The Rise of Modernity at the Intersection of Science, Business, and Religion

Background on the Place of Religion in the Modern World

Introduction

In 1873, John William Draper, the English born son of a Methodist pastor, and at the time in the end of his career as a chemistry professor in the US, published a book titled, *History of the Conflict Between Religion and Science* (available online at: [http://www.gutenberg.org/ebooks/1185](http://www.gutenberg.org/ebooks/1185)). A little more than two decades later in 1896, Andrew Dickson White, co-founder and first president of Cornell University, published another book with a similar title, *A History of the Warfare of Science with Theology in Christendom* (also available online at: [http://www.gutenberg.org/ebooks/505](http://www.gutenberg.org/ebooks/505)). As their titles suggest, these books, written in the wake of Charles Darwin’s *Origin of Species* (1859) and *Descent of Man* (1871), pressed the argument that science and religion stand in fundamental opposition to each other, that they always have, and that they always will until the rational and intellectual clarity of science replaces superstitious and weak-thinking of religion as the preeminent authority for truth. The combined weight of their argument were convincing to many people, helping to cement the impression that lingered well into the 20th century of science and religion in perpetual conflict.

Yet as influential as the books by Draper and White – along with others that they helped to inspire - proved to be, they have not been the final word on the matter. Do a quick Google search using terms like, “science and religion,” or even “science vs. religion,” and you will turn up far more websites that describe and argue for the compatibility or even the complementarity of science and religion than their opposition or hostility. The more favorable impression reflected in these recent sources arises in large measure on more careful and thorough historical research than the often simplistic and incomplete analysis offered by Draper and White, and those who took their work as the authoritative, if not final, word on the matter.

The purpose of this essay is to trace in broad strokes the history of the relationship between science and religion, with particular attention to the role of that relationship in creating what we have come to know as the “modern” world. In our discussions in class, we also bring economics and the world of business and commerce into the discussion as well. The aim is to provide background, context, and perspective for our considerations of the relationship between science, business, and religion today.

As you read, consider what information confirms your existing impression about the relationship between religion and science, what information alters that impression, and what questions or issues would you like to discuss or investigate more.
Defining “Modern”

Periods of history are difficult to define with any precision. They also are arbitrary, meaning that the criteria for what constitutes a particular “period” often reflect the values, ideals, and perspectives of the present as much as they capture the essence of the past.

The term “modern” as a historical period came into use during the time also known as the Renaissance, a word that means “re-birth.” The Renaissance was a movement that occurred in Western Europe, roughly between the 14th to the end of the 16th centuries. Beginning in northern Italy, the Renaissance sought to recover what its advocates saw as the ideals of ancient Greece and Rome in literature, art, and language. Renaissance thinkers, writers, and artists saw the “re-birth” of these ideals from the past as a mark of progress for their own time. It was during the Renaissance that people who subscribed to these and other philosophical ideal began to refer themselves as the moderni, the modern ones or “those belonging to the present.” In turn, they came to refer to the time in which they lived as the “modern age.” By doing so, they sought to distinguish themselves from the preceding period, a “middle age” that fell between the ideal, golden age of ancient Greek and Rome and their own modern world. The “middle ages,” or Medieval (literally, the middle age) period, were also known to Renaissance thinkers as the “dark ages,” suggesting a time clouded in darkness and ignorance now being dispersed through the Renaissance inspired its recovery cultured learning.

It should be noted, however, that today’s historians of the middle ages take great exception to that depiction and see that period also as a time of great vitality and interest.

The term “modern” remained in use far beyond the time of the Renaissance. Well into the 20th century, people in the Western world commonly described their time in history as “modern,” applying the term not only to the fields of literature and the arts but particularly to a way of thinking shaped by the contributions and authority of science.

The “Scientific Revolution”

What we know today as “science” also had its beginnings in the time of the Renaissance. You may be familiar with the term “scientific revolution” to describe a series of discoveries and transformation in methods for the study of the natural world that emerged across Europe in the 16th and 17th centuries.

