

CHRISTIANITY & THE RISE OF MODERN SCIENCE

WESTERN SCIENCE IS UNIQUE IN THE POST-FLOOD WORLD.

The pre-Flood world had the potential for scientific feats surpassing those of any time since. As sinlessly created, man had unrivalled mental and physical powers. The Fall (Gen. 3:6) destroyed much of this potential; from then on man's thoughts and actions were increasingly turned toward evil (Gen. 6:5) culminating in the Flood judgment (Gen. 6:12-13).

After the Flood man retained sufficient scientific and technological prowess that God said of the people building the Tower of Babel, "nothing shall be restrained from them, which they have imagined to do" (Gen. 11:6). **One reason God intervened to confound the tongues at Babel was that even after the Fall and Flood, mankind was capable of turning sophisticated knowledge and technology against God.** Then what must have been man's potential in science and technology before he sinned?

After the dispersion from Babel, sophisticated technology persisted at various times and places, but a slow global decline began. Even today's scientific feats may not have returned to the level of mankind's very earliest years. Nevertheless, at least since the time of Abraham about 2000 BC, the world has not seen the global burgeoning of science and technology now happening.

Virtually all of the world's modern scientific activity has originated ultimately in the West -- especially Europe, and to a lesser degree, North America. Western accomplishments are unique according to Georgetown University historian **Carroll Quigley (1961, p. 334):**

"Of course, any student in any society has an inclination to regard his own culture as being in some way exceptional, but in this case, more than others, there seems to be objective justification for such a feeling. **No culture has ever exceeded Western civilization in power and extent.**"

Quigley did not accept the existence of the pre-Flood and pre-Babel civilizations. Even so, his statement is accurate for the last several millennia. **Dawson (1950, p. 17)** more moderately described "Western culture in modern times" as marked by "peculiar achievement." Science historian **Steven Jaki (1985, p. 42)** has characterized the West as having an "astonishing scientific lead."

When discussing the origin of modern science, we are really discussing the origin of Western science. In the words of **Lewis (1982, p. 238)**, "[S]cience means modern Western science. There is no other."

GREEK THOUGHT DID NOT FOSTER WESTERN SCIENCE.

It is commonly said that modern science somehow originated with the Greeks about the fourth century BC (400-300 BC), or in the revival of Greek thought called the Renaissance in the fifteenth century. The truth is that **Greek philosophy strongly believed in fate (Grant, 1982, pp. xiii-xiv):**

"[A] very large number of Greeks did succumb to profoundly depressing convictions that everything was

immutably governed by blind chance (or fate) and the stars." **The belief that fate rules one's life is called fatalism.** The Bible teaches that God sovereignly controls our lives but that He also makes us responsible for exercising our wills to glorify Him. Fatalism is not biblical. **A fatalistic view of life removes the impetus for experimentation.**

Scientific experimentation is built on the premise that since man has a free will, he can control the physical creation to a limited degree to learn about it. **Experimentation is the core of scientific work, but if fate rules our lives, we have no control over the physical creation, and scientific experimentation is useless.** The belief in fatalism destroyed scientific progress not only in Greek culture but in the civilizations of China and India, as we will later see.

There were also other specific developments in early Greek history that led to a disdain for scientific experimentation. **Quigley (1961, pp. 39-40)** explains:

"During the period 600-400 B.C. in the Greek-speaking world, the Ionian scientists ... [assumed] that the heavens and the earth were made of the same substance and obeyed the same laws and that man was part of nature. **The enemies of science about the year 400 B.C. made assumptions quite different from those of the Ionians;** namely, that the heavens were made of a substance different from those on earth and, accordingly, obeyed different laws ... They admitted that the earth was changeable but insisted that the celestial areas were rigidly unchanging. ... These nonscientific assumptions, made about 400 B.C. without proof and by violating the fundamental rules of scientific method, set up a nonscientific world view which could not be disproved. **The Pythagorean rationalists were able to do this and to destroy science ..."**

The anti-scientific beliefs of the Pythagoreans became the basis for the teachings of Aristotle later called "Aristotelianism." These teachings prevented scientific progress for nearly two millennia (**Quigley, 1961, pp. 41-42):**

"These men [disciples of Pythagoras], with all the prestige of Pythagoras and Plato behind them, argued that the human senses are not dependable but are erroneous and misleading and that, accordingly, the truth must be sought without using the senses and observation, and by the use of reason and logic alone. ...

"The Pythagoreans argued that if things are really not what they seem, **our senses are at fault because they reveal to us the appearance (which is not true) rather than the reality (which is true).** ... It was this recourse to rational processes independent of observation that led the ancient rationalists to assume the theories ... that became established as 'Aristotelian' and dominated men's ideas of the universe until, almost two thousand years later, they were refuted ..."

Rather than fostering science, Greek philosophy hindered it. Science finally grew when Christianity abandoned Greek philosophy (**Jaki, 1985, p. 42):**

"How did the West acquire in the first place its astonishing scientific lead? **It did so by rejecting what was distinctly and fundamentally pagan in ancient Greek science.**"

THE RENAISSANCE DID NOT FOSTER MODERN SCIENCE.

The Renaissance is simplistically defined as a rebirth of learning. But **what kind of learning was re-born?** It was a rebirth of Graeco-Roman learning (**Singer, 1959, p. 192**):

"The [Renaissance] humanists discovered the literary works of antiquity. In them they became absorbed to the exclusion of all else. ... They still remain a curse to our educational system."

This learning was pagan and was in opposition to biblical wisdom, a fact addressed in the New Testament (e.g., James 3:13-17). Even this statement is not strong enough, for the Renaissance was an occultic movement, not a Christian one. **Picknett and Prince (1994, p. 86)** observe:

"Dame Frances Yates has shown in her books that **the major influence in the intellectual flowering of the Renaissance was an upsurge of interest in ideas that are now termed 'occult'.**"

The extent to which the Renaissance was beneficial was due to the influence of biblical principles on Renaissance thinkers. According to historian **Jacques Barzun (2000, p. 51)**:

"[The Renaissance humanists] were not indifferent to religion or wanting to replace Christianity with paganism. Those called Humanists today may rule out the divine and make Man the measure of all things but [the Renaissance humanists] remained deeply religious."

