Word for Word on the Web, Isaac Newton's Secret Musings

JOHN MAYNARD KEYNES called them "fascinating" and read them in taxis. Albert Einstein called them "unique treasures." But for roughly 300 years, just a handful of people had ever seen Isaac Newton's voluminous writings on alchemy and theology. Now that is changing, thanks to a group of scholars who are making them available on the Internet.

The Newton Project, a joint effort based at the University of London, aims gradually to post all of the scientist's previously unpublished work at a Web site (www.newtonproject.ic.ac.uk), including thousands of pages of alchemical and theological writings and, eventually, some of his optical studies. The material, which may take 15 to 20 years to finish transcribing, will be accompanied by high-resolution images of the manuscripts.

The enterprise was founded in 1998 by a small group of Newton scholars who had grown tired of seeing the complete writings of other important thinkers published only as expensive multivolume editions that would invariably languish in a few academic libraries.

"In these projects in the past, you've got scholars who produce very high-quality printed editions that aren't necessarily distributed widely," said Rob Iliffe, a University of London historian and co-founder of the Newton Project.

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By PETER DIZIKES

texts for about three people," said Rob Iliffe, a historian at the University of London and a co-founder of the project. "Ordinary people who've funded these things, taxpayers, don't have access."

For the Newton Project, said Dr. Iliffe, "My image was of something that would be available to anybody with a computer - an 8-year-old kid, an intelligent lay reader, a university scholar."

But Newton is famous for his work in physics and mathematics. Why publish his thoughts about religion or alchemy?

"Newton did not compartmentalize himself," said Mordechai Feingold, a historian of science at the California Institute of Technology in Pasadena, Calif., who is an adviser to the project and the curator of an exhibition on Newton's influence that is to open at the New York Public Library next year. "To understand the man himself, we must understand the various facets of his own activities."

Other Newton scholars, while intrigued, are taking a wait-and-see approach. "The question is how much light it will shed on Newton and the emergence of Newtonian science," said Alan Shapiro, a historian of science at the University of Minnesota.

But George E. Smith, a philosopher of science at Tufts University in Medford, Mass., said there was no clear distinction in Newton's time between chemistry and alchemy and that he expected the papers to reveal much about 17th-century science. "He did a huge amount of chemistry," he said. "It's a broad form of investigation characteristic of the time. No one has really worked through those manuscripts in any detail."

Newton spent years studying alchemy, using furnaces in his Cambridge rooms to conduct experiments. He wrote thousands of pages in his notebooks about religion but kept his views almost completely secret. Although loyal to the Church of England, he feared that his anti-trinitarian beliefs - he thought that regarding Christ as God was a sin - would destroy his career.

Enhancing the mystery in this side of Newton, the alchemical and theological papers remained in private hands from Newton's death in 1727 until they were sold at a Sotheby's auction in London in 1936. Among the buyers was Keynes, the legendary Cambridge economist and monetary expert, who scooped up the bulk of the alchemical writings chiefly to save them.

Keynes then donated his holdings to Kings College, Cambridge, though not before studying Newton in his spare time. "There are stories that Keynes read these things in taxis going from one Treasury meeting to the next," Dr. Iliffe said.
Many of Newton's theological writings were purchased from Sotheby's by Abraham Yahuda, an iconoclastic scholar who enlisted the services of Einstein, a close friend, in an effort to resell them. Despite letters from Einstein vouching for the papers' importance, several prominent American universities are said to have declined to acquire the collection, which wound up in a Jerusalem archive. In all, nearly 40 libraries, from Jerusalem to Geneva to Los Angeles, now own portions of Newton's work; bits of it have circulated on microfilm.

Over all, an estimated 2.7 million words are to be transcribed from Newton's small, right-slanting handwriting on pages littered with crossed-out words, revisions and equations.

A zoom tool at the Web site can be used to magnify the scanned images of Newton's original manuscripts, making it easier for users to read them. The site is adding a search engine this year so that readers can find recurring topics in the sprawl of Newton's work. Web publishing also gives the project the ability to incorporate scholarly revisions and commentaries nearly instantly.

With people perusing the works on the Internet, Dr. Iliffe said, the Newton Project can also receive valuable assistance from around the globe. "People who are interested can write to us and say, 'Look, we've discovered a mistake in your transcriptions,' " he said. "There is a sense in which end-users can become part of the authorial team."

In the meantime, the project's scholars face new challenges. Their main financing, a five-year British government grant, expires in 2004. Another concern is ensuring that their software does not become obsolete by the time the project is completed. "The one deep problem about electronic scholarship is we don't know how it will be preserved in the long run," Dr. Smith said. The Newton Project's transcriptions are now being coded in XML, but members say they are wary of being derailed by changing standards. For this reason, they are considering an eventual print companion to the site.

If the Newton Project seems like an unending effort, the team can always draw inspiration from the scientist himself. "Newton never thought anything he did was finished," Dr. Iliffe said. "He was constantly revising his work and he was never satisfied."
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