In the minds of many people, Nicolaus Copernicus (1473-1543) stands as a symbol for the beginning of the scientific revolution. His major work, On the Revolutions of the Heavenly Orbs, offered a mathematical model of the universe that placed the sun, not the earth, at the center of the cosmos. Two persons who adopted Copernicus’ model and gave it further credibility were Johannes Kepler (1571-1630) and Galileo (1564-1642).

Some have argued that these changes represent a move away from a religious understanding of the world to a secular mindset, meaning that people more and more lived their daily lives without any regard for religion or a spiritual dimension of human existence, and, eventually, in an explicit rejection of religion and spiritual reality altogether. As is often the case, however, the reality for more complex than that.

First, it is important to note that Copernicus, Kepler, Galileo, and virtually all others identified in history as leaders of the “Scientific Revolution” were not at all hostile to religion. In fact, most of these leading figures were deeply religious. Kepler, for example, claimed that the work of the astronomer and mathematician was a divine calling and believed that in his own effort to understand the nature and structure of the cosmos he was discovering the very thoughts of God. Galileo, despite his troubles with the official church, remained a committed Roman Catholic until his death. The issues leading to his famous – or infamous - trial by the church involved more than questions of the authority of the church and the Bible in deciding questions about the natural world. The entire affair was also complicated by matters involving church politics and Galileo’s own prickly personality.

What thinkers like Kepler and Galileo did discover from their work is that the results of their investigations at times conflicted with the information about the world contained in the Bible. This led them not to reject the Bible as an outdated source but to read and interpret the Bible in a new way that preserved, in their view, the authority of the Bible as a religious text while valuing what God had also created through the natural order. They recognized that the Bible is a historical document, written long ago by and for people with a very different understanding
and awareness of the natural world than people of the 17th century. No one living in the ancient world could understand, for example, that the sun and not the earth is the center of the solar system, so the Bible was written in a way that fit – or accommodated – their sense of the world. The point was simply not important for the religious purposes of the Bible.

For knowledge about the world, Kepler, Galileo, and many others believed that God revealed truth in a different way, namely, through nature itself. In that sense, both the investigation of nature and reading the Bible are ways of studying God’s revelation, but in different ways and with different aims. When the information we receive through nature and the Bible conflicts, God’s revelation in nature takes precedent over the Bible in matters relating to the natural world, while the Bible remains the supreme authority over the “higher” truths of humanity’s spiritual nature.

Renaissance and Reformation

In the meantime, the Protestant Reformation, an event that overlaps with the Renaissance as a historical movement, broke out over Europe and divided the Western or Roman Catholic Church in different and competing factions. We will look more closely later at the Reformation and the relationship between some of its main figures – particularly Martin Luther – with the emerging ideas of the time regarding the natural world and the economic order. For now, suffice it to say that by the time Kepler and Galileo died, wars of religion had broken out across Europe. While these wars were driven by political and economic as well as religious interests, the impact was devastating not only on the actual lives of people who suffered as a result – somewhere around 30% of the population of Germany alone died from the direct or indirect effects of these wars – but also provoked a crisis in the way people thought about religion as a source of truth. If the churches themselves cannot decide who speaks for God, then how reliable is religion as a source of authority for human knowledge in general?

The Enlightenment

In the search for a replacement for religion and divine revelation as a source for truth, reason emerged as a leading candidate. The evidence for reason as a higher authority for truth seemed compelling enough; every sane person has it, it is independent of any other controlling authority like the church, it can be tested by experience, and when employed properly, everyone relying on reason should come to the same conclusions. At least, such were the assumptions. The movement that developed out this commitment to reason as the highest authority for truth became known as the Enlightenment, the term itself suggesting a brighter and clearer understanding of truth than religion could deliver.

While many Enlightenment thinkers had negative views toward the organized religions of their time, they were not necessarily atheist in their thinking. Many of them firmly believed that belief in God was entirely rational and even necessary to account for the existence and order of the world. Many also claimed that God was needed for there to be a moral standard, and even that an afterlife is necessary so that ultimately good can be rewarded and evil punished. Just as God created an ordered universe, so God also created a moral order for humans to follow, with rewards and punishments as the rational and necessary consequence of a rational natural and moral universe.

What Enlightenment thinkers denied was belief in a personal God who is daily involved in the affairs of the world through miracles and the like. They also questioned many of the doctrines of the church concerning, for example, the divinity of Jesus, and the role of church authority in determining questions of truth. This Enlightenment view of God is often referred to as Deism.