The humanist movement has increasingly rejected biblical principles with the passing centuries. **But even the science commonly associated with the Renaissance was done in a biblical framework.**

CHRISTIANITY HAS FOSTERED MODERN SCIENCE.

Christianity made modern science possible. **Peter E. Hodgson (1988, p. 198)**, Professor of Nuclear Physics at Oxford University, wrote:

"Christian beliefs played an important part in the development of modern science. ... **The ideas necessary for the birth and growth of science are that the world is orderly and rational and open to the human mind. These are Christian beliefs about the world.**"

With the rise of evolution in the 1800s, the belief grew that man somehow has a natural tendency to progress, but this idea has been discredited (**Dawson, 1950, pp. 15-17**):

"How did it come about that a small group of peoples in Western Europe should in a relatively short space of time acquire the power to transform the world and to emancipate themselves from man's age-long dependence on the forces of nature? **In the past this miraculous achievement was explained as the manifestation of a universal Law of progress which governed the universe and led mankind by inevitable stages from apehood to perfection.** To-day such theories are no longer acceptable, since we have come to see how much they depend on an irrational optimism which was part of the phenomenon they attempted to explain. ...

"... [The answer is that in] the West the spiritual power has not been immobilized in a sacred social order like

the Confucian state in China and the Indian caste system. ... It is easy enough to present the history of this European expansion as a process of imperialistic aggression and economic exploitation. But aggression and exploitation are nothing new in world history, and if they suffice to explain the European achievement, it might have been realized hundreds or thousands of years earlier by any of the world empires that have successively held the stage of history.

The peculiar achievement of Western culture in modern times is due to a new element which was not present in the older type of imperialism. For, side by side with the natural aggressiveness and the lust for power and wealth which are so evident in European history, **there were also new spiritual forces driving Western man towards a new destiny.**"

This "new element" was Christianity. The "new spiritual driving forces" were the Christian teachings applied to regeneration of the human heart. The central place of Christianity in the rise of modern science has been noted by many historians of science. **Russell (1984, p. 778)** wrote:

"It is widely accepted on all sides that, **far from undermining it, science is deeply indebted to Christianity and has been so from at least the Scientific Revolution.** Recent historical research has uncovered many unexpected links between scientific enterprise and Biblical theology."

Russell's assessment appeared in the journal *Nature*, not a source sympathetic to Christianity or the Bible. Likewise, in *Bioscience*, an aggressively anti-creationist magazine, **Beck (1982, p. 739)** has stated:

"[Scientific] premises define and limit the scientific mode of thought. It should be pointed out, however, that **each of these postulates had its origin in, or was consistent with, Christian theology ...**"

Bioscience has called for censorship of creationist ideas in the classroom (**Zimmerman, 1987, p. 636**), yet the historical linkage between Christianity and modern science is sufficiently evident to appear even in this venue.

MODERN SCIENCE IS ROOTED IN SPECIFIC CHRISTIAN TEACHINGS.

The Christian origin of modern science is rooted in the priesthood of the believer taught in the New Testament (Heb. 4:14-15). Each saved person is a priest before God, our great High Priest. This means that each Christian is responsible before God as an individual. As **Quigley (1961, pp. 338-339)** explains:

"**The democratic and individualistic aspects of the Western outlook ... go back, like other aspects, to the New Testament.** ... This outlook assumes, first, that there is a truth or a goal for man's activity. Thus it rejects despair ... It implies hope, order, and the existence of a meaningful objective external reality. ... **Thus this outlook rejects smugness, complacency, pride, and personal authority in favor of the Christian virtues ...**"

The "truth" or "goal" of man's activity to which Quigley alludes is that man is to glorify God. **Since God is**

kind and merciful to the believer, the Christian can exercise this responsibility in the expectation that God will uphold him in the day of adversity. This optimistic view buoyed up the efforts of believing scientists and influenced even the outlook of unbelievers. Despite the departure of the West from biblical teaching since the 1800s, this optimism -- a legacy of Christianity -- remains (**Quigley, 1961, pp. 336-337**):

"The Western outlook is optimistic because it believes that the world is basically good and that the greatest good lies in the future. ... Western ideology believes that the material is good and the spiritual is better but that they are not opposed ... **Western ideology believed that the world was good because it was made by God in six days and that at the end of each day He looked at His work and said that it was good.** This meant that the world was a comprehensible place (one of the basic ideas of Western science) ..."

In contrast to the fatalism of the Greeks, this optimism imparted a willingness to endure years of grueling attempts to discover the secrets of nature. As Quigley notes, this optimism was also rooted in the biblical doctrine of divine fiat creation.

Thus the Christian origin of modern science depended on the belief in biblical creation are related (Jaki, 1985, p. 42):

"The newly established universities [of Medieval Europe] taught everything ... from the Christian perspective, **the cardinal and essential point of which is the dogma of creation in time.** This dogma means that the past history of the world is finite, that there is a point back in history where all motion had to start. This perspective was inconceivable, or at least repugnant to the Greeks, but was most natural for Christians."

The science in Newton's laws of motion, for example, would not have occurred in a culture like Greek culture that rejected biblical creation. Evolutionary origins views have held sway for millennia in the East. In the 1800s as William Carey and his successors evangelized India, they reformed pagan societal traditions. *Sati*, ritual widow burning, came to an end. They also taught the truth of biblical creation.

