Religion and Progress: From the Enlightenment to the Twenty-First Century

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In the year 1000, Christian western Europe was an uncivilized backwater compared to the great Muslim centers of civilization in Spain, North Africa, and the Middle East. It was even behind Song China.

Among Christian cultures, only the Orthodox Byzantine Empire had a major urban center — Europe’s largest city Constantinople. No one could have predicted that this situation would be completely reversed in the future.

Even by 1500, it was far from evident that western Europe would one day be economically more prosperous and technologically advanced than China, which was in most respects still more advanced. By then the Byzantine Empire had been absorbed by the Ottoman Turks, and that Muslim Empire was rapidly expanding into militarily inferior Christendom.

Meanwhile, in India Babur, the first of the Muslim Mughals would soon launch his imperial adventure. By 1700 it would come close to unifying a powerful, stable and, for its time, rich Indian Empire — easily more powerful than the small European trading centers being established in a few coastal Indian outposts.

Yet, by the late nineteenth century there seemed to be no limits to the domination of the West. That included the major powers of northwestern Europe, the United States, and a giant Eastern Orthodox empire, Russia, that was still quite backward compared to Germany, its major western rival. The only significant powers in the non-Christian parts of the world were the sadly declining Ottoman Empire and the rising and rapidly westernizing Japanese Empire.

Why this happened was one of the key questions raised by social science in the late nineteenth and early twentieth centuries. Other questions focused on coping with the dramatic changes wrought by industrialization, urbanization, and the decline of tradition in the West caused by its rapid progress.

The founders of sociology — Auguste Comte, Karl Marx, Emile Durkheim, Herbert Spencer, Max Weber and others — were primarily concerned with this question: What made the West different and what role did religion play in advancing on retarding progress?

Although many Europeans thought there was a racial explanation, the major social scientists downplayed this. Weber rejected biological explanations entirely.

Weber’s contention that Protestant rationality was the key ideological component of the rise of western capitalism and, therefore, of the subsequent scientific, technological, economic, and ultimately political changes
that characterized the modern ascent of the West is certainly the best known. For a long time it was the most influential of the theories that connected religion to modernization.

But not every theorist was so positive. Neither Karl Marx nor his many later followers have ever taken religion seriously as a positive force, seeing all religions as mere superstition passed off on the credulous masses by ruling classes to keep their subjects passive and ignorant. Religion of any kind, then, was a retardant, not something that could advance progress.

Today’s economic historians, however, tend to discount religion as a positive force as much as the Marxists. They typically do not even consider religion relevant at all. Douglass North (1990) and Mancur Olson (2000), among the very best known economic historians, have both been crass materialists for whom religion and cultural values were mere artifacts of hard economic realities.

Like other economic historians their work focused on incentive structures, the security of property rights, and the ways in which markets were blocked or allowed to flourish. The fundamental assumption behind this has been that culture, insofar as it matters, does so only in lasting institutional structures that either encourage or impede entrepreneurship and effective markets.

Because China was for so long more advanced than the West, but also because it is today’s most rapidly rising economic and political great power, much attention has been paid to why northwestern Europe, and particularly Great Britain industrialized earlier. The most popular explanation, laid out in Kenneth Pomeranz’s work, stresses the advantages brought to Europe by the opening of the Americas to settlement and exploitation, and to the luck of the English in having easily accessible coal.

China, on the other hand, failed to expand beyond its traditional imperial boundaries and its coal was more difficult to mine. Cultural differences and religion play very little if any role in such explanations (Pomeranz 2000).

This is, unfortunately, a serious error for both historical and contemporary analysis. One does not have to go as far as Rodney Stark (2005). He has claimed that the West’s success stems from medieval Christian beliefs that recognize that religion plays a critical role in people’s ideologies, and therefore in their political and economic behavior.

It is too simplistic to say that this or that religion — Catholicism, Protestantism, Islam, Buddhism, Hinduism, etc. — inherently favors or blocks progress. Every important religion possesses many different
strands of thinking, and one can find entrepreneurial merchants, manufacturers, and financiers from so many varied backgrounds that it is hardly necessary to point this out.

But even after recognizing that religious thinking within any religious tradition changes over time, that internal disputes and splits over theological issues are unending within each such tradition, and that essentializing from a review of a few foundational texts is grossly misleading, we have to recognize that prevailing cultural values that come substantially from religious beliefs make an important difference.

The key to understanding what happened to the parts of the West that pioneered the modern age is not to be found in ancient or medieval Christianity, but in the intellectual rejection of medieval religious dogma, and then the distancing of scientific and political analysis from traditional religion that culminated with the Enlightenment. And it is precisely the adoption of some important parts of Enlightenment thinking that is at the heart of China’s astounding contemporary success, just as it earlier characterized Japan’s modernization and that of some other East Asian societies.

This does not mean that western progress was necessarily anti-religious, though some of it was, but that the way of thinking about religion changed for some leading thinkers, and this greatly influence their societies in ways that ultimately caused rapid change.

The Renaissance made strides in abandoning medieval Christian dogmatism. Niccolo Machiavelli is popularly remembered as a cynic who urged rulers to use whatever deceitful methods they could to retain power (not exactly an original thought even in his time), but this was not his main contribution. Rather, it was his attempt to explain political history as something manmade rather than divinely directed (Manent 1995, 10-19). Thus, political elites determine their fate by their actions, and divine intervention did not have to be used to explain outcomes.

