

# How Christianity (and Capitalism) Led to Science

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When Europeans first began to explore the globe, their greatest surprise was not the existence of the Western Hemisphere, but the extent of their own technological superiority over the rest of the world. Not only were the proud Maya, Aztec, and Inca nations helpless in the face of European intruders, so were the fabled civilizations of the East: China, India, and Islamic nations were "backward" by comparison with 15th-century Europe. How had that happened? Why was it that, although many civilizations had pursued alchemy, the study led to chemistry only in Europe? Why was it that, for centuries, Europeans were the only ones possessed of eyeglasses, chimneys, reliable clocks, heavy cavalry, or a system of music notation? How had the nations that had arisen from the rubble of Rome so greatly surpassed the rest of the world?

Several recent authors have discovered the secret to Western success in geography. But that same geography long also sustained European cultures that were well behind those of Asia. Other commentators have traced the rise of the West to steel, or to guns and sailing ships, and still others have credited a more productive agriculture. The trouble is that those answers are part of what needs to be explained: Why did Europeans excel at metallurgy, shipbuilding, or farming?

The most convincing answer to those questions attributes Western dominance to the rise of capitalism, which took place only in Europe. Even the most militant enemies of capitalism credit it with creating previously undreamed of productivity and progress. In *The Communist Manifesto*, Karl Marx and Friedrich Engels proposed that before the rise of capitalism, humans engaged "in the most slothful indolence"; the capitalist system was "the first to show what man's activity can bring about." Capitalism achieved that miracle through regular reinvestment to increase productivity, either to create greater capacity or improve technology, and by motivating both management and labor through ever-rising payoffs.

Supposing that capitalism did produce Europe's own "great leap forward," it remains to be explained why capitalism developed only in Europe. Some writers have found the roots of capitalism in the Protestant Reformation; others have traced it back to various political circumstances. But, if one digs deeper, it becomes clear that the truly fundamental basis not only for capitalism, but for the rise of the West, was an extraordinary faith in reason.

A series of developments, in which reason won the day, gave unique shape to Western culture and institutions. And the most important of those victories occurred within Christianity. While the other world religions emphasized mystery and

intuition, Christianity alone embraced reason and logic as the primary guides to religious truth. Christian faith in reason was influenced by Greek philosophy. But the more important fact is that Greek philosophy had little impact on Greek religions. Those remained typical mystery cults, in which ambiguity and logical contradictions were taken as hallmarks of sacred origins. Similar assumptions concerning the fundamental inexplicability of the gods and the intellectual superiority of introspection dominated all of the other major world religions.

But, from early days, the church fathers taught that reason was the supreme gift from God and the means to progressively increase understanding of Scripture and revelation. Consequently Christianity was oriented to the future, while the other major religions asserted the superiority of the past. At least in principle, if not always in fact, Christian doctrines could always be modified in the name of progress, as demonstrated by reason. Encouraged by the scholastics and embodied in the great medieval universities founded by the church, faith in the power of reason infused Western culture, stimulating the pursuit of science and the evolution of democratic theory and practice. The rise of capitalism also was a victory for church-inspired reason, since capitalism is, in essence, the systematic and sustained application of reason to commerce - something that first took place within the great monastic estates.

During the past century Western intellectuals have been more than willing to trace European imperialism to Christian origins, but they have been entirely unwilling to recognize that Christianity made any contribution (other than intolerance) to the Western capacity to dominate other societies. Rather, the West is said to have surged ahead precisely as it overcame religious barriers to progress, especially those impeding science. Nonsense. The success of the West, including the rise of science, rested entirely on religious foundations, and the people who brought it about were devout Christians. Unfortunately, even many of those historians willing to grant Christianity a role in shaping Western progress have tended to limit themselves to tracing beneficial religious effects of the Protestant Reformation. It is as if the previous 1,500 years of Christianity either were of little matter, or were harmful.

Such academic anti-Roman Catholicism inspired the most famous book ever written on the origins of capitalism. At the start of the 20th century, the German sociologist Max Weber published what soon became an immensely influential study: *The Protestant Ethic and the Spirit of Capitalism*. In it Weber proposed that capitalism originated only in Europe because, of all the world's religions, only Protestantism provided a moral vision that led people to restrain their material consumption while vigorously seeking wealth. Weber argued that, before the Reformation, restraint on consumption was invariably linked to asceticism and, hence, to condemnations of commerce. Conversely, the pursuit of wealth was linked to profligate consumption. Either cultural pattern was inimical to capitalism. According to Weber, the Protestant ethic shattered those traditional linkages, creating a culture of frugal entrepreneurs content to systematically reinvest profits in order to pursue ever greater wealth, and therein lies the key to capitalism and the ascendancy of the West.