With God as Creator and with man accountable to Him as a steward (Gen. 1:28-30), the world was seen as a place to be improved for God's glory (Lal, 1998, p. 82). Scientists of the 1800s viewed science as a primary strategy to accomplish this goal. According to a prayer found in the papers of physicist James Clerk Maxwell (1831-1879) after his death, the scientist should develop technology to lighten the lives of peoples otherwise struggling to survive, so that with their physical needs met, they may come to reflect on the truth of the gospel and receive Christ as Savior (**Campbell and Garnett, 1882, p. 323**):

"Almighty God, Who hast created man in thine own image, and made him a living soul that he might seek after Thee ... **teach us to study the works of Thy hands, that we may subdue the earth to our use,** and strengthen the reason for Thy service; **so as to receive Thy blessed Word, that we may believe on Him Whom Thou hast sent,** to give us the knowledge of salvation and the remission of our sins. All of which we ask in the name of the same Jesus Christ, our Lord."

Maxwell's vision is fast disappearing. Some of the reforms that Carey initiated in the Subcontinent are in danger

of being reversed. There is talk of reviving *sati*. In modern India the decline in the teaching of creation, a declining interest in science, and the ability to continue societal reforms are all related (**Mangalwadi and Mangalwadi, 1999, pp. 103, 105-106**):

"[W]hy don't Indian Christians today walk in Carey's footsteps, in this area of reform? ... [The answer is that many] segments of the Christian church today have ignored [the] basics of their doctrinal heritage. ... **"Even before Carey's time, the doctrine of creation as taught in Genesis 1 had already given birth to the inductive method of knowledge [as mentioned by Jaki above].** ... The lack today of a similar interest in the natural sciences in the Indian church is rooted in a spirituality that sees God as Savior, but fails to appreciate Him as Creator."

The doctrine of biblical creation is still crucial for ensuring the long-term advancement of science.

A third Christian teaching which fostered modern science is that the believer has a "calling" from God. Historian Charles Murray maintains that (1) excellence requires a sense of vocation, (2) Christianity has been a major factor in the success of the West in the arts and sciences, and (3) excellence suffers and even declines as the classic sense of vocation declines. Yet Murray is not a Christian. He is a professed agnostic (**Murray, 2003, p. 619**). He writes (**Murray, 2003, pp. 393-394**):

"[H]uman accomplishment is fostered by a culture in which the most talented people believe that life has a purpose and that the function of life is to fulfill that purpose. ...

"The willingness to engage in [excellence] in the sciences and creative arts is related to a sense of vocation. By vocation, I have in mind the dictionary definition of "a function or station in life to which one is called by God." I hedge on the necessity of God as the source. ... **[A] person with a strong sense of this is what I have been put on earth to do is more likely to accomplish great things than someone who doesn't.** ...

"People who see a purpose in their lives have a better chance of creating enduring work than people who don't, because the kind of project they work on *does* make a difference to them. ... [To] believe life has a purpose carries with it a predisposition to put one's talents in the service of whatever is the best -- not the most lucrative, not the most glamorous, but that which represents the highest expression of the object of one's vocation."

THE CHRISTIAN REFORMATION FOSTERED MODERN SCIENCE.

The greatest scientific strides were in the century immediately following the Christian Reformation, showing the close relation between Christianity and the origin of modern science. Historians of science claim that **the 1600s were the greatest century in science in the last 2000 years:**

"Here and there, in the history of human thought and action, we find periods to which the epithet 'great' may

properly be applied ... in the domain of science the seventeenth century, the 'century of genius' ..." (Jeans, 1950, p. 160).

"[S]ince the rise of Christianity, there is no landmark in history that is worthy to be compared with [the 1600s]" (Anthony, 1961, p. 9).

The scientific investigations of 1600-1800 began bearing technological fruit in the Industrial Revolution of the 1800s. As with the rise of modern science, the Industrial Revolution was a uniquely Western phenomenon that has now overspread the globe. **Lal (1998, pp. 17-18) has pointed out that the Industrial Revolution cannot be explained by favorable political changes alone.** There were underlying causes:

"[A] whole host of economic historians -- for example, Hicks, North, Jones, Rosenberg and Birdzell -- **have seen the rise of the West**, and the economic transformation it represented, **as in part stemming from the political changes that accompanied the slowly rolling Industrial Revolution.** Briefly, these tied the hands of governments, stemming if not stifling their predatory instincts. Intensive growth followed. ... **These political prerequisites of 'capitalism' ... should, if our argument so far is correct, have had cultural prerequisites.**"

What were these "cultural prerequisites"?

Himmelfarb (1994a, pp. 168-169) points out that by the 1800s, Christian teachings had infused much of Europe, especially England, to such an extent that **the norm was for ordinary people to aspire to achieve, and to help others do the same.** This desire for achievement was often manifested scientifically.

A Reformed teaching that could have hindered science was the belief in predestination untempered by acknowledgement of man's free will. **Murray (2003, p. 619)** claims that, "[O]ne could argue that ... **the Calvinist doctrine of predestination should have had a depressing effect on autonomous efficacy, not an energizing one.**"

The believer could do nothing to control his inclusion in the elect, and one could not logically expect to exercise meaningful control over nature, either. **A belief in only the sovereignty of God with no acknowledgement of human free will amounts to a fatalistic view like that of the Greeks.** But the Reformed emphasis on predestination did *not* lead to this outcome (**Murray, 2003, p. 619**):

"Weber's original essay deals with this issue most effectively [**Weber, 1958, pp. 113-115, 121**]. Simplifying radically, **insofar as predestination was a felt belief (it was not, for many Protestants), its practical effect was to inspire achievement as a visible proof, to oneself as well as to others, that one was among the elect.**

Protestants often did not consistently apply the Reformed concept of predestination to their lives. Those who did sought to "confirm" their election by rising to heights of accomplishment, often in the sciences.

THE ROMAN CHURCH DID NOT FOSTER THE GROWTH OF SCIENCE.