The image of God as a clockmaker and the universe became a popular notion in the early years of the Enlightenment. Once a skilled clockmaker fashions a clock, the clock should be able to function on its own without the constant tinkering of the clockmaker to keep it going. In the same way, a well-designed and constructed universe should not need God’s constant involvement to keep it running. Miracles, then, could even be taken as a sign of God’s ineptitude rather than as a demonstration of God’s power.

The Enlightenment flourished in the 17th and 18th centuries and had a significant impact on not only scientific thinking but also on the political developments of the time. Many of the leaders of the American Revolution and the French Revolution were directly influenced by Enlightenment thought and were committed to its principles. Their rejection of rule by kings and the embrace of democracy also reflected a
shift in authority from institutions to individuals. Since reason, as the highest source of authority, is available to all people, the authority of institutions and rulers ultimately comes from the collective will and decision making of individuals, not from God or by divine right. With this shift in thinking, the role, importance, rights, and autonomy of the individual moved more and more to the center of modernity’s understanding of human nature and identity.

The 19th Century and the Age of Progress

In the meantime, advancements in science continued. Around the middle of the 19th century Charles Darwin (1809-1882) published his particular theory of evolution that, for many people, threatened the belief in humanity’s creation in the image of God. At the very least it called further into question a literal reading of the Bible.

By this time, science had become more and more dominant as an authority for truth, primarily because it succeeded extremely well in doing two things: 1) providing explanations for the way things work in the world, and 2) allowing people, on the basis of those explanations, to do things they could not do previously.

Consider, for example, some of the innovations and discoveries from the 19th century: the steam engine that led to railroads and steam-powered ships, means of mass production that made factories more efficient and lowered the costs of goods and products, advances in medicine, including the use of vaccines, further discoveries in biology, such as in the field of genetics that lent support to Darwinian ideas on evolution, advances in astronomy, including the discovery of new planets, and the list goes on and on.

The net effect of these developments was to give people a sense of progress in human civilization, progress achieved without any apparent divine assistance or even a need to recognize God at all. If anything, these advancements gave people a sense of optimism about the potential of human nature relying on its own abilities, with God becoming increasingly irrelevant.

This optimism about human nature was supported, in turn, by a sense of social and political progress, reflected in experiments with democracy and increasing resistance to government by monarchy. The creation of the social sciences, such as psychology and sociology, offered the promise of better understanding of human nature that would lead people to better ways of treating each other as individuals and as fellow citizens. Problems remained, to be sure, as evidenced by political revolutions and protests over working conditions in factories. But these problems were believed to be temporary; the greater trend was toward a better society within reach of humanity through its own power and goodness.

Religion in the Age of Progress

Key to all of these developments was the sense that what we need as humans is better understanding based on better knowledge. Not only did the knowledge and claims of religions and their sacred texts seem irrelevant to the modern world, but many of the assertions of religions and their texts, such as the Bible, contradicted the truths that the natural and social sciences were uncovering.

Religion, particularly Christianity in the West, tended to respond to these developments in one of three main ways. The first approach identified with the modern period’s sense of progress and attempted to adjust religious views and claims in a way that was consistent with the scientific, social, and cultural views of the modern world. The theological position described by this first approach became known as liberal theology. “Liberal” here does not mean quite the same thing that it has come to mean in today’s political sense. The term “liberal” actually means “free.” Liberal theologians “freed” themselves from the bounds of what they viewed as outdated theological doctrines and formulations and attempted to offer a view of religion more relevant to the modern world.

In doing so, liberal theology believed that it was offering a more authentic view of what true Christianity always intended to be. In a way somewhat similar to Kepler and Galileo centuries before them, liberal theologians recognized that the message of the Bible, and the beliefs of the early church expressed through its creeds, are often cast in language that reflects the thinking and perspectives of ancient people but which should not be taken as essential to the actual meaning of the Bible or the truth of Christian faith. The tasks of biblical interpretation and theological reflection, then, were to distill this essential message from these early authorities and present it in a way that was relevant and compelling to the modern world.
Liberal theology’s attempt to find the “essence of Christianity,” as the task was often described at the time, resulted in a message that fit well with the optimism that the modern world had to offer. Rather than depicting humans merely as fallen, sinful creatures incapable of living up to the standards required by God, liberal theology stressed the moral capacity of humans to live responsibly.

