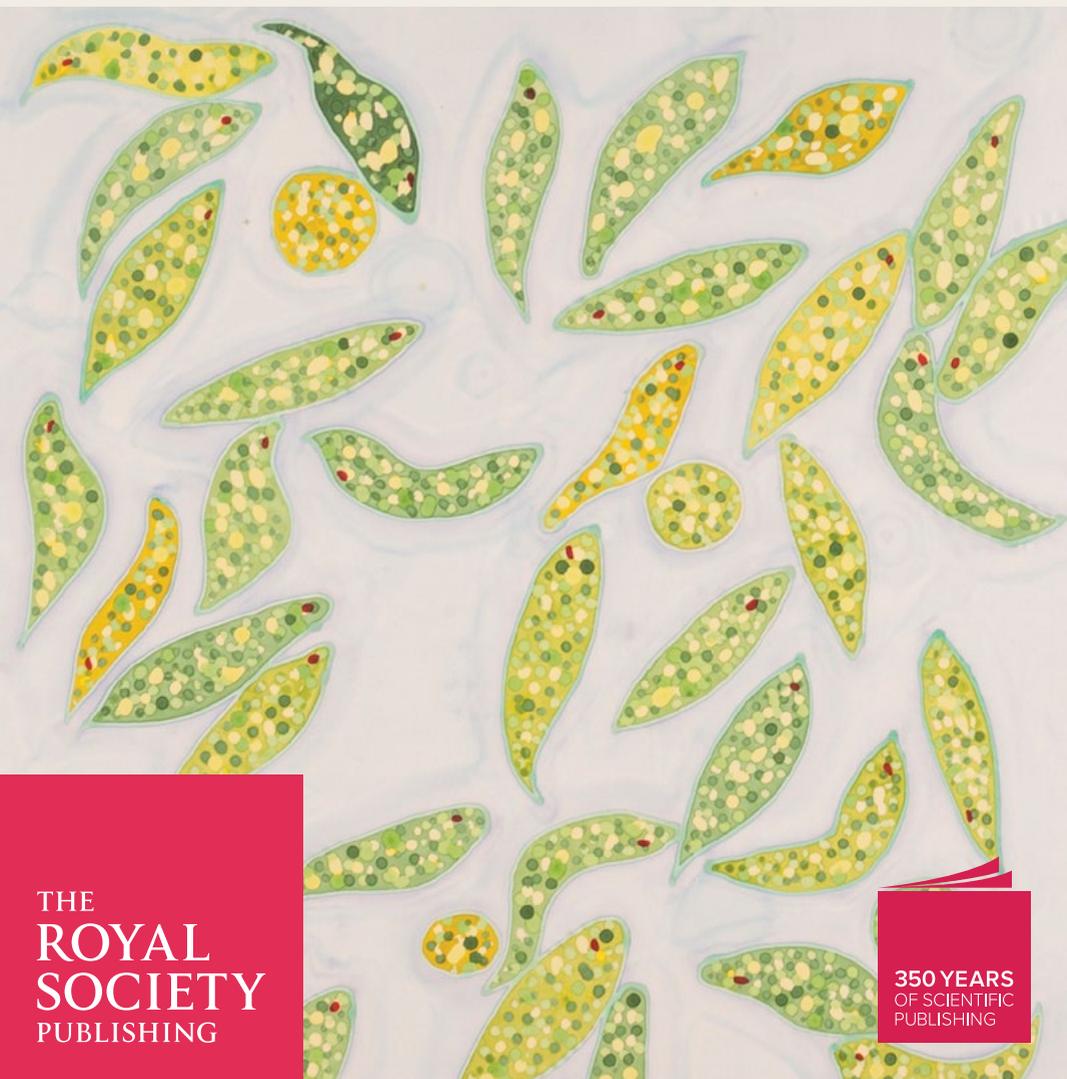


PHILOSOPHICAL TRANSACTIONS B

Celebrating 350 years of *Philosophical Transactions*

A special issue highlighting seminal papers from the archive, with commentaries from leading scientists, historians and science writers.



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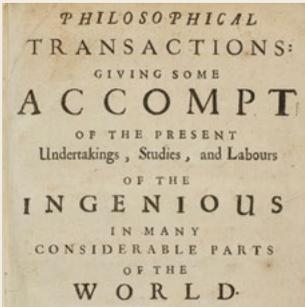
Celebrating 350 years of *Philosophical Transactions*: life sciences papers

2015 marks the 350th anniversary of the launch of *Philosophical Transactions* – the world's first journal dedicated to science. *Philosophical Transactions* pioneered the concepts of scientific priority and peer review which, together with archiving and dissemination, provide the model for almost 30,000 scientific journals today.

This special anniversary issue, compiled by Editor-in-Chief, Professor Dame Linda Partridge, highlights some of the revolutionary and inspirational life science papers published in the journal during its 350 year history. Each paper is discussed by a current leading scientist in the field, who tells us how the paper has impacted modern thinking and understanding, and how that field has developed to where we are today.