Predating the Reformation, the Roman Catholic hierarchy had actually squelched not only scientific activity but innovation of

other sorts as well. All hierarchies have an innate tendency to ensure their survival at the expense of outsiders, and the Roman Church was no exception. **Tawney (1926, p. 32)** described the situation:

"From the middle of the thirteenth century a continuous wail arises against the iniquity of the Church, and its burden may be summed up in one word, 'avarice.' At Rome, everything is for sale. What is revered is the gospel, not according to St. Mark, but according to the marks of silver."

All activities permitted beyond basic survival needs carried a price tag imposed by the Roman Church for its own benefit. **Any innovation or belief which the Roman Church did not control and could not sell was heretical.** This greed spawned the Inquisitorial policy of endless persecution, for lands and property could be confiscated from a heretic. Jesuit **Peter de Rosa (1988, pp. 168-170)** presents a typical case:

"Elvira del Campo came before the Tribunal of Toledo in the year 1568. A young woman, she had been pregnant when she was arrested in July the year before. Her baby was born in prison at the end of August, though it was not known what happened to it. The charge against her was that she never ate pork and she put on clean underclothes on Saturdays. **The presumption was that she was a crypto-Jewess.** ... [Pork] made her sick [and her] mother also taught her to change her underclothes on Saturdays. For the young girl, none of this had religious significance. ... The witnesses agreed Elvira was charitable to everyone and went regularly to mass and confession. ...

"Elvira was not burned. Most of the judges were for leniency. She had spent over a year in gaol. **Her property was confiscated;** she was ordered to wear the robe of shame; she was sentenced to serve three more years in prison. For some reason, perhaps insanity, she was released after six months. The case was closed.

"**Elvira del Campo must stand as representative of many thousands of victims.** A devout Christian, she was imprisoned and tortured without mercy by the pope's representatives in the pope's name. Her one crime was that she did what Jesus did throughout his life."

Virtually all of life was subject to Inquisitorial review and judgment (**de Rosa, 1988, p. 167**):

"[I]nquisitors arrested people for eating meat on Friday, omitting their Easter duties, **reading the Bible**, saying it is a sin to persecute for conscience's sake, speaking ill of a cleric -- priest or bishop. Any jibe against his Holiness was an indictable offence, even when uttered by a man in his cups. **Any departure from the life of the community was proof of heresy meriting death.** It is clear from this that the aim of the Inquisition was to defend not the faith but the papal system. As one victim of the Inquisition concluded: 'It is safer to discuss the power of God than the power of the pope.'

"Other charges dealt with as heretical were sacrilege, blasphemy, sorcery, sodomy, non-payment of taxes to the pope and the clergy, saying that usury is not a sin. **Any baptized person who did not light a fire on a cold Sabbath was**

presumed to be a covert Jew and merited death at the stake."

Right actions were not sufficient to escape the clutches of the Inquisition. The mere supposition of wrong beliefs privately held was sufficient to bring down crushing judgment (**de Rosa, 1988, p. 167**):

"The ultimate injustice was being accused of thinking heresy. For the Inquisition, orthodoxy was not only speaking the truth and acting in an orthodox (that is, papal) manner; it was also thinking as the pontiff would have a person think. **If under torture a prisoner proved he had never said or done anything heretical, he could still be punished for his inmost thoughts, his doubts, his temptations."**

Doing science requires thought, but such thought was risky in the centuries of Roman Church hegemony. Eventually the Inquisition compiled the *Index of Forbidden Books*, making it officially heretical to read anything the Roman Church did not approve. Book-burnings were a regular occurrence (**de Rosa, 1988, pp. 173-174**):

"The less amusing side of the Index was that in Paul IV's time there was such a blaze of books that publishers feared for their livelihood. **Authors, valuing their skins, stopped writing altogether. Free thought and expression came to an end in papal Italy, never to return.** The effect of this on the Curia, and via the Curia on the Catholic church was incalculable. ... **This apparatus of repression, so dear to totalitarian regimes, has done great harm to the spirit of free enquiry in the church.** It explains why in so many areas -- theology, the Bible, even science -- contributions from Catholics have lagged behind the rest of the academic world. **Scholarship withers in a climate of fear."**

The "apparatus of oppression" survives in the Islamic world, and explains why the Islamic world became scientifically backward. As **Lewis (1982, p. 238)** writes:

"The older sciences lingered on for a while in the remoter lands of Islam, but from this time onwards [the early 1800s] science means modern Western science. There is no other."

WHY DID CHINESE CIVILIZATION FAIL TO ADVANCE SCIENTIFICALLY?

British scholar Joseph Needham, "the leading scholar of Chinese science" (**Lal, 1998, p. 208**), spent a lifetime studying Chinese civilization, concluding that **in China, the absence of Christianity meant the absence of science:** "[In Europe] the scientific revolution took place along with the rise of capitalism and the Reformation ... but none of them took place in China" (**Fisher, 1982, p. 13**). Needham was a self-proclaimed agnostic, so his recognition of Christianity's influence in Europe was quite significant.

The science China has today is Western. Yet China is the world's oldest civilization, and has had its share of gifted sages, philosophers, and technologists over the millennia. **A millennium ago China seemed to be on the verge of intensive scientific development like the West has experienced since the 1600s (Lal, 1998, p. 42):**

"But the really extraordinary aspect of this medieval Chinese spurt [in science and technology in the Sung dynasty] was that it was also associated with remarkable scientific and technological advances ... **[It] had all the technical ingredients to devise those technological breakthroughs which are the hallmarks of the Western industrial revolution.** ... The Sung Chinese knew how to use coke instead of charcoal as fuel, and had developed a technique for making iron using coke before the 11th century."

In 1100 the Chinese were accomplishing technological feats the Europeans did not match until centuries later (**Jones, 1988, p. 76**):

"At the peak of coal usage (between 1050 and 1126) it was ... [used] for smelting, **something not paralleled in Europe until the eighteenth century** ... Only the technical developments of the late eighteenth century decisively reduced the price of iron in terms of grain in England ... below the Sung ratios of 700 years earlier."