Its version of Christianity stressed the importance of ethics over doctrine on matters such as the nature of Christ’s divinity, and Jesus’ role as a teacher of an ethical ideal took precedence over claims about his identity as “Son of God.” He was born into the world not so much to save humans from their sins by dying on the cross but to show us how to live, with his own death serving as an example of service, sacrifice, and commitment to the kind of life that he himself lived. Heaven was regarded less as a state of eternal life for the soul than as the ideal of the perfect kingdom for which we should strive while on earth.

The second response went to the other extreme. Against the claims of the modern world represented by science and historical research, this alternative view stressed a literal interpretation of the Bible. Accordingly, science and history simply erred when they contradicted information in the Bible. Furthermore, this error on the part of history and science only helped to illustrate how misguided the modern world had become in taking a turn toward the secular and away from the sacred. For many who subscribed to this view, Darwin’s theory of evolution was a particular sign of how misguided the modern world had become in its belief, setting the stage for battles between the followers of Darwin and believers in a literal reading of the Bible, between evolution and creation, science and religion. These battles continued well into the 20th century.

In the early part of the 20th century, the term fundamentalism came to be used to identify the most extreme forms of this type of response. The term comes from a series of short works under the title, The Fundamentals, published as pamphlets between 1909-1915. The authors of these pamphlets, confronting what they saw as the threat posed by modern ways of thinking, claimed that certain doctrines or teachings are basic, that is, fundamental, to Christian faith. These included the inerrancy of the Bible, the virgin birth of Jesus, the death of Jesus as a sacrifice for human sin, the resurrection of Jesus, and the second coming of Jesus.

Not long after these pamphlets appeared, Christians who took a very conservative position (again, theologically, not necessarily politically) and who read the Bible literally while asserting its claims over the authority of human reason, became known generally as “fundamentalists.” Today, the term is often used even more broadly and applied to members of any religion who claim their religion or its sacred texts as the highest source of authority, not only for religious beliefs but for scientific, historical, social, and, at times, even political ones as well.

The third type of response to modernity encompassed the large group that can be described as “mainstream” Christianity, represented by the large denominations that dominated the religious landscape of the Western world, particularly in America. This group occupied the large religious space between the poles of liberal theology and fundamentalism. Like the adherents of liberal theology, it recognized the difference between the world of the Bible and modern times and recognized also that the authority of the Bible does not necessarily depend on a literal interpretation, at least not in all its parts.

These Christians felt at home in church on Sunday as well as in the world where they lived and worked during the week without feeling a contradiction. For the most part, they tended to recognize the Bible as the source of authority for their spiritual lives while looking to reason and science to guide them in their daily affairs and knowledge about the world. But they did not typically share liberal theology’s optimism about human nature and were much more committed to the traditional doctrines of Christianity, such as the divinity and resurrection of Jesus, the power of sin, and the need for salvation through the death of Jesus.

While Christians represented the largest religious group in the West, they were not the only ones to wrestle with the impact of the modern world on their religious convictions and ways of life. One positive impact of modernity and Enlightenment thinking on Judaism was the ability to participate more openly in society as Christian dominance in the cultural and political order weakened somewhat. Religious prejudice certainly did not disappear, but at least Jews were no longer confined to living in ghettos or expelled entirely
from cities and towns as they had been in the middle ages.

But Jews, like Christians, did not all respond to the developments of modern thought in the same way. Three of the major strands of Judaism recognized today reflect and illustrate the different Jewish responses to modernity. Reform Judaism, for example, emerged in the 19th century as heirs of the Enlightenment who sought to harmonize Judaism with modernity. Orthodox Judaism, by contrast, sought to preserve its version of authentic Judaism, as revealed by God to Moses, from what it saw as the corrosive effects of modernity and the ways of secularism. Not adaptation, as Reform Jews advocated, but the preservation of the pure, true religion of old was the agenda of the Orthodox. Conservative Judaism sought something of a middle path, maintaining the beliefs and practices of traditional Judaism in the context of life and thought in the modern world. The similarities, or at least parallels, with the liberal, fundamental, and mainline versions of Christianity are evident in these movements within Judaism.