The Renaissance was animated by a desire to recapture what was thought to have been a more perfect understanding of natural and human affairs possessed by the ancient Greeks and Romans, whose history and politics were inspirations for Machiavelli and other Renaissance thinkers, but in so doing, they began a way of thinking that broke decisively from accepting Christian dogma about the forces that regulate our environment.

The Protestant Reformation was another step in that direction, though hardly one anticipated by its leading proponents who had no intention of separating God from either common or higher scientific thought. It is not necessary to try to follow Weber’s forced attempt to explain why Calvin’s ideas about predestination
would make his disciples want to enrich themselves to prove that they were saved to see why Protestantism ultimately led to a more rational attempt to understand the world and our place in it (Weber [1920] 2002).

What was important about the Reformation was the demand for proof of God’s existence and power, and the supposition that individuals had the ability to examine holy texts to find that proof for themselves. Thus, not only was it necessary to translate the Bible into local vernaculars, but also to promote greater literacy. This made more advanced theological as well as secular thinking much more widely available than before.

As Weber emphasized, rationalizing — weighing empirical evidence before deciding on action or the validity of certain beliefs — was particularly congenial to urban merchants and artisans, more so than to other classes. Their existence was closely tied to their ability to calculate costs of inputs for production and benefits from sales in an objective way.

Peasants were so dependent on the vagaries of nature, or on the uncontrollable behavior of their lords who brought war and devastation down upon them for inexplicable reasons, that they tended naturally to look to magic and superstition to explain and try to manage their uncertain lives.

Nobles dedicated to glory in warfare and upholding their honor looked down on the petty rationality of calculating commoner merchants and valued instead self-validation through grand gestures and pomp.

Churchmen had a vested interest in upholding dogma, not in critically looking for proof, and they were always suspicious of theological thinkers whose work might raise too many doubts (Chirot 1985).

As for China, though Weber knew a lot less about Chinese history than we now know, he was right to point out that Confucian bureaucrats were far more concerned with applying rational bureaucratic rules of administration than in trying to question the foundations of received ancient wisdom.

Alexander Woodside (2006) has made the argument that China and its two main cultural offshoots, Vietnam and Korea, were modernizers before European modernization by adopting the examination system for their bureaucrats. This promoted administrative rationality beyond anything other parts of the world had seen. It also perpetuated an attitude that money-grubbing merchants trying to calculate everything to maximize profits were contemptible, and that innovation was dangerous.

This certainly played a role in the Ming Emperors’ eventual prohibition of long distance big sailing ships that could have, in the early fifteenth century, seized control of a world wide trading system such as the one set up decades later by the Europeans.
In the early fifteenth century, before the European age of global oceanic exploration, the Chinese sent huge ships, far bigger than what the Spaniards and Portuguese were to use later, to explore southeast Asia and the Indian Ocean all the way to Arabia and Africa. But the emperors and their bureaucrats decided it was too risky and too expensive to let merchants explore the world and bring back too many riches because that would weaken old elites by creating a new source of wealth, power, and dangerous ideas (Tsai 2001, 208).

In the sixteenth and seventeenth centuries, the Spanish Habsburg Empire allied to the Catholic Church sought in vain to do something similar by shutting off the production of new ideas arising from the Renaissance and Reformation, but it failed. The Habsburgs did not control Europe as a unified empire, and even the Spaniards were too dependent by then on seaborne trade and American precious metals to try to isolate themselves.

The existence of competing kingdoms and many different types of polities in Europe played a critical role in preserving the innovations of the Renaissance and Reformation. States relied on taxes generated by trade, and especially those needing to raise revenues in order to be armed against the Habsburgs recognized that innovation and sustaining the liberty of urban mercantile classes were crucial. Furthermore, the existence of many different polities could provide refuge for those whose innovative thinking threatened them in more conservative states.

The fiercely competing merchant cities of northern Italy had led the way in constructing European capitalist progress in the early Renaissance from the thirteenth to the fifteenth century. The Catholic Portuguese and Spaniards then were the first to develop oceanic trade routes to the Americas and India (often using Italian mariners).

But both Iberia and Italy were eventually politically subordinated to the Catholic Habsburg Empire and to the power of the Church. So, they lost their lead to the more independent and mercantile Dutch, and then to the English. Even in France, Catholic and increasingly subordinated to centralized royal authority, there were enough Protestants and semi-heretical Jansenists free of direct Church control to pursue new ideas, and royal authority constantly trying to increase revenues did not crush the independence of the merchant class.

Weber’s thesis, in other words, still makes sense, but not because of anything specific in Calvinist or other puritanical Protestant theology other than the drive to find proof, and the appeal of that kind of calculating rationality to the urban merchant class. That was the seed that eventually blossomed into modern capitalism, starting in northern Italy, and then moving to northwestern Europe (Braudel [1979] 1984, 89-276).
The well-known story of Galileo Galilei can serve as a reminder of what this meant. His condemnation by the church in 1633 was part of a very broad attempt to conserve the church’s authority. It is not merely a question of whether or not the Bible says that the earth is immovable and the sun turns around it.