The puzzle of Chinese science is not that it never existed, but that the high level of accomplishment did not continue (Murray, 2003, p. 237):

"The Chinese never completed the scientific project. They brought a consistently pragmatic curiosity to their inquiries and achieved extraordinary insight in individual cases, but **they never developed the framework that would enable the accumulation of scientific knowledge."**

Lal (1998, pp. 43-44) discusses the factors that brought Chinese technological development to an end:

"Elvin [1973, pp. 226-227] sees the reason for the failure of China to industrialize in the Western manner in the neo-Confucian reorientation of philosophic outlook in the fourteenth century. [The neo-Confucian movement was a reaction to Buddhism.] ... [By] moving away from the earlier Chinese view, which emphasized conceptual mastery of external nature, toward the new view, which emphasized introspection, intuition, and subjectivity, **'the new emphasis on Mind devalued the philosophical significance of scientific research by draining the reality from the world of sensory experience,** though in a less absolute fashion than did Buddhism'."

Chinese science failed for the same reason that Greek philosophy did not foster science. **The Pythagoreans in the fourth century BC placed human reasoning ability above observation, and so did the neo-Confucians in the fourteenth century.** In both cases, the displacement of observation and experimentation caused science to cease. Like the Pythagorean philosophy and its Aristotelian offshoot, neo-Confucianism stifled scientific inquiry (**Elvin, 1973, pp. 233-234**):

"[The] consequences of this [neo-Confucian] philosophy for Chinese science were disastrous. As the result of a highly sophisticated metaphysics **there was always an explanation -- which of course was no explanation at all -- for anything puzzling which turned up.** ... Given this attitude, **it was unlikely that any anomaly would irritate enough for an old framework of reference to be discarded**

in favour of a better one. Here then was the reason why China failed to create a modern science of her own accord, and the deepest source of resistance to the assimilation of the spirit of Western science both in the seventeenth century and later."

China's wrong turn toward neo-Confucianism was rooted in a much earlier rejection of primeval revelation concerning God as Creator (**Jaki, 1985, p. 41**):

"[The] Chinese of old failed in science because **they failed in theology.** Having rejected, sometime in the early second millennium B.C., their belief in a personal, rational, and transcendental Creator, a Lawgiver, the Chinese lost confidence in the ability of the human mind to fathom the laws of nature."

Having lost a legitimate reliance on the human mind to experiment and observe in the second millennium BC, the Chinese eventually glorified the Mind above all observation and experiment in the fourteenth century. **China's departure from divinely revealed truth was a long process over more than two millennia. It finally culminated not only in spiritual darkness but in scientific and technological darkness as well.**

Western science has prospered to a higher degree than Greek or Chinese science likely could have. The reason for this is the positive influence of Christianity on the West. **But the Greek and Chinese failures in science show there is no reason that Western science could not eventually end,** a thought to which we will return.

WHY DID ANCIENT INDIA FAIL TO ADVANCE SCIENTIFICALLY?

Like ancient China, India of old experienced periods of scientific and technological activity. And as in China, these fruitful periods failed to materialize into sustained and productive scientific growth. **Lal (1998, pp. 32, 33, 35),** a native of India, maintains that **the West brought growth to India in the form of colonialism, and that there were really no prospects for growth before then:**

"**It was the British Raj, particularly in its pre-Mutiny reforming zeal, which introduced various legal innovations that overturned traditional Hindu law,** based as they were on the principles of universalism, rationalism, and individualism.

"... Two aspects of this legal modernization under Western influence are of importance for our purpose. The first is that in contrast with the ancient Indian tradition, the British under Cornwallis introduced the novel idea of the separation of the judicial and executive functions of government. ... This has been of profound significance, insofar as **it has allowed democracy to flourish, and also despite corruption and the law's delays, a Western legal tradition governing commerce and contracts has taken root.** Also unlike many other colonialists, the British powers, since Macaulay's famous minute [due to William Carey's influence as discussed below], encouraged and promoted Western education among their subjects.

"**I could find no evidence, despite nationalist hagiography, that there were any prospects for indigenous Promethean growth emerging in medieval India, growth supposedly blocked by British colonialism."**

Lal (1998, p. 141) views colonialism as having been beneficial not only for India, saying that, "The importance of Hong Kong for the development of southern China **lies in its colonial institutional and legal system ...**" Hong Kong's colonial legal legacy survives today, making it the economic powerhouse of China.

Lal (1998, p. 80) concludes that before colonialism, the success of science in Europe and not India was due to the presence of Christian "ideology" in the former and not the latter:

"The rise of the West is really, as the title of a famous book by Trevor-Roper is called, *The Rise of Christian Europe* ... The church ... provided cultural unity to a politically divided continent. But this raises another puzzle. For this cultural unity was not unique to Europe but has been true of the Indian subcontinent for millennia. ... **So why did individualism and ... the instruments of Promethean growth, develop in Europe rather than in India? ... It is ... plausible to look for differences in the 'ideological' systems that underwrote their respective cultural unities."**

The colonialism that eventually brought growth to India had been tempered by Christian virtues so as to be compassionate rather than exploitive. A "monopoly of commerce" was the only motive for chartering the British East India Company on December 31, 1600 (**Moorhouse, 1983, p. 28**), but Christian missionaries eventually followed in the path of the avaricious British traders. **The most important of these missionaries was William Carey. It was chiefly through his reforms that the British Raj became benign.**

Carey's influence on India was immense and ought to be much better known (**Mangalwadi and Mangalwadi, 1999, pp. 17-25**). William Carey:

"... published the first books on science and natural history in India ... because he believed the biblical view that, 'All Thy works praise Thee, O Lord'" (p. 17).

"... was the first to make an indigenous paper for [India's] publishing industry" (p. 18).

"... introduced the idea of savings banks to India" (p. 18).

"... [was] first to campaign for humane treatment for India's leprosy patients" (p. 19).

