Pop-up diagrams in a 1570 translation of Euclid's *Elements*, for which John Dee wrote the preface.

HISTORY

Archive of wonders

Philip Ball browses remnants of the celebrated library of mathematician and occultist John Dee.

Before Galileo, it is difficult to tell the history of science as such. No one exemplifies that better than John Dee (1527–1609). The Tudor scholar was one of the most respected mathematicians of his day, advising explorers on navigation and fashioning ingenious mechanical devices for the theatre. He also cast horoscopes, stood accused of witchcraft, collected books of magic and professed to converse with angels. “Scholar, courtier, magician” is how he is described in an exhibition at the Royal College of Physicians (RCP) in London.

The show explores Dee's identity through the medium of his legendary library. At his home in Mortlake, west of London, Dee amassed perhaps the finest English library of his time, on topics from astronomy and alchemy to Greek poetry. Ultimately, the exhibition concedes that it is impossible either to sum up Dee's activities and interests under a single rubric or to understand them at all within the modern boundaries of science.

This is probably why Dee has enjoyed so many reincarnations in popular culture. Unlike the more clearly delineated Isaac Newton, we can refract him through the preoccupations of the age. Allegedly, he was the archetype for the magus Prospero in William Shakespeare's 1610 *The Tempest*, and he is said to have advised on the Globe Theatre's design. By 1659, when Dee's transcripts of angelic

conversations were posthumously published (after being exhumed; he had buried them in his garden), his work informed the debate about the reality of angels and demons. That was of interest a few years later to natural philosopher Robert Boyle, who believed that the existence of spirits vindicated religious ideas and undermined atheism. Boyle's colleague Robert Hooke claimed — unconvincingly — that Dee's angelic discourse contained encrypted intelligence for the court.

In 1806, these activities were adduced in a book on insanity and mass hysteria by English physician Thomas Arnold: supernatural phenomena now fell into the nascent realm of psychology, and Dee was seen as a deluded fanatic. A marvellous late-nineteenth-century painting by Henry Gillard Glindoni shows Dee conjuring with chemicals and fire before Queen Elizabeth I; X-rays show that he originally stood in a circle of skulls, later painted over. In recent years, Dee has been conscripted for the psychogeography of novelist Peter Ackroyd (*The*

John Dee pictured in an engraving made some 200 years after his death, by Robert Cooper.

Scholar, Courtier, Magician: The Lost Library of John Dee Royal College of Physicians, London. 18 January – 29 July.

House of Doctor Dee; Hamish Hamilton, 1993) and postmodern fantasies of Albion in Damon Albarn's 2011 opera *Dr Dee*.

The RCP holds the largest remaining collection of Dee's books. Unsure of the English queen's favour, Dee left the country in 1583 under the patronage of disreputable Polish prince Olbracht Łaski, entrusting his library to his brother-in-law, Nicholas Fromond. It was a bad choice: Fromond allowed Dee's 'friends' and former pupils to carry off or buy the books. Dee returned, his fortunes having soured, to find most of his books gone. One energetic thief was Nicholas Saunder, possibly a former pupil: around 160 books that he filched ended up in the collection of Henry Pierrepont, the Marquis of Dorchester. They were among the 3,000 or so volumes bequeathed to the RCP around 1680, and several of them, supplemented by other books of Dee's from elsewhere, are now on display. They open a window on Dee's broad interests.

There are volumes on mining; Dee advised naval expeditions for voyages in search of far-flung gold to enrich Elizabeth's "British Empire" (a term that first appears in Dee's 1577 *Perfect Arte of Navigation*). He wrote the preface to a 1570 English translation of Euclid's *Elements*, complete with assemble-yourself pop-up figures of polyhedra and intersecting planes. Here, he defended mathematics against charges of witchcraft and explained its use in developing mechanical inventions and technologies. To Dee, mathematics was an art both mystical and practical: the key both to cosmic harmony and to something approaching quantitative science.

He read about navigation (and doodled a splendid galleon in the margin of Cicero's *Opera*), made notes on the weather, devised horoscopes in the margins of Girolamo Cardano's works on astrology. (He was arrested in 1555 on suspicion of illegally casting the horoscope of the reigning Catholic queen Mary, Elizabeth's predecessor.) Also on display is a fine collection of Dee's instruments, including an obsidian "magical mirror" brought from the New World and the original crystal ball in which his 'scryer' Edward Kelley claimed to see angels.

Does all this help us to make sense of Dee and where he fits (if at all) into the narrative of science? Rather, the exhibition shows us that the story has arbitrary boundaries in the autumn of the Renaissance, when scholars were unconstrained by disciplinary distinctions, and magic and marvels were still part of the rational cosmos. ■

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