(The Bible does not explicitly say so in Genesis, though there are later references such as in the Book of Joshua, when the sun is made to stand still to prolong the day, that suggests that the earth was fixed and the sun moved. It would hardly have seemed necessary to those who wrote the Bible to stress the idea that the sun turned around the earth as this was so widely believed and seemed to our senses to be so.)

Much more importantly, moving the earth away from the center of the universe brought into question how central we were to God’s creation. It created unease about received truths that had for a very long time been widely accepted, and perhaps even more, the Galileo case became a test of how far questioning the authority of the church would be allowed to go (Wootton 2010).

Also, as Steven Shapin has pointed out, Galileo’s astronomical observations opened the way to believing that the universe was far bigger than had previously been thought (though quite how large it has turned out to be would have staggered the imagination of seventeenth century scientists, and is for most of us today quite incomprehensible). Shapin quotes the great seventeenth century French mathematician and philosopher Blaise Pascal’s reactions to the new discoveries, “The eternal silence of infinite space frightens me.” (Shapin 1996, 28)

It needs to be stressed that the scientific revolution of the seventeenth century, which opened the way for the eighteenth century Enlightenment, was by no means an unambiguous rejection of God. Rather it reflected a dogmatic certitude that simply accepted received and ancient ideas because they were traditional and supported by official institutions.

René Descartes, probably the single most influential seventeenth century European philosopher, believed that the universe worked like a kind of mechanical clock powered by “vortices,” and that God was the master clockmaker who had set it in motion.

Isaac Newton, the most famous and influential of the many scientific figures of the late seventeenth and early eighteenth century, was an intensely religious man who believed that by finding mathematical regularities in how the universe behaved he was confirming God’s ultimate rationality. But Newton did not like Descartes’
mechanical model of the universe. He felt that this removed God from active guidance of his universe and, thus, might lead people to view God as a passive and ultimately irrelevant force.

Newton theorized that the universe in which gravity functioned was unstable, so that God had to intervene from time to time to regulate it, and that perhaps comets were the way in which he did this (Grayling 2005, especially 207-210; Ashworth 2003, 80-84).

But whatever their religious beliefs, and however pious some of them were, the scientists and philosophers who were in the forefront of the seventeenth century scientific revolution pursued ideas that rejected blind acceptance of dogma. This paved the way to doubt, especially because faith had been so bound to trust in sacred ancient texts and their interpretation by the priesthood. So these new ideas were not congenial to any established church. Even though he was very much a member of the English establishment, Newton had to conceal his personal views about religion because they did not conform to official Church of England theology (Ashworth 2003, 82). Still, it was the relative (by the standards of those days) tolerance in the more northwestern parts of Europe that, by Newton’s time, had moved most scientific innovation there and away from a southern Europe subject to the Catholic Church’s authority.

John Locke, whose political ideas were to inspire the American Revolution and Constitution, also cast doubt on received religion as well as on the right of governments to impose their will without the consent of their subjects (Locke [1690] 1996; Hartz 1955). Locke became as famously influential in Europe as Newton in the eighteenth century when English ideas inspired the French Enlightenment, though as Jonathan Israel has pointed out, he was not as tolerant of non-Christian ideas as he has been made out to be. He was clearly a Christian believer, yet his insistence on the individual’s right to make rational, personal decisions about science, religion, and politics became another foundation of the larger movement that swept through Europe after his and Newton’s deaths (Israel 2006, 135-144; Israel 2001, 515-527).

Citing a few of the most famous thinkers who played key roles in the scientific revolution obviously hugely oversimplifies and does not come close to giving us a full picture of what was going on in the much larger community of European intellectuals who were participants in the new thinking. The seventeenth century was a time of widespread scientific ferment and discovery in northwestern Europe.

The Royal Society of London, soon to become one of the primary scientific institutions in the world, began as meetings of philosophers in the 1640s and was formally founded in 1660 (see <royalsociety.org>).
British, German, French, Dutch and other European philosopher-scientists read each others' works and corresponded because they all had Latin in common. They conducted arguments about the new discoveries and their implications.

Governments in Europe began to understand that they needed to support the sciences to provide the technology on which their trade and military strengths depended. Furthermore, the growing number of literate merchants and artisans, as well as members of the nobility, was starting to form a general public eager to consume information about new discoveries as well as about politics, though this would be far more pronounced in the eighteenth than in the seventeenth century (Melton 2001). Introducing his monumental work on the Enlightenment, Jonathan Israel has written how by the late seventeenth century the spread of Descartes’ ideas and the new science was creating turmoil among Europe’s intellectuals.

Whereas before 1650 practically everyone disputed and wrote about confessional differences, subsequently, by the 1680s, it began to be noted by French, German, Dutch, and English writers that confessional conflict, previously at the centre, was increasingly receding to secondary status and that the main issue now was the escalating contest between faith and incredulity (Israel 2001, 4).

The whole movement, while not yet directly causing much economic progress, at the very least correlated with a better atmosphere for mercantile pursuits. Later, by the time scientific advances became important for promoting technological change, the ground for fostering and accepting science had been well prepared in northwestern Europe.