"... established the first newspaper ever printed in any oriental language, because he believed that, 'Above all forms of truth and faith, Christianity seeks free discussion'" (p. 19).

"... founded India's Agri-Horticultural Society in the 1820s, thirty years before the Royal Agricultural Society was established in England ... because he was horrified to see that three-fifths of one of the finest countries in the world ... had been allowed to become an uncultivated jungle ..." (pp. 19-20).

"... began dozens of schools for Indian children of all castes" (p. 20).

"... was deeply concerned about the destructive cultural ramifications of astrology ... wanted to introduce India to the scientific culture of astronomy ... He knew that human beings are created to govern nature, and that the sun, moon, and planets are created to assist us in our task of governing" (p. 21).

"... pioneered the idea of lending libraries in the Subcontinent" (p. 21).

"... [was] the first man to stand against both the ruthless murders and the widespread oppression of women ... It was Carey's persistent, twenty-five-year battle against *sati*, widow-burning, which finally led to Lord Bentinck's famous Edict in 1829, banning one of the most abominable religious practices" (pp. 22-23).

"... transformed the ethos of the British administration from indifferent imperial exploitation to 'civil' service" (p. 23).

"... saw India not as a foreign country to be exploited, but as his heavenly Father's land to be loved and served ... Carey's movement culminated in the birth of Indian nationalism and of India's subsequent independence" (pp. 24-25).

Eastern religion did not bring science to India.

Christianity did, largely through William Carey.

Christianity via Carey also brought education to India (Mangalwadi and Mangalwadi, 1999, pp. 71, 100):

"Some historians believe that the modernization of India began on March 7, 1835. On that date Lord Thomas Babbington Macaulay advocated in his famous 'Minute on Education' that the East India Company ought to use its grant for public instruction, for English education. ... **Macaulay's Minute was actually the culmination of a process started by William Carey in 1792.**

"... Macaulay argued that England must follow this policy of improving India, even if improvement meant India's eventual independence."

EASTERN PHILOSOPHY HAS NOT FOSTERED SCIENCE.

Since Christianity has fostered science, it might be expected that non-Christianity has hindered it. This is Dawson's (1950, pp. 15-16) position: "[In] the West the spiritual power has not been immobilized in a sacred social order like the Confucian state in China and the Indian caste system."

In Confucianism and in the Indian caste system, there is an overarching personal sense that effort is futile because of fatalism (Barzun, 2000, p. 504):

"[The] ancient scriptures [of the East] such as the *Rig Veda* [have] a world in which Time, having little urgency, does not lead the mind to take movement and change as matters of prime interest. Hence a cosmos in which events have meaning but little force and repeat eternally. **Effort is futile; individuals are unimportant specks within the unchanging All in All.**"

Even more so than in ancient Greece, **Eastern fatalism involves an obligation not to step out of one's place to challenge or try things that are new.** Tradition rules. The respect for family and elders engendered by this mentality is attractive, especially in the modern West where individualism has shed most biblical constraints. **But the Eastern respect for others is not the result of Christian optimism. It is rooted in the very fatalism so damaging to science through the ages.** Murray (2003, p. 452) elaborates:

"Respect for tradition does not diminish the technical excellence of the work at its best, but it does militate against

variety and innovation. ... **The fuel of the scientific method -- nonstop debate and fierce competition to put the next brick of the edifice in place -- seems to demand individualism on the Western model.** Improvements in the state of knowledge can be made without it, but individualism is valuable for achieving breakthroughs."

The Eastern respect for tradition and loved ones explains the Oriental motivation to work diligently without letup. One is obligated to work hard to exalt the family honor, and Eastern fatalism suppresses thoughts of changing one's place. So the laborer works to exhaustion in the job where he finds himself. **This work ethic has made China and Japan the world's major retail exporters, but it is not a Christian work ethic.** The Christian work ethic equates service to man with service unto God as we glorify Him in our lives (Eph. 3:21, 6:5-8).

Further, the goods these countries are exporting are all of Western invention and design. **Alongside the Oriental reputation for hard work, there is an absence of innovation.** But innovation is required for science to advance. Murray (2003, pp. 407-408) claims that innovation is fostered most strongly by a sense of Christian "calling" or vocation:

"Creative elites in a culture with a strong sense of duty [as in Asian cultures] are more likely to work hard, and be better able to carry on an existing stream of accomplishment, than in a culture where the creative elite see life as a matter of amusement [as is increasingly true in Western culture]. But for the ignition of creativity, an additional sense of vocation is required. ...

[My] position does not require that the secular life be life without a purpose. Rather, I argue that it is *harder* to find that purpose if one is an atheist or agnostic than if one is a believer. It is harder to maintain devotion to that purpose over years of effort. Devotion to a human cause, whether social justice, the environment, the search for truth, or an abstract humanism, is by its nature less compelling than devotion to God. **Here, Christianity has its most potent advantage. The incentives of forgiveness of sin and eternal life are just about as powerful as incentives get.** The nonbeliever has to make do with comparatively tepid alternatives. ... **I am arguing that Christianity is an important variable, one of the most important in the story of modern accomplishment."**

The pantheism common to Eastern religions has also prevented the development of an Eastern science. In Christianity, nature is separate and distinct from man and from God, a view which Lal (1998, p. 82) describes as "Christianity's disenchantment of Nature." This "separateness" between nature and God leaves man free to experiment on nature without feeling that he is desecrating a god.

Through the 1800s, Western scientists frequently proclaimed that man is responsible to study nature. Maxwell's prayer mentioned previously focuses on man's responsibility to do science with an evangelistic goal. Oceanographer Matthew Maury (1859, p. 153) focused on the biblical command for us to be wise stewards of God's creation, a command fulfilled only by studying the creation scientifically:

"[The principle] according to which the physical machinery of our planet should be studied is that ... He that established the earth `created it not in vain; He formed it to be inhabited.' And it is presumptuous, arrogant, impious to attempt the study of its machinery upon any other theory ... *the earth was made for man*; and I submit that no part of the machinery by which it is maintained in a condition fit for him is left to chance, any more than the bit of mechanism by which man measures time is left to go by chance."

