. R. Soc. Lond. A</td>
</tr>
<tr>
<td>Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences</td>
<td>2005 –</td>
<td>363 –</td>
<td>2005</td>
<td>Phil. Trans. R. Soc. A</td>
</tr>
<tr>
<td>Philosophical Transactions of the Royal Society of London (B)</td>
<td>1887 – 1895</td>
<td>178 – 196</td>
<td>1887</td>
<td>Phil. Trans. R. Soc. Lond. B</td>
</tr>
</tbody>
</table>

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Below: Illustration from a letter by M. Hevelius "concerning a new star, lately discovered in the constellation of the swan, together with the present appearance of the planet Saturn", published in *Philosophical Transactions of the Royal Society of London*, in 1670.
Journals archive structure

Published over a period of 332 years the journals digitised for the archive changed in their structure over the course of the publications’ history, however the following high-level structure remained very consistent:

- Volume
  - Issue
    - Front matter (also called Number for early Phil. Trans)
    - Articles
    - Back matter

And in rare cases:

- Volume
  - (Parts)
  - Front matter
  - Articles
  - Back matter

*Click here to download a sample of the archive materials.*

Right:

Unknown species of flying beetle, referred to as a ‘Flying hast’, published in issue 127 of Philosophical Transactions of the Royal Society, in 1837.
**Article types**

The content of the journals was categorised by indexers to facilitate search. The many different content types reflect the breadth of interests of Royal Society members throughout the centuries.

### ARTICLE TYPES

**Abstract**
A summary of a research article, thesis, review, conference proceeding, etc. written by the main organiser/author. Different from a Review.

**Acknowledgement**
A piece of writing thanking contributors, organisers, placed separately from any content.

**Addendum**
A paragraph added after an article to add a specific information to it. Different from an Appendix.

**Appendix**
Content added to a main article; additional data, maps or information.

**Article**
Authored content on a specific subject by an author, anonymous or named, reviewed or accepted by the editor or editorial board of the journal.

**Astronomical observation**
An article which records the position of celestial objects with maps or measures. Sometimes this type of article does not contain any author, as it is the result of a collaborative effort by members of the Royal Society, an observatory, or members of a scientific mission.

**Biography**
An article which reflects on the scientific life of a Fellow, scientist or contributor to the Royal Society.

**Bibliography**
A list of books, articles or journals used as references in a discussion, separate article, full issue or full volume.

**Bill of mortality**
Weekly mortality statistics – we have only attributed this article type when it is explicitly identified as such in the title.

**Book review**
An article which analyses one or more printed or online books, the author of the review is the ‘reviewer’ to differentiate them from the authors of the printed or online books.

**Catalogue**
A structured list of future publications when explicitly identified as such in the title.

**Corrigenda**
A list of corrected errors appended to an article or published in a subsequent issue of a journal, submitted by the author.

**Discussion**
Intervention discussing a previously published article or issue.

**Editorial**
An opinion piece, policy statement, or general commentary, typically written by journal staff.

**Errata**
A list of corrected errors appended to an article or published in a subsequent issue of a journal, submitted by the publisher.

**Experiment**
A description of an experiment, not an analysis.

**Index**
A list of all subjects or authors mentioned in a full issue or full volume.

**Lecture**
A speech or presentation given at the Royal Society during one of the various named lectures and medals awarded by the Royal Society. Different from Discussion or Symposium.

**Letter**
All or part of a letter addressed to a contributor; the secretary of the Royal Society or the Royal Society.

**List**
Articles and series of paragraphs with names of Fellows and medallists.

**Magnetical observation**
An article which records the local magnetic field, declinations and horizontal forces. Sometimes this type of article does not contain any author, as it is the result of a collaborative effort by members of the Royal Society, an observatory, or members of a scientific mission.

**Meteorological observation**
Article which records quantity of rainfall, force of wind, temperatures from a weather station, personal or general. Sometimes this type of content does not contain any author, as being a collaborative effort by members of the RS or the observatory or members of a scientific mission.

**Obituary**
Published after the death of a Fellow relating their scientific life. This includes Biographical Memoirs and Obituaries.
Paper read
The title, author and date a paper was read at a meeting. These do not have abstracts or comments. Different from a Publication announcement.

Preface
Introductory article which precedes a themed issue, a discussion.

Publication announcement
Lists of titles published in another periodical with author, date and journal of publication. These do not have abstracts or comments. Different from a Paper Read.

Report
A formal account of an event, expedition or experiment. It can be attributed to a named author or be produced by the editorial team without an author mentioned.

Speech
A formal address or discourse delivered to an audience. Different from a Lecture or Report.

Symposium
An article presented at a scientific conference organised at the Royal Society.

As pioneers of peer review and scientific discussion the Royal Society has always regarded science as collaborative. To reflect this collaborative nature, indexers have captured as many contributors and their role when describing articles in the metadata.

CONTRIBUTOR TYPES

Author
Primary writer of a given article.

Biographee
Fellow, scientist or contributor who is the subject of a biography.

Communicator
Fellow presenting an article or piece of content to the rest of the committee examining the papers. Explicitly mentioned in articles as ‘communicated by.’

Commissioned by
Someone who mandated a specific piece of writing, experiment, expedition, equipment...

Contributor
Someone who contributed to an article but not as an author or any of the defined roles.

Correspondent
Someone who wrote and sent a specific letter to a given recipient or to the Royal Society or the Secretary.

Curator of experiments
The official appointed position at the Royal Society for person in charge of designing experiments including Robert Hooke.

Dedicatee
Someone to whom an article, issue or volume is dedicated.

Discussant
An author responding immediately to an intervention or article presented during a discussion, conference or symposium.

Editor
Someone in charge of determining the contents of the journals, capture when explicitly identified as such.

Experimenter
Someone who conducted the experimentation described in the article.

Guest-editor
Someone invited to determine the contents of a specific issue or volume.

Observer
Someone who conducted a scientific observation, particularly used for astronomers.

Recipient
A person who received a specific letter and transmitted it for publication to the journals.

Referee
Someone who reviewed a paper and accepted or rejected it for publication in the journals. Different from Reviewer.

Reviewee
A person whose work is under review.

Reviewer
An author who analyses one or more books. Different from Referee.

Speaker
Someone identified as giving a speech.

Subject
Someone portrayed on a photograph.

Organiser
The person responsible for the organisation of a discussion, conference or symposium.

Translator
The person translating content into English or Latin for the journal.

Witness
Someone who witnessed the event or experimentation described in the article, cited to confirm the veracity of the fact described.

For more information, contact sales@royalsociety.org
The Journals Archive is available as a one-time purchase with no ongoing fees.

Please contact sales@royalsociety.org for more information.

Right:
Botanical study of seventeen liverworts, from Kunstformen der Natur by Ernst Haeckel, 1899.
The Royal Society is a self-governing Fellowship of many of the world’s most distinguished scientists drawn from all areas of science, engineering, and medicine. The Society’s fundamental purpose, as it has been since its foundation in 1660, is to recognise, promote, and support excellence in science and to encourage the development and use of science for the benefit of humanity.

The Society’s strategic priorities emphasise its commitment to the highest quality science, to curiosity-driven research, and to the development and use of science for the benefit of society. These priorities are:

• Promoting excellence in science
• Supporting international collaboration
• Demonstrating the importance of science to everyone

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Cover image: A magic circle of circles by Benjamin Franklin, from a letter to John Canton, dated 29 May 1765.