All these changes, but also a crucial set of political events connected to religion, opened the way to the expansion of the European Enlightenment of the late seventeenth and eighteenth centuries.

The sixteenth and seventeenth centuries had seen the worst wars in European history (surpassed only later, in the twentieth century). Large parts of central Europe in particular had been ravaged. Because one of the main reasons for these wars was the passionate conflict between Protestants and Catholics, there had been appalling massacres of civilians in the name of religious purification.

The very term ‘massacre’ came into use in France during its late sixteenth century wars of religion as a term to describe killing on a large scale of whole populations. After the end of the Thirty Years War, the end of the civil war in England, followed by the massacres of Catholics in Ireland by Cromwell’s Puritan army in the middle of the seventeenth century, serious thinkers began to question the kind of religious fervor that had led to
such disasters. This became the basis within a few decades of a whole reexamination of how to conduct human affairs (Chirot and McCauley 2010, 37-38, 127-128).

Albert Hirschman’s powerful argument about the rise of capitalism reversed Weber’s causal chain (1977). Eighteenth century British and French Enlightenment philosophers, reflecting on the horrors of the wars of religion and the folly of ambitious monarchs like Louis XIV of France who dragged their countries into war over questions of personal glory and honor, began to think that the pursuit of gain through commercial endeavors was far more peaceful than chasing after religious purity, honor, or glory.

Whereas in the past attempts to curb violent passions had been entrusted to religiously inspired, authoritarian state power, these philosophers recognized that this was no longer adequate because the attempt to impose religious morality led only to more violence. This, to reduce Hirschman’s argument to its essence, legitimized capitalism well before the industrial revolution led to the rise of a dominant capitalist class.

The industrial revolution began only in the very late eighteenth century and the rise of a politically powerful bourgeois capitalist class in northwestern Europe followed even later, in the nineteenth, well after the heyday of the major Enlightenment thinkers whose writings spread this new idea. In Hirschman’s account, then, the spirit of capitalism was accepted by leading intellectuals in northwestern Europe because philosophers such as Montesquieu, David Hume, and James Steuart led the way by trying to find alternatives to the long dominant tradition of favoring glory and purity over crass material self-interest. Hirschman’s book, in fact opens with a famous Montesquieu quote:

Happily for men they are in a situation such that, while their passions leads them to mean thoughts, they nevertheless have an interest in not being that way (Hirschman 1977, v – my translation from the French quote).

Again, it was not just a few leading thinkers who suddenly appeared in the eighteenth century who created this idea. Hirschman also begins with Machiavelli, but points also to the Dutch Jewish philosopher Baruch Spinoza’s influence (mostly after his death in 1677, though by then he was already well known in Europe’s philosophical circles).

Spinoza took the rejection of dogmatism farther than his predecessors, asking that human beings be viewed for what they were, not in an idealized religious way. He initiated modern biblical scholarship by analyzing the Bible as a human document, and in his lifetime was already reviled by religious Protestants and Jews as well as by the Catholic Church. Had he not been in the more tolerant Netherlands it is likely he would
have paid for this very dearly. But he was able to continue to work as a glass grinder and write his books until he

All this culminated with Adam Smith. Smith was not simply what he has become for our contemporary
economists, an advocate of free markets and economies guided by an “invisible hand” in which the combined
self-interest of all parties is certain to maximize productivity. Smith was concerned with impediments to
progress posed by what he considered to be archaic medieval laws limiting commerce and individual initiative,
including guilds, efforts to fix prices, but most of all, unwanted fees and impositions by government.

In his day, and those of the eighteenth century Enlightenment, this idealization of free choice in
economic behavior was combined with a strong bias against established, politically powerful religions that
impeded both free thought and economic progress. Smith did not like the Church of England, and wanted,
instead, “...two or three hundred, or perhaps ...as many thousand small sects...” so that there could be “no
ecclesiastic government” to interfere with freedom (Rothschild 2001, 32, 42-43 and more generally Chapter I).

As Emma Rothschild emphasizes in her superb analysis of two of the Enlightenment’s most influential
thinkers, Smith and the Marquis de Condorcet, this dislike of powerful religious institutions and dogma was as
crucial a part of Enlightenment thought as the call for greater personal freedom, support for science liberated
from dogma, and rational application of knowledge to solve social problems.

Condorcet understood that personal terror and uncertainty about one’s fate led to superstition and
subjection to religious authority, and that freeing humanity from such constraints was necessarily a difficult,
slow, painful process. Just as economic laissez-faire meant that ultimately future prices were uncertain, so
psychological laissez-faire had to tolerate a greater uncertainty and acceptance of doubt (Rothschild, 8-39).

Adam Smith’ close friend and mentor David Hume, like Immanuel Kant, Condorcet, and many other
leading thinkers of their time who led the movement toward Enlightenment was explicitly, even extremely anti-
Catholic. He disliked fanaticism of any kind, but felt that at least anti-establishment religious fanatics held out
the promise of breaking traditional “priestly” authority (Hume [1741] 1961, 656-659).