The relationship between Islam and modernity is far more complex and difficult to describe. For one thing, Muslims in the 18th and 19th century were concentrated in areas outside of Western Europe and North America where the Enlightenment took root. As non-Western Muslims increasingly encountered Western ideas of what it meant to be “modern,” they did so through their own experiences, philosophical traditions, and historical contexts. These differences gave non-Western Muslims distinctive vantage points from which to evaluate, assimilate, or reject Enlightenment ideas about the role of reason as well as other Western values of the modern period. But similar to the case with Christianity and Judaism, the response of Islam was by no means uniform. Some looked for ways to accommodate religious belief and practice to the modern world while others resisted accommodation. Still others searched for ways to maintain their traditional beliefs and practices while participating fully in modern, secular life.

Cracks in Modernity’s Walls

The advancements in human knowledge and in technological development ushered in through the modern period helped to confirm for many people the optimism and confidence in human nature and reason that the Enlightenment offered. While revolutions, wars, political upheavals, and other social problems and challenges continued to arise into the 19th century, these were regarded as the inevitable death throes of the old order and the necessary birth pangs of the new order on the way. Superstitions of the past, including religion, could now be discarded like outgrown, out of fashion, and tattered clothes that no longer served any useful purpose. The progress of the modern period gave ample proof that as human beings we were far better than our religions had made us out to be. Humanity, so it seemed, was about to come of age.

Then, in the second decade of the 20th century, came World War I, the “Great War,” as it was known at the time, bringing with it conflict and violence on a scale never before seen or imagined in human history. According to the optimism of the 19th century, World War I should not have happened. Human reason, properly used, was supposed to make us better than that. Instead, the war demonstrated humanity’s continuing capacity, and willingness, to take the results of our “progress” and turn it on ourselves. Technological advancements intended for human improvement became the means of our self-destruction. Airplanes were used for the first time in combat, and gas warfare introduced a silent, massive, and effective means of killing.

Still, some held out hope that we would learn from the tragic mistakes that led to the catastrophe and that the “Great War” would also be the “War to End All Wars.” That optimism also came crashing down two decades later with the outbreak of World War II. This conflict brought even greater advances in the art of human destruction through the tools of war, the Holocaust, and the harnessing of nuclear power for the purpose of unleashing it over Hiroshima and Nagasaki. Scientific and technological progress seemed to overload humanity’s moral and ethical capacities.

The Continuing Challenge to Religion

The crises of the first part of the 20th century posed a particular challenge to religion. How could the existence of God, much less the presence, love, and mercy of God in a world torn apart, be understood or even claimed in light of the tragedy of world war and the Holocaust?

These questions came on the heels of already existing doubts about the intellectual credibility of religion that already had taken root in the 19th century. The German philosopher Ludwig
Feuerbach (1804-1872) had argued that religion is an illusion based on the human need to find security in an insecure world. “God,” in Feuerbach’s view, was a “projection” of need and desire to overcome human limitations. “God” represented the fulfillment of what humans could not provide for themselves. Karl Marx (1818-1883) claimed that religion serves primarily as a means of social and economic control over the masses. Religion is “the opiate of the people,” convincing ordinary people to use their labor to serve the interests of the rich and powerful, and against their own interests, in the misguided belief that in doing so they are earning their reward in heaven. Sigmund Freud (1856-1939), the father of psychoanalysis, saw religion as a manifestation of neurosis. These and other attempts to define the “essence” of religion in general, and of Christianity in particular, built on even earlier historical investigations that applied modern tools of historical research to religion and the Bible. The results of these investigations, along with the advances in scientific knowledge already mentioned, raised further questions about the historical reliability of the Bible and challenged claims about the authorship of various biblical books. Confidence in the authority of human knowledge, even...