To view this special edition visit rstb.royalsocietypublishing.org.

This special issue of *Philosophical Transactions B* contains the following articles:

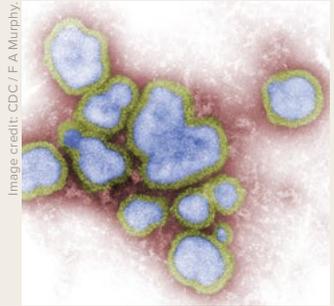


Introduction
Celebrating 350 years of Philosophical Transactions: life sciences papers

Linda Partridge



The unseen world
Nick Lane
reflections on
Leeuwenhoek (1677),
Concerning little animals.



The prevention and eradication of smallpox
Robin Weiss and José Esparza
a commentary on Sloane (1755), *An account of inoculation.*

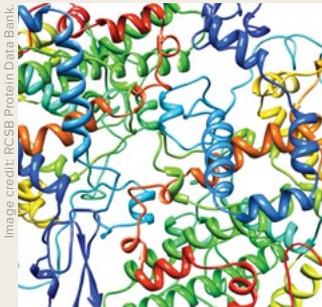


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From plant extract to molecular panacea

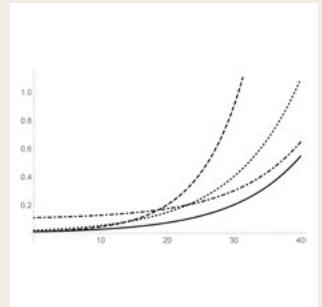
John Wood
a commentary on Stone (1763), *An account of the success of the bark of the willow in the cure of the agues.*



Image courtesy of Robert D. Bruce

Focusing by shape change in the lens of the eye

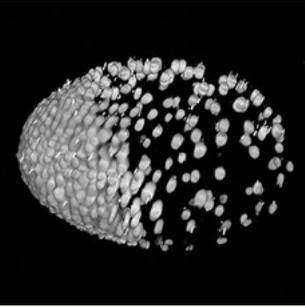
Michael Land
a commentary on
Young (1801), *On the mechanism of the eye.*



Deciphering death

Thomas Kirkwood
a commentary on Gompertz (1825), *On the nature of the function expressive of the law of human mortality, and on a new mode of determining the value of life contingencies.*

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Foreseeing fates

Michael Akam
a commentary on Manton (1928), *On the embryology of a mysid crustacean, Hemimysis lamornae*.

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The early evolution of land plants, from fossils to genomics

Dianne Edwards and Paul Kenrick
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Forging patterns and making waves from biology to geology

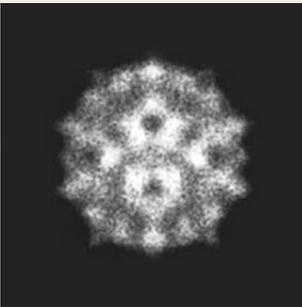
Philip Ball
a commentary on Turing (1952), *The chemical basis of morphogenesis*.



Medawar's legacy to cellular immunology and clinical transplantation

Elizabeth Simpson
a commentary on Billingham, Brent and Medawar (1956), *Quantitative studies on tissue transplantation immunity. III. Actively acquired tolerance*.

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From high symmetry to high resolution in biological electron microscopy

Peter Rosenthal
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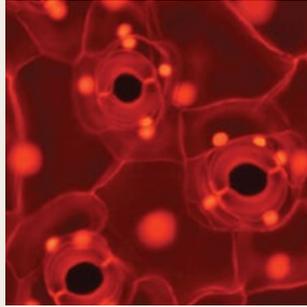
Memory, modelling and Marr

David Willshaw, Peter Dayan and Richard Morris
a commentary on Marr (1971), *Simple memory: a theory of archicortex*.



Extraordinary fossils reveal the nature of Cambrian life

Derek Briggs
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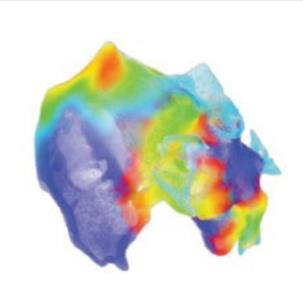
Gas valves, forests and global change

David Beerling
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How mathematical epidemiology became a field of biology

Hans Heesterbeek and Mick Roberts
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A model model

Katharine Dibb, Andrew Trafford, Henggui Zhang and David Eisner
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The beginning of connectomics

Scott Emmons
a commentary on White *et al.* (1986), *The structure of the nervous system of the nematode Caenorhabditis elegans.*



Every inch a finch

Graham Bell
a commentary on Grant (1993), *Hybridization of Darwin's finches on Isla Daphne Major, Galapagos.*

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Animacules I: homage to A van Leeuwenhoek.
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