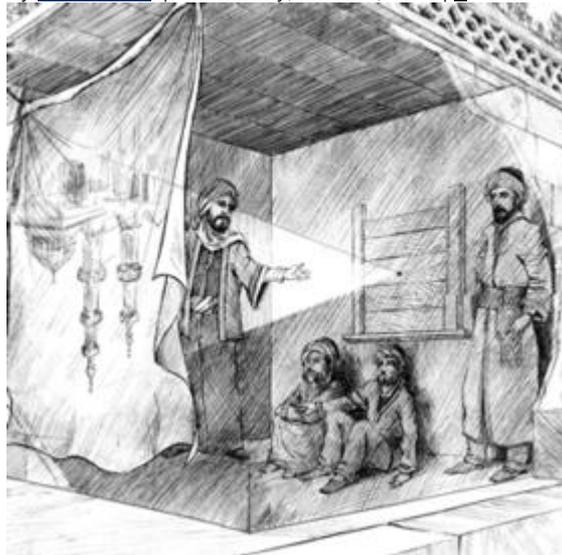


## The Forgotten History of Muslim Scientists

Without the flourishing of science in Muslim lands in the past, the modern world might not have algorithms or algebra

By [David Biello](#) | Wednesday, March 2, 2011 | 4



**CAMERA OBSCURA:** A Muslim physicist born in A.D. 965, Alhazen pioneered experimental physics, founded the modern scientific understanding of optics, and invented the camera obscura--a device for projecting images--as shown in this illustration. *Image: © Ali Amro / MuslimHeritageImages.com*

A millennium ago a physicist under house arrest rewrote the scientific understanding of optics—the study of the behavior and properties of light. In a book that has been compared in its revolutionary effect with Newton's *Principia* more than 700 hundred years later, a Muslim scientist in Cairo—Abu Ali al-Hasan ibn al-Hasan ibn al-Haytham (or as he is known in the West, Alhazen)—proved that light traveled in straight lines via various experiments that employed mirrors and refraction. In a stroke, Alhazen pioneered the modern scientific method (hypothesis rejected or not rejected by experimentation) as well as experimental physics.

He also was the first to describe the camera obscura—a box with a hole in it that captures an image for the purpose of drawing it precisely, a precursor to the modern camera—as well as examining optical illusions in-depth and the thought processes behind human visual perception. His contributions also include the first explanation of dawn and twilight as effects of atmospheric refraction. All in an era when the Normans had yet to invade the Anglo-Saxon kingdom of England and Viking raiders burned the Greek and Roman scientific legacy in the transcribed books of Irish monks.

Alhazen is just one of a multitude of scientists working in the Muslim world in centuries past who made significant contributions to the advancement of science. In fact, the golden age of Muslim science lasted nearly a millennium, as depicted in a traveling exhibition, "1001 Inventions," now showing at the New York Hall of Science.

**[View a slide show of Muslim scientists and some of their innovations.](#)**

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