

# JOHN DEE

[by John H. Lienhard](#)

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Today, a mathematical magician helps end magic. The University of Houston's College of Engineering presents this series about the machines that make our civilization run, and the people whose ingenuity created them.

John Dee was born in England in 1527. When he died in 1607, he left us all wondering: was he a mathematician or a sorcerer?

Dee graduated from Cambridge at 18. He went on to study and lecture in Europe, and his reputation soared. He studied navigation with the same Mercator who gave us the map projection. An explorer later offered to give Dee Canada in exchange for his knowledge of maps. Dee was expert in astronomy, astrology, math, alchemy, and much more. The Protestant rulers Edward and Elizabeth consulted him. But so did Catholic Queen Mary.

The lines between astronomy, astrology, alchemy, and magic were very fuzzy in Dee's time. Maybe we saw our ignorance of nature's forces more clearly then than we do now. Dee raised essential questions about knowledge. Still, he looked for answers in a magic crystal as well as in a chemical retort.

In 1570 he wrote a 50-page preface for the first English translation of Euclid's geometry. It showed how geometry fit into the whole of science. He began with a huge chart -- a road map of human knowledge. He resolved science into two parts. "Arithmetike" and "geometrie" were primary. The rest, he said, was derivative. Things like "perspectiue, astronomie, cosmographie, astrologie, and musike" all flowed from mathematics.

So Dee juggled arcane and rational knowledge. He had a strange occult helper named Kelly who always wore a skullcap. Dee didn't know that Kelly's ears had been cut off as punishment for forgery. Kelly read Dee's magic crystal for him.

Yet Dee's home was a well-equipped laboratory and the finest scientific library in England. Queen Elizabeth visited him there. She read his books and sought advice on science. She also asked him for astrological readings when a comet went by in 1577.

Dee died just as Galileo turned his new telescope to the sky. After that the game of science changed utterly. It'd been demystified. The world became a machine we could dissect. Dee had asked if nature reveals itself from outside the human psyche or from within it. Religious reformers took that as witchcraft. They brought him down, and he died in poverty.

Dee was not one of the great discoverers. He left no seminal idea behind. But he organized math and alchemy just before modern science changed the rules. Dee set the stage for that change by putting his lens on the whole of science.

A sad irony rang through Dee's life. For we swept the old science away only after Dee's vision helped expose its weaknesses. And in that strange sense, Dee was as much a pioneer of modern science as Galileo himself.

I'm John Lienhard, at the University of Houston, where we're interested in the way inventive minds work.

(Theme music)

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*Dictionary of National Biography*. Vol. V, (Leslie Stephen and Sydney Lee, eds.). London: Smith, Elder, and Co., 1908-9, pp. 721-729.

Debus, A.G., *John Dee: The Mathematicall Praeface to the Elements of Geometrie of Euclid of Megara*. New York: Science History Publications, 1975.

Dee's famous *Mathematicall Praeface* was first published in conjunction with the first English edition of Euclid:

Dee, J., John Dee, His Mathematicall Praeface. *The Elements of Geometrie of the most auncient Philosopher EVCLIDE of Megara* (transl. by H. Billingsley). Imprinted at London by John Daye, 1570.

The *Praeface* was common intellectual currency for a long time. But it wasn't reprinted until seventy years later. Then it showed up in a new edition of Euclid:

Dee, J. John Dee, His Mathematicall Praeface. In Euclid's *Elements of Geometry* in IV books: with a supplement of Divers Propositions and Corollaries. To Which is Added a Treatise of Regular Solids, by Campane and Flussas ... , (John Leeke and George Serle) London: Printed by R. & W. Leybourn for Richard Tomlins at the Sun and Bible in Pie Corner, 1661. (Available in the Rare Book Collection, University of Houston.)

I am grateful to Pat Bozeman, Head of Special Collections, University of Houston Library, for calling my attention to Dee's *Praeface* and making the 1661 reprinting available to me.

For more on Dee, see Episodes [621](#) and [896](#).

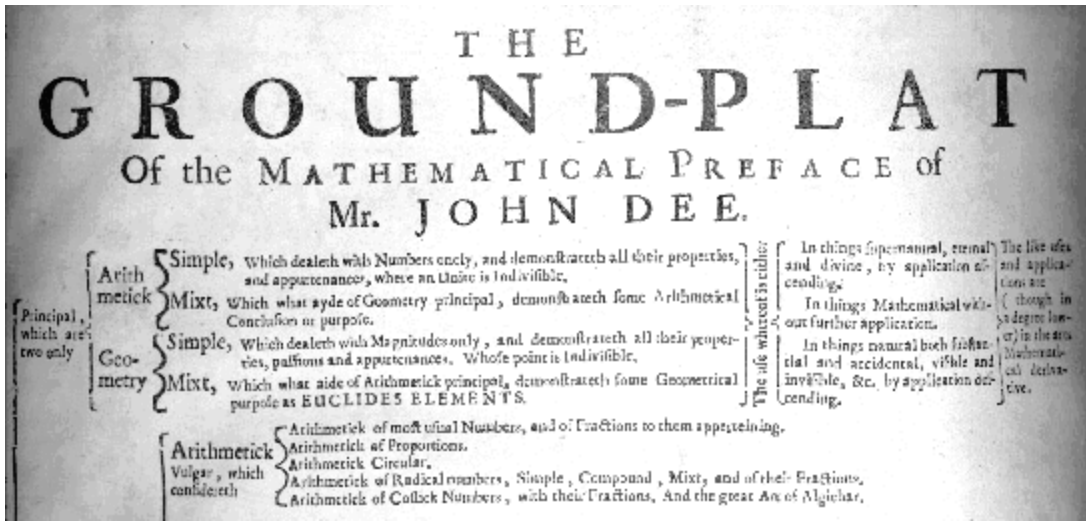


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From the opening of John Dee's *Mathematicall Praeface*, 1611

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