Immanuel Kant famously said that Enlightenment is freedom from dogma, and the willingness of
individuals to search for answers to important questions independently. His oft-cited short essay on the subject,
written in 1784, begins with an appeal to independent thought:
Enlightenment is man's emergence from his self-imposed immaturity. Immaturity is the inability to use one's understanding without guidance from another. This immaturity is self-imposed when its cause lies not in lack of understanding, but in lack of resolve and courage to use it without guidance from another. *Sapere Aude!* [dare to know] "Have courage to use your own understanding!" – that is the motto of enlightenment (Kant [1784] 1959, 85).

It is again necessary to point out that in practice this appeal was not anti-religious as such, but anti-dogma, and especially opposed to forcing any particular faith on others.

This was an important aspect of attitudes toward religion among the founders of the United States. Whether they were personally suspicious of all religious dogma, like Thomas Jefferson, or conventionally religious believers like George Washington, they took for granted that religious tolerance was a good idea, and that imposing any official religious faith on what was already a somewhat religiously diverse nation should be avoided.

Jefferson and James Madison believed that allowing many different sects would make it easier to promote Enlightenment. But even they were careful to avoid the kind of open attack on Christianity expressed by Thomas Paine in his notorious 1794 book, *The Age of Reason*. There is little evidence that they were atheists, not even Paine. But theirs was certainly not the kind of religious belief that accepted any literal acceptance of the kind of Christianity that preached blind acceptance of received texts (Wood 2007, 35, 107, 221-222; Wood 2008, 245-246).

The foundation of a United States based on Enlightenment principles, of the growing acceptance in Great Britain of Adam Smith’s prescriptions for freedom of trade and respect for markets, and the introduction of radical democratic and anti-clerical ideas throughout Europe by the French Revolution show that the writings of the eighteenth century philosophers were no mere scholastic exercises. This was the basis of the transformation of the world that continues to this day.

How was all this connected to the immense economic transformation of the nineteenth century that propelled Europeans to world domination? The Enlightenment was not simply about abstract philosophy and social theory. It was itself the product of the seventeenth century scientific revolution that accelerated in the eighteenth century.

These discoveries made the escape from religious and political dogma possible by showing that traditional received notions about the physical universe were wrong. It was the scientific accomplishments of the
immediate past the sustained not only the skeptics like Voltaire, but also gave hope to idealistic politicians who respected religion like George Washington.

Well before scientific advances were to produce fantastic new technologies in the nineteenth and twentieth centuries, faith in the new science inspired practical progressive political leaders. In the first presidential Thanksgiving Proclamation in 1789, George Washington concluded by writing:

> And also that we may then unite in most humbly offering our prayers and supplications to the great Lord and Ruler of Nations and beseech Him to pardon our national and other transgressions...[followed by a list of hopes addressed to the Lord, ending with]...to promote knowledge and practice of true religion and virtue, and the increase of science among them and us [referring to other nations]; and, generally to grant unto all mankind such a degree of temporal prosperity as He alone knows to be best. (Washington 1789).

What is notable in this declaration is that it refers to no specific faith or to Christ, but only to the Lord, and that it ends with the hope that science will flourish.

Just as Albert Hirschman’s thesis that capitalism was legitimized by Enlightenment philosophers whose influence spread widely among literate elites before capitalism’s actual ascendancy, so can it be said scientific openness based on experimentation and a demand for proof rather than dogmatic acceptance of received wisdom was legitimized well before the practical results of scientific advances were to bear widely visible fruit in the nineteenth and twentieth centuries.

By the late eighteenth century there had been technological progress in western Europe for some time, particularly in the Netherlands and Britain where agriculture, shipbuilding, and metallurgy had made them world leaders in the seventeenth century. There was important progress in manufacturing in the eighteenth century. And, in 1780, the Europeans had long had far better guns and ships than anyone else, with the British in the lead (Landes 1998, 186-212). Mass production in textile manufacturing was starting to take off in Great Britain. But most people, even in Britain, were still poor peasants. For the large majority of other western Europeans life was not all that different from what it had been for centuries past.

By land it took as long if not longer to get from Paris to Rome as in Roman times. Medicine had made few practical advances as the first successful vaccine (against smallpox) came only at the very end of he century. Though the use of steam powered engines had been growing since the early eighteenth century, not that many uses had yet been devised for it other than for pumping water out of mines (Hobsbawm 1962, Chapter I).
Even the development of textile manufacturing into the early nineteenth century was not highly
dependent on new scientific advances as such, but on engineering and manufacturing improvements that
amounted to inspired tinkering rather than advances in pure science. Informal, practical knowledge was as
important, or perhaps more so than actual science.

But this had long been the case in prior periods of technological progress, and had it remained at that,
what followed would not have occurred. In *The Wealth of Nations*, published in 1776, Adam Smith was aware of
what progress had been so far, but he had little inkling of the dawning industrial revolution that would soon
bring much more rapid and fundamental change.

Even David Ricardo, who can be credited with being more of a modern economist, and who was
younger than Smith, had, as Joel Moktyr put it, “...only the faintest notion of the pending changes.” (Moktyr
2002, 30, 77)

Moktyr’s analysis of what happened in the West in the nineteenth century shows how scientific
progress and technological advances became increasingly interconnected, and this is what led to such a
fundamental change.

