



How the Catholic Church Built Western Civilization

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From the role of the monks to art and architecture, from the university to Western law, from science to charitable work, from international law to economics, *How the Catholic Church Built Western Civilization* delves into just how indebted we are as a civilization to the Catholic Church, whether we realize it or not.

By far the book's longest chapter is "The Church and Science." We have all heard a great deal about the Church's alleged hostility toward science. What most people fail to realize is that historians of science have spent the past half-century drastically revising this conventional wisdom, arguing that the Church's role in the development of Western science was far more salutary than previously thought. I am speaking not about Catholic apologists but about serious and important scholars of the history of science such as J.L. Heilbron, A.C. Crombie, David Lindberg, Edward Grant, and Thomas Goldstein.

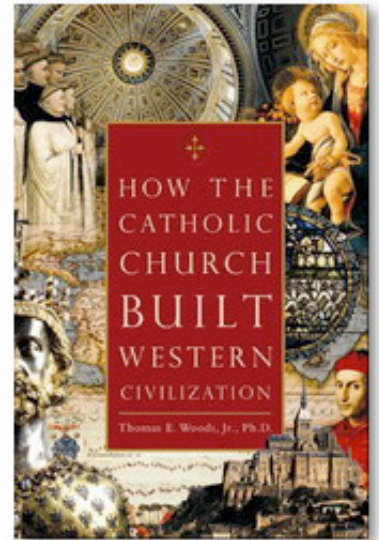
It is all very well to point out that important scientists, like Louis Pasteur, have been Catholic. More revealing is how many *priests* have distinguished themselves in the sciences. It turns out, for instance, that the first person to measure the rate of acceleration of a freely falling body was Fr. Giambattista Riccioli. The man who has been called the father of Egyptology was Fr. Athanasius Kircher (also called "master of a hundred arts" for the breadth of his knowledge). Fr. Roger Boscovich, who has been described as "the greatest genius that Yugoslavia ever produced," has often been called the father of modern atomic theory.

In the sciences it was the Jesuits in particular who distinguished themselves; some 35 craters on the moon, in fact, are named after Jesuit scientists and mathematicians.

By the eighteenth century, the Jesuits

had contributed to the development of pendulum clocks, pantographs, barometers, reflecting telescopes and microscopes, to scientific fields as various as magnetism, optics and electricity. They observed, in some cases before anyone else, the colored bands on Jupiter's surface, the Andromeda nebula and Saturn's rings. They theorized about the circulation of the blood (independently of Harvey), the theoretical possibility of flight, the way the moon effected the tides, and the wave-like nature of light. Star maps of the southern hemisphere, symbolic logic, flood-control measures on the Po and Adige rivers, introducing plus and minus signs into Italian mathematics — all were typical Jesuit achievements, and scientists as influential as Fermat, Huygens, Leibniz and Newton were not alone in counting Jesuits among their most prized correspondents [Jonathan Wright, *The Jesuits*, 2004, p. 189].

Seismology, the study of earthquakes, has been so dominated by Jesuits that it has become known as



"the Jesuit science." It was a Jesuit, Fr. J.B. Macelwane, who wrote [*Introduction to Theoretical Seismology*](#), the first seismology textbook in America, in 1936. To this day, the American Geophysical Union, which Fr. Macelwane once headed, gives an annual medal named after this brilliant priest to a promising young geophysicist.



The Jesuits were also the first to introduce Western science into such far-off places as China and India. In seventeenth-century China in particular, Jesuits introduced a substantial body of scientific knowledge and a vast array of mental tools for understanding the physical universe, including the Euclidean geometry that made planetary motion comprehensible. Jesuits made important contributions to the scientific knowledge and infrastructure of other less developed nations not only in Asia but also in Africa and Central and South America. Beginning in the nineteenth century, these continents saw the opening of Jesuit observatories that studied such fields as astronomy, geomagnetism, meteorology, seismology, and solar physics. Such observatories provided these places with accurate time keeping, weather forecasts (particularly important in the cases of hurricanes and typhoons), earthquake risk assessments, and cartography. In Central and South America the Jesuits worked primarily in meteorology and seismology, essentially laying the foundations of those disciplines there. The scientific development of these countries, ranging from Ecuador to Lebanon to the Philippines, is indebted to Jesuit efforts.

The Galileo case is often cited as evidence of Catholic hostility toward science, and *How the Catholic Church Built Western Civilization* accordingly takes a closer look at the Galileo matter. For now, just one little-known fact: Catholic cathedrals in Bologna, Florence, Paris, and Rome were constructed to function as solar observatories. No more precise instruments for observing the sun's apparent motion could be found anywhere in the world. When Johannes Kepler posited that planetary orbits were elliptical rather than circular, Catholic astronomer Giovanni Cassini verified Kepler's position through observations he made in the Basilica of San Petronio in the heart of the Papal States. Cassini, incidentally, was a student of Fr. Riccioli and Fr. Francesco Grimaldi, the great astronomer who also discovered the diffraction of light, and even gave the phenomenon its name.

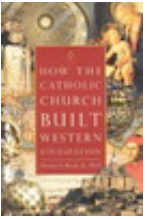
I've tried to fill the book with little-known facts like these.