**Confronting the Challenge of Modernity: The Example of Albert Schweitzer**

One Christian theologian, among many who took seriously the modern critique of religion, attempting to offer a credible response, to modernity’s challenge was Albert Schweitzer (1875-1965). Schweitzer was one of the most remarkable personalities of his age: brilliant theologian and historian, accomplished musician and authority on J. S. Bach, physician, humanitarian, recipient of the Nobel Peace Prize, holder of three doctoral degrees.

Before reading further, go to the website: [http://www.nobelprize.org/nobel_prizes/peace/laureates/1952/schweitzer-bio.html](http://www.nobelprize.org/nobel_prizes/peace/laureates/1952/schweitzer-bio.html) and read the brief biography of Schweitzer.

The website article mentions Schweitzer’s 1906 book, *The Quest of the Historical Jesus*. This book was Schweitzer’s attempt to survey the research that had been done throughout the previous century on Jesus as a historical figure. Much of this research had concluded that Jesus as depicted in the New Testament, particularly in the gospels, is a reflection of the faith of the early church and not necessarily an accurate portrayal of Jesus as an historical figure.

As a representative of the “liberal” approach to Christianity described above, Schweitzer’s point was not so much to take issue with the conclusions of historical methods; in fact, he took historical investigations very seriously. Rather, his point was to consider the implications of historical research for the continuing faith and relevance of Christianity.

Schweitzer’s conclusions came to expression, among other places, in an autobiography he published in 1931, called *Out of My Life and Thought*. In one chapter of that book, Schweitzer described the challenge of reconciling religious claims with the modern world, while expressing the confidence that Christianity itself demands and encourages the pursuit of truth as the fulfillment of its own aims:

> Beyond this, the religion of love taught by Jesus [note that here Schweitzer focuses on the ethics of Jesus as the core of Jesus’ own religious ideal] has been freed from any dogmatism that clung to it with the disappearance of the late Jewish expectation of the immediate end of the world. [Schweitzer believed that the expectation of the end of the world had been an influential belief in Jesus’ own religious context but that slavishly holding on to such outdated ideas – what he means by “dogmatism” – distorts rather than preserves the true essence of religion.] The mold in which the casting was made has been broken. We are now at liberty to let the religion of Jesus become a living force in our thought, as its purely spiritual and ethical nature demands. We recognize the deep values of Christianity as transmitted by early Greek teaching and kept alive by the piety of many centuries. We hold fast to the Church with love, reverence, and gratitude. But we belong to her as men who appeal to the saying of the
Apostle Paul, “Where the Spirit of the Lord is, there is liberty,” and who believe that they serve Christianity better by the strength of their devotion to Jesus’ religion of love than by submission to all the articles of faith. If the Church abides by the spirit of Jesus, there is room for every form of Christian piety, even for that which claims unrestricted freedom.

I find it no easy task to pursue my vocation, to admonish Christian faith to come to terms with itself in all sincerity with historical truth. But I have devoted myself to it with joy, because I am certain that truthfulness in all things belongs to the spirit of Jesus.”

A younger contemporary of Schweitzer, the theologian Dietrich Bonhoeffer (1906-1945), better known for his role in the Nazi resistance movement and subsequent arrest and execution in the aftermath of failed plot to assassinate Hitler, took a similar position. Though Bonhoeffer did not reduce the essence of Christianity to the ethics of Jesus in quite the way that Schweitzer did, he nonetheless faced head on the meaning and relevance of religion in a “world come of age.”

Throughout the 20th and into the 21st centuries, many other voices have emerged that deal more directly and extensively than either Schweitzer or Bonhoeffer with the specific relationship between religion and science – both historically and in the contemporary context. But here they serve as just two examples of leading religious figures who contradict and challenge the impression created and left by such writers as Draper and White. Rather than resisting and challenging the advances in scientific thought and historical inquiry, Schweitzer and Bonhoeffer represent the thoughtful engagement between religion and modern thought with a shared interest in the pursuit of truth.

They also illustrate the importance of taking into account not only the advancement in scientific thought over time, but developments in religious thought as well. Religious claims and insights, as well as those of science, have developed over time and adapted to the contexts of a changing world. The relationship between religion science is not one characterized by today’s scientific knowledge at odds with ancient religious beliefs. Rather, it is shaped by the historical develop that have brought both religion and science into the modern world, even as science and religion have played key roles in bringing the modern world to us.

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