The true question of the Industrial Revolution is not why it took place at all but why it
was sustained beyond, say, 1820. There had been earlier clusters of micro inventions,
most notably in the fifteenth century with the emergence of moveable type, the casting
of iron, and advances in shipping and navigational technology. Yet these earlier mini-
industrial revolutions had always petered out before their effects could launch the
economies into sustainable growth (Moktyr 2002, 31).

What happened in the nineteenth century was that science in the west European world (including the
United States) began to contribute very directly to technology, and that technology is what spurred continuing
rapid economic growth. This was when the West as a whole moved so decisively ahead of China. To suggest
that this was somehow luck, or limited to England, or due to imperial looting is to miss entirely what Moktyr
calls ‘The Industrial Enlightenment.’ (Moktyr 2002, 1-118)

The first industrial period based on textiles was followed by a second, much more technologically
complicated cycle characterized by railroads that revolutionized land transportation. That, in turn, was followed
by a third stage in the later nineteenth century that was directly dependent on advanced scientific research
produced by universities and research institutes.
Led at first by advances in organic chemistry, this stage saw the development of electrical machinery, the telephone, and a host of new inventions that could not have taken place without access to advanced science. That was one of the main reasons for which Germany, which invented the modern research university, and the United States, which copied the German model, surpassed Britain during this period.

Needless to say, in the twentieth and twenty-first century, science’s role has grown. Today, as we move into an age of biotechnology, a search for new ways of producing energy, nanotechnology, and so much more, it is more obvious than ever that advanced research freed of dogmatic ideological bias, well financed by governments, and open to exchanges across narrow borders is essential for continued progress.

This is what Enlightenment philosophers dreamed of. What they did not realize in the eighteenth century was how much resistance there would be, how long it would take for something like this to happen, what some of the terrible consequences of progress could be, and how totally this would change the world (Chirot 2011, Chapter IV).

Answering the question of why this did not happen elsewhere, or why the parts of the non-Western world that have since made great progress in catching up had to adopt at least some portion of the European Enlightenment is an important question that brings us directly back to the issue of religion.

It is impossible in a brief essay to try to answer the question why the Enlightenment did not occur in China or in the Islamic world which itself contained great empires seemingly richer and more powerful than Europe in the early seventeenth century. By the standards of their day, the elites in those places had access to sophisticated technologies, abundant resources, and venerable intellectual traditions of scholarship and philosophy, but they would soon be passed in knowledge by the West.

The two times when developments in China might have led to the breakthroughs that occurred later during the European Enlightenment were during the Song Dynasty (960 to 12790 and the early Ming Dynasty (1368-1644). Many of the advances in mathematics and science during the Song were destroyed during the wars, invasions, and eventual conquest of China by Mongol nomads.

The Mongol period opened up China to more international trade and new ideas, but some of the lost knowledge from the Song period was never recovered. When the Mongols were finally driven out of China by the Ming after more destructive wars, the Chinese turned inward.
As we have seen, it was the Ming Emperors and their bureaucracy that in the fifteenth century blocked oceanic exploration and reinforced cultural conservatism. Nor did this change when a new set of northern nomads, the Manchu conquered China and established themselves as the Qing Dynasty, the rulers until 1911.

Probably, as suggested above, the intellectual dominance in China of the Confucian literati focused on an exam system that emphasized memorization and discussion of texts that had become as fixed as if they had been religious dogma played a role. There were certainly exceptions, but China did not have the many competing political entities that could give refuge to dissenting intellectuals, as, for example, the Netherlands did for John Locke when he was out of favor in England.

Nor did its merchants have the political power that the mercantile classes achieved in the most advanced parts of Europe, particularly the Netherlands and England. Chinese technology and science was not enriched, as western Europe’s was, by efforts to improve navigation and astronomy essential for oceanic travel. It was not just the riches that accrued to Europe from such global ventures that mattered, but also the knowledge and broadening of intellectual horizons that ensued (Chan 1988, 302-303; Wakeman 1975, 43-53).

As for Islam, there may have been the glimmers of something like Enlightenment much earlier. Many European Enlightenment philosophers were impressed by the Spinoza-like philosophy of the Andalusian Ibn Rushd, known in the West as Averroes, who lived from 1126 to 1198. But Ibn Rushd’s skeptical, rationalizing analysis of religion and the natural world never spread beyond a small number of followers, some of them Jews, in Spain and the Maghreb.

His influence never came close to being as significant in Islam as Spinoza’s in Europe, and the collapse of the most enlightened Muslim dynasties in Spain opened the way to harsh, intolerant suppression of such philosophizing (Israel 2006, 620-631). Some historians have suggested that an even earlier period of philosophical and scientific progress during the Abbasid period was cut off for similar reasons.

In Sunni Islam there is no Pope although at times some strong rulers have tied to bring the ulama (the learned religious scholars who interpret the faith) under control. Repeatedly, however, secular rulers turned to their conservative religious establishments when they felt threatened, and this would result in the suppression of speculative free thought (Berkey 2003, 127-129).

The later great Islamic Ottoman and Persian Safavid empires followed similar trajectories. The originally tolerant Ottomans compromised with their religiously conservative establishment in the seventeenth
century (Barkey 164-189). The Persian Safavids who were Shia Muslims, began as religious radicals, but eventually settled on a more conservative, orthodox enforcement of Islam in alliance with their religious establishment (Berkey 2003, 262-268).

