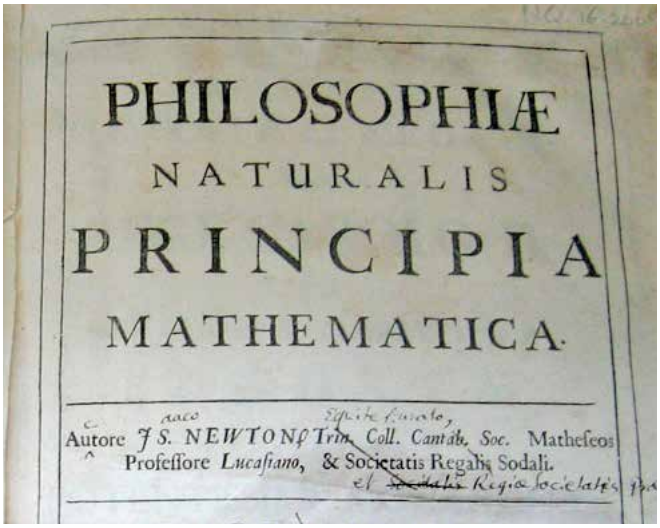
Enhancing public understanding of the role of Sir Isaac Newton's work



The Newton Project – the largest online edition of richly encoded writings in existence – has been a pioneering exponent of best practice in the digital humanities.

Sir Isaac Newton is one of the most significant intellectual figures in history, and is recognised as one of the most influential scientists of all time. A pioneering initiative has provided an open-access online scholarly edition of Newton's complete writings, including previously unseen material relating to his ideas about science, mathematics and religion, and has set new international standards for the digital humanities. It is an outstanding resource for the popularisation of history and scientific thought that has reached a wide variety of beneficiaries.

Overview

Sir Isaac Newton (25 December 1642 – 20 March 1727) is a recognised key figure in the Scientific Revolution. Seminal developments in mathematics, physics, astronomy and chemistry, in which Newton played a crucial role, transformed our understanding of the natural world.

A mathematician and physicist, Newton's *Philosophiæ Naturalis Principia Mathematica*, published in 1687, laid the foundation of classical mechanics. He made major contributions in the fields of optics, shares credit for the invention of calculus, and his laws of motion and universal gravitation dominated science for three centuries. At his death in 1727, Newton left behind approximately 10 million words of published and unpublished writings, many of which have fundamentally changed our view of the physical universe.

The Newton Project, co-created by Rob Iliffe (Professor of Intellectual History and History of Science at the University of Sussex) in 1998, is dedicated to publishing an open-access, online edition of Newton's collected writings. To date, the Project has published over five million of Newton's words on their website, which displays searchable transcriptions that allow viewers access to both a full rendition

of Newton's text, including his own amendments, and a cleaned up, more readable version. As the largest online edition of richly digitised writings in existence, the Newton Project has been a pioneering exponent of best practice in the digital humanities and has served as an exemplar for many other projects.

Fully searchable texts of all three editions of the *Principia Mathematica* and *Opticks* are now available (including drafts), as are a number of translations of the most important Latin documents. Mathematical texts that record the binomial theorem and calculus are also published in full for the first time. In addition to his writings on natural philosophy and mathematics, Newton held a deep interest in religion and alchemy. The Newton Project has published over four million words of often radically innovative religious writings that demonstrate his commitment to the study of prophecy, Christology, church history and alchemy.

In addition to being an invaluable resource on Newton's work, the Project addresses fundamental questions on how to present scholarly materials to a broad audience. It provides readers with a 'tour' around the general areas of the site, along with extensive introductions to the resources that include filmed interviews with scientists and historians, and it links transcripts to high-quality colour images of the original texts through partnerships with the National Library of Israel and Cambridge University Library (the Jisc-funded Cambridge/Sussex Windows on Genius Project).

Achieving impact

The Newton Project enhances public understanding of the role of Newton's work, achieving impact by reaching a huge international audience. It has contributed to cultural life and education by providing free access to cultural materials of global significance, inspiring new forms of artistic expression, the commissioning of new radio and television broadcasts, and the promotion of the teaching of mathematics in schools.

Over the last five years there have been a huge number of visits to the Project, which now stands at two million page requests per year. Weblog statistics showed 9.9 million page requests from February 2007 to February 2013. The Windows on Genius Project had almost half a million unique and return visitors between November 2011 and June 2012, and the Project's YouTube channel, as well as collaborations with international partners at Indiana University and the National Library of Israel, have extended the reach of the Project.

In addition to the impact of the Project website as a resource for scholars and the public, the material has been the inspiration for innovative forms of artistic expression through novel theatrical, televisual and radio performances. Playwright Craig Baxter's acclaimed play *Let Newton Be!* is based entirely on biographical materials and other sources from the Newton Project. Opening to such distinguished guests as Professor Stephen Hawking and the President of the Royal Society, Martin Rees, subsequent performances delighted audiences of around 4,000 people in the UK and North America, enhancing public appreciation of the development of scientific knowledge. *Let Newton Be!* was applauded by the international journal *Science* for representing Newton in a way that 'will awe and move audiences'.

Professor Iliffe has acted as advisor to the BBC and made appearances on numerous broadcasts, including BBC Radio 4's *In Our Time* and BBC 4's *The Beauty of Diagrams*. A documentary on Newton's role as Master of the Mint broadcast to an audience of 9.1 million in China in 2012 and *Isaac Newton: The Last Magician* was broadcast as part of BBC 2's *The Genius of Invention* season, April 2013, to 1.52 million viewers. Both programmes explored how Newton simultaneously made his scientific breakthroughs while obsessively pursuing the arcane practices of mysticism and alchemy. In addition, in December 2013, the Project oversaw the largest conference on Newton in a quarter of a century, held at the Royal Society.

Other recent events (autumn 2014) include talks at the Heritage Lottery Fund and Arts Council-funded Gravity Fields Festival in Grantham and a conference at the Huntington Library in San Marino, California on how digital tools can help thinking about high-level creativity and the integrity/coherence of Newton's work.

The Newton Project has also helped promote the teaching of mathematics at both state- and independent-sector schools in Sussex and the South West. The Project, in collaboration with the British Society for the History of Mathematics and Dr Snezana Lawrence (Director of Mathematical Education, Bath Spa University), co-organised a training day at the Royal Society in September 2009, attended by 31 teachers and 35 pupils. The aim was to assess how historical materials available on the Project's website can be used to stimulate the interest of school children in mathematics.

Future impact

The Project is aiming to make substantial bids that will allow them to showcase Newton's work in the Financial Revolution, including transcribing the papers and letters associated with his time as Warden and Master of the Mint (1696–1727), and to work more closely with other scholars to develop digital tools for the next generation of scholars.

Funding

The Project has been funded by three major AHRC Research Grants, two Jisc awards and one European Union award, as well as by a number of private donations.

Working with us

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