CLAIMS THAT PAGANISM FOSTERED SCIENCE ARE NOT SUPPORTABLE.

As the West moves away from the Bible, Western scholars are increasingly claiming that roots of science are to be found in the East. According to multiculturalism, all systems are of equal "value," so if Christianity produced science in the West, why shouldn't Confucianism have done the same thing in the East? "[In] a neat reversal of Max Weber's famous thesis on the role of Protestantism in the rise of Western capitalism, we now have an Eastern 'religion' -- Confucianism, neo-Confucianism, post-Confucianism -- being touted as the source of East Asia's success" (Lal, 1998, p. 2).

Lal does not accept this conclusion, but other scholars do. For example, Nathan Sivin (1990, p. 164) maintains that, "The historical discoveries of the last generation have left no basis for the old myths that the ancestry of modern science is exclusively European and that before modern times no other civilization was able to do science except under European influence."

David Landes (1998, p. 348) replied to Sivin's claim: "This is the new myth, put forward as a given. ... The myth is wrong, however, in implying a continuing symmetrical interaction among diverse civilizations.

"In the beginning, when China and others were ahead, almost all the transmission went one way, from the outside to Europe. That was Europe's great virtue: unlike China, Europe was a learner. ... **The vast bulk of modern science was of Europe's making. ... Not only did non-Western science contribute just about nothing (though there was more than Europeans knew), but at that point it was incapable of participating,** so far had it fallen behind or taken the wrong turning. This was no common stream."

The nation of India clearly shows that paganism has not fostered science. Mangalwadi and Mangalwadi (1999, pp. 28, 71, 77, 90, 102) warn that India's future is endangered by a pagan resurgence threatening to reverse the respect for life and the scientific progress wrought by Christianity:

"As India turns her back on the legacy of her reformers, her decline is predictable" (p. 28).

"The progress of India's reform has already been halted, and in some important respects Indian society seems to be reverting to its old evils" (p. 71).

"[Carey's] belief that conversion is a key to reform continued well into this century, at least until 1956 when Dr. B.R. Ambedkar converted to Buddhism with his half million followers" (p. 77).

"One result of Carey's success has been that, since his day, most Indians (including even those who believe in karma,

reincarnation, astrology, Brahmanical scriptures, etc.) now tend to agree that reform is possible. ...

"Today, however, it seems certain that we cannot take it for granted that this optimistic idea will continue to be the mainstream belief. ... The stage is set for the older Indian pessimism and fatalism to win over the older optimism ... undoing much of what Carey and the reformers who followed him had achieved" (p. 90).

"The strident movements and the human rights violations of the 1970s, 80s, and early 90s raise serious doubts about whether or not human rights and freedoms will last for long in India. **They cannot last if India chooses to forget the faith and spirit of her modernizers**" (p. 102).

WILL THE WEST SUFFER THE FATE OF THE EAST?

The New Testament teaches the priesthood of the believer and the Reformation also emphasized this doctrine. Reformers from Martin Luther onward rightly saw this doctrine as the biblical answer to the manmade priesthood of the Roman Catholic church. **The extra-biblical term for "believer priesthood" is individualism** (Lal, 1998, p. 153):

"[A factor in the rise of the West has been] the **unique importance of individualism** of the inner-worldly kind in the cosmological beliefs of the West, which have **engendered its scientific and material triumphs.**"

Individualism is a two-edged sword. History shows that when biblical morality constrains it, individualism is a productive force. When unconstrained, it results in chaos and anarchy. Lal (1998, p. 153) notes that:

"**This individualism has, however, until recently, been conjoined with religious beliefs based on guilt,** which has provided the personal ethics underpinning their social fabric."

To Lal, "religious beliefs based on guilt" are Christian beliefs in which personal redemption is preceded by awareness that one is guilty before God as a sinner. What is amazing about this accurate analysis is that Lal (1998, p. 8) describes himself as "a good Hindu"! In the 1800s with the rise of evolution, skeptics began rejecting biblical principles while trying to keep the civilized manners of Christian morality (Lal, 1998, p. 154):

"[British economist John Stuart] Mill, in *On Liberty* had presented **an optimistic version of human nature where even without religion individuals would be able to exercise self control.** ... Nietzsche ... who had first pronounced the death of God, would have none of this:

"Nietzsche, who took nothing for granted, least of all the virtues of self-control, self-restraint, and self-discipline, had contempt for those English moralists -- that 'flathead' Mill, as he called him, and that 'little moralistic female' George Eliot -- who thought they could secularize morality by divorcing it from Christianity. Beneath their 'insipid and cowardly concept "man" lingers the old 'cult of Christian morality.' **What these 'moral fanatics' do not realize is how conditional their morality is on the religion they profess to discard.** And it is only because of the persistence of that religion that, for the

Nietzsche proclaimed that "God is dead." Yet Nietzsche rightly foresaw the chaos awaiting the West should God die in the hearts of men.

THE "BELIEVER'S PRIESTHOOD" HAS BECOME UNBRIDLED INDIVIDUALISM.