This oversimplifies very complex situations, and religious or ideological conservatism enforced by ruling empires was not the only factor at work. In the Muslim world, from North Africa through the Middle East and to northwest India, repeated invasions by nomads, the ecological fragility of agrarian systems of production that often depended on irrigation, and periodic catastrophic declines in population and economic well being that resulted from these played a role in preventing the emergence of anything resembling the Enlightenment.

In difficult times, rulers and their populations tended to turn back toward religious orthodoxy. China also suffered from nomadic invasions and disruption of its economy, though it came much closer to experiencing the kind of breakthrough that later occurred in the West (Jones 1981, 3-21).

Whatever the complex reasons for all this, the reality is that something different happened in a part of western Europe, and this transformed the world. The subversion of religious orthodoxy by radical thinkers in the West laid the basis for the ascent of science and industry that made European civilization completely dominant from the early nineteenth to the early twenty-first century. That dominance is now much less pronounced than it once was; however, to see how the present world is changing it is necessary to return to this central theme and again look at the Muslim parts of the world and those strongly influenced by Chinese tradition and culture. Not only were these the civilizations that were notably more advanced in almost all respects than the West before the modern era, but also the contrast between cultures ruled by religious orthodoxy and those that are adopting the Enlightenment tradition of scientific rationality are as marked as ever, or perhaps even more so.

To do this we must look at one of the most important sources of theological inspiration among the growing number of radical Muslim extremists today, the writings of Sayyid Qutb. He was an Egyptian philosopher executed by Gamal Abd al-Nasser, then Egypt’s dictator, in 1966.

Bitterly opposed to secularism and any kind of westernization, he had attacked Nasser’s socialist modernization program as impious and heretical, and had become an inspiration for the most devout, most Salafist forces in Islam. (The term “Salafist” is better than “fundamentalist” but means much the same. It refers to those who believe it is necessary to return to the original seventh century followers of Islam, before the corruption that occurred when they became more cosmopolitan, tolerant, and flexible rulers of a vast empire.)
For Qutb, Nasser and all the modernizing Arab and Muslim rulers of the mid-twentieth century were guilty of deep ignorance and betrayal of their religion. What is most interesting about his pronouncements, however, is that for him, as for other Salafists, the original source of this lay in the distant past. Qutb wrote:

This generation [the original Muslim followers of the Prophet] drew solely from this source [the holy Qu’ran] and attained something unparalleled in history [the conquest of a vast empire from the Atlantic to India]. However, it subsequently came to pass that other influences intermingled with this source. Successive generations thus drew from sources such as Greek philosophy and logic, Persian [pre-Islamic] myths and their ideas, the Jewish scriptures and Christian theology, along with the residue of other civilizations and cultures. All of this came to be mixed with Qu’ranic commentaries, Islamic theology, and principles of jurisprudence. As a result subsequent generations were educated by a corrupted source, and so a generation like the first has never again appeared (Qutb [1964] in Euben and Zaman 2009, 140-141).

Thus, it was not just modernism that corrupted Islam, but the very influences from the rich cultures they absorbed from conquered populations. Yet, it was precisely those influences, including the recovery of ancient Greek philosophy that made the golden ages of Islamic high civilization possible. (Beside this, reading the Qu’ran itself makes it evident that it was influenced deeply by Judaism and Christianity.)

But that is the heart of the theology now gaining growing influence in the Islamic world. Qutb was a more recent, and more sophisticated version of the doctrine of Muhammad ibn ‘Abd al-Wahhab, the eighteenth century Arab teacher whose puritanical Salafism, or what he thought was original Islam, dominates Saudi Arabia today.

Al-Wahhab was reacting against perceived corruption coming from the Ottomans, where there were the beginnings of efforts to come to grips with the causes of the Empire’s increasing military and technological backwardness vis-à-vis the West. But by allying himself with the Saud family that would eventually conquer most of Arabia after World War I, he left a lasting legacy.

Combining its oil wealth and missionary zeal, contemporary Saudi Arabia has diligently been spreading this reactionary doctrine throughout the Islamic world for over a half century, building mosques and sending out missionary preachers and teachers laying the foundation for its version of pure Islam (Euben and Zaman 2009, 426).

It was not just al-Wahhab, or Qutb, or any other small set of preachers, scholars, or teachers who promoted this kind of puritanical, anti-corruption, and fiercely anti-western kind of reformism. From the time when some Muslims realized that the West was becoming ascendant in the late eighteenth, but particularly in the
nineteenth century, there has been a conflict raging between those who sought to westernize Islam; that is, make
it more modern and open to new thinking, and those who, on the contrary, have placed the blame for their
religion’s failure on its straying from its origins.

In the first half of the twentieth century, it seemed that the modernizers were winning. In the early
twenty-first, that is far from obvious; rather the opposite seems to be happening (Euben and Zaman 2009, 1-23).
This is as true among Shia Muslims as among the majority Sunnis, particularly since the triumph of reactionary
Islam in Iran under the guidance of the equally fierce anti-westernism of Ayatollah Khomeini (Khomeini [1970]
in Euben and Zaman 2009, 163-180).