To say that the Church played a positive role in the development of science has now become absolutely mainstream, even if this new consensus has not yet managed to trickle down to the general public. In fact, Stanley Jaki, over the course of an extraordinary scholarly career, has developed a compelling argument that in fact it was important aspects of the Christian worldview that accounted for why it was in the West that science enjoyed the success it did as a self-sustaining enterprise. Non-Christian cultures did not possess the same philosophical tools, and in fact were burdened by conceptual frameworks that hindered the development of science. Jaki extends this thesis to seven great cultures: Arabic, Babylonian, Chinese, Egyptian, Greek, Hindu, and Maya. In these cultures, Jaki explains, science suffered a "stillbirth." My book gives ample attention to Jaki's work.



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Contents

| | |
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| The Indispensable Church |  |
| A Light in the Darkness | |
| How the Monks Saved Civilization | |
| The Church and the University | |
| The Church and Science | |
| The Origins of International Law | |
| The Church and Economics | |
| How Catholic Charity Changed the World | |
| The Church and Western Law | |
| The Church and Western Morality | |

Economic thought is another area in which more and more scholars have begun to acknowledge the previously overlooked role of Catholic thinkers. Joseph Schumpeter, one of the great economists of the twentieth century, paid tribute to the overlooked contributions of the late Scholastics — mainly sixteenth- and seventeenth-century Spanish theologians — in his magisterial [History of Economic Analysis](#) (1954). "[I]t is they," he wrote, "who come nearer than does any other group to having been the 'founders' of scientific economics." In devoting scholarly attention to this unfortunately neglected chapter in the history of economic thought, Schumpeter would be joined by other accomplished scholars over the course of the twentieth century, including Professors Raymond de Roover, Marjorie Grice-Hutchinson, and Alejandro Chafuen.

The Church also played an indispensable role in another essential development in Western civilization: the creation of the university. The university was an utterly new phenomenon in European history. Nothing like it had existed in ancient Greece or Rome. The institution that we recognize today, with its faculties, courses of study, examinations, and degrees, as well as the familiar distinction between undergraduate and graduate study, come to us directly from the medieval world. And it is no surprise that the Church should have done so much to foster the nascent university system, since the Church, according to historian Lowrie Daly, "was the only institution in Europe that showed consistent interest in the preservation and cultivation of knowledge."

The popes and other churchmen ranked the universities among the great jewels of Christian civilization. It was typical to hear the University of Paris described as the "new Athens" — a designation that calls to mind the ambitions of the great Alcuin from the Carolingian period of several centuries earlier, who sought through his own educational efforts to establish a new Athens in the kingdom of the Franks. Pope Innocent IV (1243–54) described the universities as "rivers of science which water and make fertile the soil of the universal Church," and Pope Alexander IV (1254–61) called them "lanterns shining in the house of God." And the popes deserved no small share of the credit for the growth and success of the university system. "Thanks to the repeated intervention of the papacy," writes historian Henri Daniel-Rops, "higher education was enabled to extend its boundaries; the Church, in fact, was the matrix that produced the university, the nest whence it took flight."

As a matter of fact, among the most important medieval contributions to modern science was the essentially free inquiry of the university system, where scholars could debate and discuss propositions, and in which the utility of human reason was taken for granted. Contrary to the grossly inaccurate picture of the Middle Ages that passes for common knowledge today, medieval intellectual life made indispensable contributions to Western civilization. In [The Beginnings of Western Science](#) (1992), David Lindberg writes:

[I]t must be emphatically stated that within this educational system the medieval master had a great deal of freedom. The stereotype of the Middle Ages pictures the professor as spineless and subservient, a slavish follower of Aristotle and the Church fathers (exactly how one could be a slavish follower of both, the stereotype does not explain), fearful of departing one iota from the demands of authority. There were broad theological limits, of course, but within those limits the medieval master had remarkable freedom of thought and

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expression; there was almost no doctrine, philosophical or theological, that was not submitted to minute scrutiny and criticism by scholars in the medieval university.

"[S]cholars of the later Middle Ages," concludes Lindberg, "created a broad intellectual tradition, in the absence of which subsequent progress in natural philosophy would have been inconceivable."

Historian of science Edward Grant concurs with this judgment:

What made it possible for Western civilization to develop science and the social sciences in a way that no other civilization had ever done before? The answer, I am convinced, lies in a pervasive and deep-seated spirit of inquiry that was a natural consequence of the emphasis on reason that began in the Middle Ages. With the exception of revealed truths, reason was enthroned in medieval universities as the ultimate arbiter for most intellectual arguments and controversies. It was quite natural for scholars immersed in a university environment to employ reason to probe into subject areas that had not been explored before, as well as to discuss possibilities that had not previously been seriously entertained.

The creation of the university, the commitment to reason and rational argument, and the overall spirit of inquiry that characterized medieval intellectual life amounted to "a gift from the Latin Middle Ages to the modern world...though it is a gift that may never be acknowledged. Perhaps it will always retain the status it has had for the past four centuries as the best-kept secret of Western civilization."

Here, then, are just a few of the topics to be found in [How the Catholic Church Built Western Civilization](#). I've been asked quite a few times in recent weeks what my next project will be. For now, it'll be getting some rest.

"How the Monks Saved Civilization", chapter three from *How the Catholic Church Built Western Civilization*, is available online [here](#).

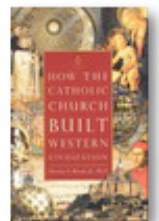
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Thomas E. Woods, Jr. holds a bachelor's degree in history from Harvard and his Ph.D. from Columbia. His books include the *New York Times* (and LRC) bestseller [The Politically Incorrect Guide to American History](#), [The Church and the Market: A Catholic Defense of the Free Economy](#), [The Church Confronts Modernity: Catholic Intellectuals and the Progressive Era](#), and the just-released [How the Catholic Church Built Western Civilization](#).



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