Nietzsche's vision is slowly becoming reality. With the decline in biblical constraints on individualism, the "social fabric" has unravelled (Lal, 1998, p. 170):

"In the West, until the Enlightenment ... morality was underwritten by the guilt promoted by various Christian churches. The fear of God and burning in Hell was a potent goad to doing the 'right thing,' even in increasingly individualistic societies. **But once God died, this religious bulwark for the morality which provided the cement of these societies has been greatly eroded.** 'Anything goes' -- their current norm -- does not help to engender the requisite social virtues. **The attempts to found a secular morality based on reason rather than the revelations contained in the Holy Book, have failed.**"

Only biblical morality provides the "internalization of controls" required for individualism to be channeled productively. Otherwise, as Carroll Quigley (1961, p. 424) said a few weeks before his death in 1977, **even the application of comprehensive military controls (i.e., a police state) cannot prevent the descent of unbridled individualism into chaos:**

"[The] internalization of controls must be the preponderant influence in any stable society ... In our society, individual behavior can no longer be controlled by any system of weaponry that we have. In fact, **we do not have enough people, even if we equip them with shock weapons, to control the behavior of that part of the population which does not have internalized controls.**"

Individualism need not have degraded into complete anarchy for science to be prostituted to evil purposes. The mushrooming abortion movement is the most horrific modern case of science being applied to evil ends, all in the name of individualism. This is a very recent development. Until a few decades ago, the West for nearly 2000 years had abandoned the practice of abortion (de Rosa, 1988, p. 366):

"From the beginning, Christianity brought into the world a new respect and reverence for life in all its stages. The New Testament contributed to this with texts such as the child leaping for joy in Elizabeth's womb when Mary came to visit her.

"For Greeks and Romans, abortion and infanticide were an everyday occurrence. The ancients, in general, had no deep feelings for the early stages of pregnancy. This is partly explained by the fact that many thought that a being was not human until he drew his first breath. Aristotle looked on abortion as a necessity when population exceeded reasonable limits.

"Abortion manuals abounded, and there were professional practitioners. The embryo could be destroyed by purging the abdomen, by vigorous exercise, by bathing in

various concoctions, by the woman being bled, by the use of suppositories, by deadly drugs, by sharp instruments. Women submitted to this for many reasons: because their life was in danger, to hide their adultery, because they did not want to lose their figure. The wrongness of abortion was never grievous.

"Christianity, said Lecky, did mankind a great service when it 'definitely and dogmatically asserted the sinfulness of all destruction of human life as a matter of amusement or of simple convenience, and thereby formed a new standard, higher than any which then existed in the world.'

"'Thou shalt love thy neighbor as thyself' applied first of all to the little neighbor next to the mother's heart."

WESTERN CULTURE IS BECOMING A DEATH CULTURE.

The acceptance of evolution in the 1800s led to the widespread belief that man is only another animal, not a unique creature made in God's image. The baby in the womb was only animal protoplasm. By the 1960s, this belief was firmly in place within the public school system, and the abortion movement grew explosively (de Rosa, 1998, pp. 367-368):

"Beyond doubt, present attitudes to abortion point to one of the most amazing ethical reversals in the history of morals. **As late as 1939, there was not a single country in the world where a woman could freely choose to have an abortion,** though certain exceptions did exist. For instance, in Catholic Poland a 1932 law allowed abortion to safeguard the woman's health after rape or incest. Lecky and other late-nineteenth-century moralists would not have believed the current transformation possible. **Even prior to 1960, moralists would have found today's scene reminiscent of the Greco-Roman world before it was influenced by Christianity.** Twenty centuries after Christ, women are once again being aborted because it will ruin their holiday or their figure. ... There are [in 1988] 2 million aborted each year in Japan and America together, and perhaps as many as 800,000 in Italy. According to Colin Francome in *Abortion Freedom*, it is estimated that there are 55 million abortions a year worldwide."

The rising abortion scourge is in the East connected with a slow regression into ancient pagan practices, including sati (Mangalwadi and Mangalwadi, 1999, pp. 110, 112, 129):

"It is possible to imagine that a group of Hindus could decide that a revival of *sati* would be a symbolic necessity for ridding India of its cultural colonization by 'Christian England.' If a group decided to force a nationwide showdown on the issue ... **I have no doubt that the pro-*sati* lobby would win in India (just as the pro-abortion and pro-euthanasia lobbies have, for now, won in the West).** ...

"[This is because many] Christians today fail to stand up in defense of human life, because they think that only the human soul -- and not the human body as well -- reflects God's image. ...

"Our mistake today is that some who believe the Gospel look upon it merely as a means of private salvation, for going to heaven. They do not seem to realize that the Gospel is

The West is reverting to the Graeco-Roman disrespect for life. Even the Eastern world which had been influenced by Christian ideals is in danger of slipping back into life-destroying pagan ways. Even as these ominous developments occur, we are being assured that science in general, and medical technology in particular, can only make our lives better.

Science and technology are benign only as long as their use is constrained by biblical morality. **Otherwise, the West will share the fate of the East, in which science will have prospered for a few centuries, only to be displaced by gruesome pagan rituals.** There is no culture on record which, after a long enough departure from God, has not begun offering up its own lives as human sacrifices. In China at the death of an emperor, relatives and retainers were ritually sacrificed (**Topping, 1978, p. 440**). Will this eventually be the fate of the West?

CONCLUSIONS

Without Christianity, modern science would not have happened. This conclusion does not mean that all great scientists were Christians. It does mean that science has prospered when scientists, believers and unbelievers alike, have pursued their scientific interests in a culture respecting Christian principles.

Since the rise of modern evolution in the West in the 1800s, the West has been steadily shedding its allegiance to biblical revelation and moral constraints. Meanwhile there has been an increasing dependence on the supposed ability of the human mind to find truth through thought and logic. **The Western mindset more and more is resembling the Greek outlook of about 400 BC, and the Chinese outlook of about 1300.**

This shift is perhaps best seen in the persistent determination of the scientific establishment to regard evolution as "science," despite overwhelming evidence against it. On the basis of "thought experiments," we are told how the cosmos must have evolved, despite the absence of supporting observations and experimentation. But thought is not an experiment! This mentality is sweeping across all scientific disciplines, not just origins studies. Space does not permit a complete discussion of this topic.

A culture charting a course away from divine revelation never perceives its scientific and moral danger. But history reveals that exaltation of the human mind above observation and experimentation failed the Greeks and the Chinese. This outlook will also fail the modern West.

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