

## The Illustrious, Embattled Tradition of Jesuit Scientists

By Tom Lucas, S.J.



Tom Lucas, S.J. is an associate professor of visual arts.

**W**hen St. Ignatius College's Joseph Neri demonstrated the first electric light in San Francisco in 1874, he was following in a long, distinguished, and sometimes complicated tradition of Jesuit scientists working to bring light to our understanding of the natural world. This tradition sometimes put Jesuits in the forefront of research, and at other moments, at odds with the Church.

Almost from the foundation of the flagship Roman College in the mid-16th century, mathematics and natural science were part of the curriculum in Jesuit educational institutions. Pope Gregory XIII called on Jesuit mathematician Christoph Clavius, the world authority on Euclid and inventor of the decimal point, to recast the drifting Julian calendar. Clavius' brilliant mathematics based on astronomical observation was the basis of Gregorian calendar we follow to this day. His protégé Matteo Ricci, took Western math and science into China at the beginning of the 17th century, translating Clavius' commentary on Euclid into Chinese, paving the way for later Jesuit mathematicians, astronomers, clockmakers (and sometimes cannon-makers) like Ferdinand Verbeist and Johann Adam Schall to become directors of the Imperial Observatory in Beijing. Along with more than 30 other Jesuit astronomers, their names are ascribed to craters on the moon.

Jesuit missions provided rich scientific data to the European scientific community throughout the 17th and 18th centuries. From China to Thailand, India, and the Americas, Jesuit teachers and scientists sent back meteorological and astronomical observations, drawings, data, and maps to Europe. Jose de Acosta's seven-volume *Natural and Moral History of the Indies* (1590) introduced Europe to the geography, ethnography, botany, and zoology of Mexico and South America. Jesuits Eusebio Kino and Juan de Ugarte's explorations determined that Baja California was a peninsula and not an island, and Francisco Clavigero's observations of the tribal customs, flora, and fauna of Baja provided Europe with its first view of our extended coast.

Jesuit professors in Europe and America made important discoveries and did groundbreaking field-work. Roger Boscovich's description of atomic theory and preliminary research on field theory influenced scientists from Michael Faraday to Albert Einstein. Nineteenth century Jesuit astrophysicist Angelo Secchi conducted the first spectroscopic survey of the heavens. His influence led to the removal of Copernicus' works from the Index of Forbidden Books, and began the long and painful process of the exoneration of Galileo.

Mention of Galileo points to the tensions with the Church that Jesuit scientists often had to navigate. Galileo was a disciple of Clavius and a friend and sometimes rival of several Jesuit scientists at the Roman College. The Jesuits there embraced the use of Galileo's telescope, and Jesuit Cardinal St. Robert Bellarmine did what he could to shield the irascible scientist from the Vatican's wrath until the papal court finally ruled against him because of what now looks like misplaced fundamentalism. Four-hundred years later, it is easy to recognize the missed opportunities and the perennial power of abrasive personalities to undermine creative discourse.

In the 20th century a similar scenario was played out, when the Jesuit paleontologist and phenomenologist Pierre Teilhard de Chardin was silenced by his superiors because of his enthusiastic teaching of evolution of matter and consciousness. Teilhard's works, published only after his death in 1955, remain influential and even prescient: his complex notion of a "noosphere," a shining global interconnected web of thought, is contained in the Internet I used to research this article.

The Jesuit contribution to the sciences, for all its successes and failures, is grounded in the fundamental Ignatian insight that God can be found in all things and through all things. Let's give Teilhard the last word. When asked to summarize his belief, he wrote: "Faith in the world, faith in the spirit in the world, faith in the immortality of the spirit in the world, faith in the ever-growing personality of the world." There are worse places to start. [USF](#)