Perhaps because it was such an elegant thesis, it was widely embraced, despite the fact that it was so obviously wrong. Even today *The Protestant Ethic* enjoys an almost sacred status among sociologists, although economic historians quickly dismissed Weber's surprisingly undocumented monograph on the irrefutable grounds that the rise of capitalism in Europe preceded the Reformation by centuries. Only a decade after Weber published, the celebrated Belgian scholar

Henri Pirenne noted a large literature that "established the fact that all of the essential features of capitalism - individual enterprise, advances in credit, commercial profits, speculation, etc. - are to be found from the 12th century on, in the city republics of Italy - Venice, Genoa, or Florence." A generation later, the equally celebrated French historian Fernand Braudel complained, "All historians have opposed this tenuous theory, although they have not managed to be rid of it once and for all. Yet it is clearly false. The northern countries took over the place that earlier had so long and brilliantly been occupied by the old capitalist centers of the Mediterranean. They invented nothing, either in technology or business management." Braudel might have added that, during their critical period of economic development, those northern centers of capitalism were Catholic, not Protestant - the Reformation still lay well into the future. Further, as the Canadian historian John Gilchrist, an authority on the economic activity of the medieval church, pointed out, the first examples of capitalism appeared in the great Christian monasteries.

Though Weber was wrong, however, he was correct to suppose that religious ideas played a vital role in the rise of capitalism in Europe. The material conditions needed for capitalism existed in many civilizations in various eras, including China, the Islamic world, India, Byzantium, and probably ancient Rome and Greece as well. But none of those societies broke through and developed capitalism, as none evolved ethical visions compatible with that dynamic economic system. Instead, leading religions outside the West called for asceticism and denounced profits, while wealth was exacted from peasants and merchants by rapacious elites dedicated to display and consumption. Why did things turn out differently in Europe? Because of the Christian commitment to rational theology, something that may have played a major role in causing the Reformation, but that surely predated Protestantism by far more than a millennium.

Even so, capitalism developed in only some locales. Why not in all? Because in some European societies, as in most of the rest of the world, it was prevented from happening by greedy despots. Freedom also was essential for the development of capitalism. That raises another matter: Why has freedom so seldom existed in most of the world, and how was it nurtured in some medieval European states? That, too, was a victory of reason. Before any medieval European state actually attempted rule by an elected council, Christian theologians had long been theorizing about the nature of equality and individual rights - indeed, the later work of such secular 18th-century political theorists as John Locke explicitly rested on egalitarian axioms derived by church scholars.

All of this stemmed from the fact that from earliest days, the major theologians taught that faith in reason was intrinsic to faith in God. As Quintus Tertullian instructed in the second century, "Reason is a thing of God, inasmuch as there is nothing which God the Maker of all has not provided, disposed, ordained by reason - nothing which He has not willed should be handled and understood by reason." Consequently it was assumed that reason held the key to progress in understanding scripture, and that knowledge of God and the secrets of his creation would increase over time. St. Augustine (c. 354-430) flatly asserted that through the application of reason we will gain an increasingly more accurate understanding of God, remarking that although there are "certain matters pertaining to the doctrine of salvation that we cannot yet grasp ... one day we shall be able to do so."

Nor was the Christian belief in progress limited to theology. Augustine went on at length about the "wonderful - one might say stupefying - advances human industry has made." All were attributed to the "unspeakable boon" that God has conferred

upon his creation, a "rational nature." Those views were repeated again and again through the centuries. Especially typical were these words preached by Fra Giordano, in Florence in 1306: "Not all the arts have been found; we shall never see an end of finding them."

Christian faith in reason and in progress was the foundation on which Western success was achieved. As the distinguished philosopher Alfred North Whitehead put it during one of his Lowell Lectures at Harvard in 1925, science arose only in Europe because only there did people think that science could be done and should be done, a faith "derivative from medieval theology."

Moreover the medieval Christian faith in reason and progress was constantly reinforced by actual progress, by technical and organizational innovations, many of them fostered by Christianity. For the past several centuries, far too many of us have been misled by the incredible fiction that, from the fall of Rome until about the 15th century, Europe was submerged in the Dark Ages - centuries of ignorance, superstition, and misery - from which it was suddenly, almost miraculously, rescued; first by the Renaissance and then by the Enlightenment. But, as even dictionaries and encyclopedias recently have begun to acknowledge, it was all a lie!