What is going on in Islam is in some ways reminiscent of the more puritanical aspects of the Protestant
Reformation: a return to basic texts, a rejection of magic and popular versions of Islam, and a peeling away of
corrupting sources. Whether that will eventually lead to a rejection of closed dogmatism, as ultimately happened
in the West when its leading intellectuals realized that religious fanaticism led only to endless wars and
destruction, remains to be seen. By rejecting westernization the Salafist thinkers, even as they gain support from
the Maghreb to southeast Asia, are at least for the time being closing off that possibility (Gellner 1992).

When United Nations and other internationally sponsored research sought to explain why Arab societies
in the early twenty-first century were not developing successfully, they avoided singling out religious
conservatism, but the litany of ills, from failure to sponsor viable higher education and research to keeping
women subservient, point directly to both poor governance and to religious conservatism (UNDP 2005; Lopez-
Claros and Schwab 2005). Unfortunately, when modernizing regimes held sway, too many, particularly
in Egypt, Syria, Iraq, and Algeria, chose state centered socialist policies that have been discredited. But as these
have failed, what happened was a resurgence of conservative Islam that dooms this part of the world to
continuing backwardness and frustration despite the islands of artificial wealth fueled by oil and gas exports.
(See the excellent case study of Algeria by Malley, 1996). Whether or not other increasingly conservative
Islamic societies like Pakistan can escape this fate remains to be seen, but all the evidence, both contemporary
and historical, points to a worrisome prognosis.

China and East Asia are an entirely different proposition. Much has been made by conservative western
observers of so-called “Confucian” virtues – respect for education, strong family ties, and self-discipline. There
is no doubt that such virtues are useful, though whether one has to be “Confucian” to follow them is another
matter. As Ezra Vogel (1991) wisely pointed in explaining the rise of the small non-communist East Asian societies even before China itself began to grow so quickly (only after abandoning dogmatic communist economics), real Confucianism had to be forsaken for rapid economic progress to occur.

What is valuable in the East Asian tradition is the importance of a meritocratic, examination based rational bureaucracy that, when applied to modern conditions, promotes the value of high quality education and effective administration. Self-cultivation, the imperative to improve oneself certainly contributes as well, though there is nothing uniquely “Confucian” about this virtue. Vogel reminds us that western analysts in the first half of the twentieth century cited Confucianism as a barrier to progress; but the catastrophic international and civil wars of the first part of the twentieth century, the rise of Japanese, then American power in the Pacific, and the ultimately failed but transformative Marxist regimes thoroughly discredited conservative, traditional Confucianism (Vogel 1991, 92-101). Before this:

Disdain for physical labor, a contempt for merchants and restraints on their activities, the base of support among rural elites who resisted land reform, and the conservative application of Confucian teachings all impeded the introduction of newer ways of thinking (Vogel 1991, 86).

Once this was swept away, the advantages of good administration and orderly societies combined with the introduction of western higher education and research, and the application of western science and technology did produce economic miracles in Taiwan, Hong Kong, Singapore, and South Korea, as they had earlier in Japan. Once communist dogma was dropped in China, and then in Vietnam, and western thinking used to modernize, the same thing happened.

In none of these societies has there been an overwhelmingly strong religious culture dictating adherence to some traditional, dogmatic text, at least not since China abandoned its Maoist version of Marxism. But even Mao, when he was asked in the late 1930s where his ideas came from, cited the luminaries of the European Enlightenment and their successors. As he told Edgar Snow:

I read Adam Smith’s *The Wealth of Nations*, and Darwin’s *Origin of Species*, and a book on ethics by John Stuart Mill. I read the works of Rousseau, Spencer’s *Logic* and a book on law written by Montesquieu (Snow [1938] 1973, 144).

That Mao took Marxist dogma so much more to heart than Smith, Montesquieu, or Mill set China back for decades and cost tens of millions of lives, but when Maoism was replaced by a more rational, less dogmatic
set of policies, the Enlightenment, western respect for knowledge and scientific inquiry was not replaced by any return to a reinvigorated religious conservatism.

In Muslim, and particularly Arab socialist modernization projects in the late nineteenth and for much of the twentieth century, western ideas were also imported, but as these have been replaced by a reawakened, reactionary and dogmatic religious faith, what there was of the western tradition has been waning. Putting up a few transplanted western universities staffed by foreigners in some states along the Persian Gulf will not change that unless there is an intellectual revolt against stifling dogmatism.

Now the great question about China is whether it can continue to succeed by incorporating the originally western privileging of research, science, and technology, combining this with a market based economic policy, all the while rejecting the democratic, political thrust of the western Enlightenment. This has been the subject of much debate, and it leads to the issue of whether the Enlightenment’s support of individual rights is necessary to sustain an open, undogmatic way of thinking. The jury is still out on that (Bell 2006).

Meanwhile, in the West’s leading society, the United States, another question has come to the fore. Can an increasingly conservative religious revival reverse the skeptical, freethinking rationality that made it so strong?

The future is always unpredictable, but it is good to remember two historical facts. The West’s progress was dependent on freeing itself from religious dogma. Yet, the gains made by abandoning any inflexible and repressive set of imposed ideological values are always reversible because in troubled times many turn back to reassuring verities from the past.

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