

GIORDANO BRUNO

[by John H. Lienhard](#)

[Click here for audio of Episode 241.](#)

Today, we meet a man who helped turn a good idea into a revolution. 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.

Giordano Bruno was born in Italy in 1548 -- five years after Copernicus died. He became a Dominican friar, but he was soon in trouble with the Church. His free-thinking looked like heresy. When he fled north and became a Calvinist, it took even less time for him to get into trouble. After that, he stirred controversy in Paris and then in Oxford. He finally reached London in 1583, and there he wrote about the Copernican sun-centered solar system. But Bruno wasn't content to quote another man's hypothesis. He added embroidery.

Copernicus had been a superb scientist. He'd shown how to simplify the complex mathematics of an earth-centered solar system by pretending that the sun was in the center. It's pretty clear that Copernicus believed the sun really did lie in the center, but he didn't go out of his way to rub the Church's nose in that idea.

Bruno was cut from a different rug. He asked, "If the earth isn't stationary, then why should we assume the sun is?" And without any central point of reference, what makes us think the universe is even finite! Bruno was quite happy to kick the last struts out from under the old system of astronomy.

The Renaissance Church couldn't accept the idea that a God-made universe might be infinite, and that's what eventually did Bruno in. He was lured back to Italy by a lecture invitation and then turned over to the Italian Inquisition. After seven years of trials, he was burned at the stake in 1600.

But Bruno's ideas weren't original, and he was no scientist. His relativistic view of the solar system actually dated back to the softer-spoken Nicolas of Cusa. Today, Einstein's relativity suggests that the universe is finite after all. But Bruno's rightness or wrongness is beside the point. Every revolution -- scientific or political -- is begun by conservatives and then radicalized. Bruno radicalized the Copernican revolution.

Few of us know about Bruno today, yet historian Charles Singer shows how his ideas kept resurfacing in the 17th century. Bruno forced philosophers and scientists to open their minds to the far-reaching implications of Copernicus's calculations, and that helped open the door to modern science.

Bruno is a hard person to like -- we want to think that rational fact can speak for itself. But it can't always do so. We have to be dynamited away from accepted notions. Bruno's explosiveness was a necessary ingredient of scientific change.

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

(Theme music)

Encyclopaedia Britannica.

Singer, C., *A Short History of Scientific Ideas to 1900*. London: Oxford University Press, 1959, Chapter 7

The Engines of Our Ingenuity is Copyright © 1988-1997 by John H. Lienhard