It was during the so-called Dark Ages that European technology and science overtook and surpassed the rest of the world. Some of that involved original inventions and discoveries; some of it came from Asia. But what was so remarkable was the way that the full capacities of new technologies were recognized and widely adopted. By the 10th century Europe already was far ahead in terms of farming equipment and techniques, had unmatched capacities in the use of water and wind power, and possessed superior military equipment and tactics. Not to be overlooked in all that medieval progress was the invention of a whole new way to organize and operate commerce and industry: capitalism.

Capitalism was developed by the great monastic estates. Throughout the medieval era, the church was by far the largest landowner in Europe, and its liquid assets and annual income probably exceeded that of all of Europe's nobility added together. Much of that wealth poured into the coffers of the religious orders, not only because they were the largest landowners, but also in payment for liturgical services - Henry VII of England paid a huge sum to have 10,000 masses said for his soul. As rapid innovation in agricultural technology began to yield large surpluses to the religious orders, the church not only began to reinvest profits to increase production, but diversified. Having substantial amounts of cash on hand, the religious orders began to lend money at interest. They soon evolved the mortgage (literally, "dead pledge") to lend money with land for security, collecting all income from the land during the term of the loan, none of which was deducted from the amount owed. That practice often added to the monastery's lands because the monks were not hesitant to foreclose. In addition, many monasteries began to rely on a hired labor force and to display an uncanny ability to adopt the latest technological advances. Capitalism had arrived.

Still, like all of the world's other major religions, for centuries Christianity took a dim view of commerce. As the many great Christian monastic orders maximized profits and lent money at whatever rate of interest the market would bear, they were increasingly subject to condemnations from more traditional members of the clergy who accused them of avarice.

Given the fundamental commitment of Christian theologians to reason and progress, what they did was rethink the traditional teachings. What is a just price for

one's goods, they asked? According to the immensely influential St. Albertus Magnus (1193-1280), the just price is simply what "goods are worth according to the estimate of the market at the time of sale." That is, a just price is not a function of the amount of profit, but is whatever uncoerced buyers are willing to pay. Adam Smith would have agreed - St. Thomas Aquinas (1225-74) did. As for usury, a host of leading theologians of the day remained opposed to it, but quickly defined it out of practical existence. For example, no usury was involved if the interest was paid to compensate the lender for the costs of not having the money available for other commercial opportunities, which was almost always easily demonstrated.

That was a remarkable shift. Most of these theologians were, after all, men who had separated themselves from the world, and most of them had taken vows of poverty. Had asceticism truly prevailed in the monasteries, it seems very unlikely that the traditional disdain for and opposition to commerce would have mellowed. That it did, and to such a revolutionary extent, was a result of direct experience with worldly imperatives. For all their genuine acts of charity, monastic administrators were not about to give all their wealth to the poor, sell their products at cost, or give kings interest-free loans. It was the active participation of the great orders in free markets that caused monastic theologians to reconsider the morality of commerce.

The religious orders could pursue their economic goals because they were sufficiently powerful to withstand any attempts at seizure by an avaricious nobility. But for fully developed secular capitalism to unfold, there needed to be broader freedom from regulation and expropriation. Hence secular capitalism appeared first in the relatively democratic city-states of north-ern Italy, whose political institutions rested squarely on church doctrines of free will and moral equality.

Augustine, Aquinas, and other major theologians taught that the state must respect private property and not intrude on the freedom of its citizens to pursue virtue. In addition, there was the central Christian doctrine that, regardless of worldly inequalities, inequality in the most important sense does not exist: in the eyes of God and in the world to come. As Paul explained: "There is neither Jew nor Greek, there is neither bond nor free, there is neither male nor female, for ye are all one in Christ Jesus." And church theologians and leaders meant it. Through all prior recorded history, slavery was universal - Christianity began in a world where as much as half the population was in bondage. But by the seventh century, Christianity had become the only major world religion to formulate specific theological opposition to slavery, and, by no later than the 11th century, the church had expelled the dreadful institution from Europe. That it later reappeared in the New World is another matter, although there, too, slavery was vigorously condemned by popes and all of the eventual abolition movements were of religious origins.

Free labor was an essential ingredient for the rise of capitalism, for free workers can maximize their rewards by working harder or more effectively than before. In contrast, coerced workers gain nothing from doing more. Put another way, tyranny makes a few people richer; capitalism can make everyone richer. Therefore, as the northern Italian city-states developed capitalist economies, visitors marveled at their standards of living; many were equally confounded by how hard everyone worked. The common denominator in all these great historical developments was the Christian commitment to reason.

That was why the West won.

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