

Religious Responses to the Advancement of Science During the Gilded Age and the Progressive
Era
With Emphasis on Responses to Darwinism, Social Darwinism and Eugenics

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In the twenty-first century, America is in a unique position in the industrialized world with respect to its relationship to modern scientific thought. More so than in any modernized country, there is a strong perception that religion and science are in conflict with each other, particularly conservative religion. The conflict is not necessarily across all the sciences—although it can be—but instead the ire of conservative religion tends to focus specifically on evolutionary theory, medicine, and more recently climate change. This “war” between religion and science is nothing new, and on particular issues goes back many centuries, but most of these conflicts in the past have been temporary, and in time, the official church stance came around to, if not embrace, then at least not reject, the developing scientific consensus. However, the emergence of Darwinian Evolution has provoked special, long-term struggle. Beginning with the publication of *The Origin of Species* in 1859, and *The Decent of Man* in 1871, the conflict has burned hot and long, both in the academic sphere, but also in the public and political sphere, and has sparked legal conflicts that have shaped American constitutional theory. This historiographical essay examines the history of these developments, the perception of conflict (real or imagined), and how historians have view the formative years of this conflict in the Gilded Age, and through the Progressive Era, culminating in the Scopes Monkey Trial in 1920s following efforts to legislate against the teaching of Evolution. We will also examine how science was viewed during this period through the lens of Progressive Era eugenics programs inspired by Social Darwinism and explore how different the religious responses to the challenge of Darwin were: producing responses as varied as championing the theory to creating new religions. The implications of the conflict between this particular scientific theory and some theological claims sparked more widespread resistance to modernism that spread far beyond the conservative pulpit.

It was during the Gilded Age in America that the idea of a perpetual conflict between science and religion was born. Known to modern scholars as the conflict thesis, John William Draper was the first to publish this argument in *History of the Conflict Between Religion and Science* (1898, originally submitted to the Library of Congress in 1874).¹ It was followed by other books: *A History of the Warfare of Science with Theology in Christendom* by Andrew D. White (1896), and *Landmarks in the Struggle Between Science and Religion* by James Young Simpson (1925). All of these books were written by men who sought to advance science as an institution. Draper, a prominent scientist, and first President of the American Chemical Society.² As a scientist feeling under siege by the rejection of science by religious authorities, Draper's book proved to be among the most influential sources for the so-called "conflict thesis," that is, the view that science and religion are inherently in conflict with each other, and that the story of Western history can be framed as a sequence of events wherein religion persecuted scientists for views that would eventually be accepted as mainstream science, and supported uncontroversially by the evidence.³ Draper's book traces the history of the perceived conflict through his present day. Andrew D. White followed nearly two decades later, after the founding of Cornell University, for which he served as President, to be a haven for science at a time when most universities were founded as religious institutions. White's book addresses attacks on Darwin specifically by church fathers of multiple Christian traditions referring to Darwin as the head of an "infidel clique", and his theory as a "monstrous lie".⁴ None of these men focus exclusively on the reaction to Darwinian Evolution, but all see the reaction to Darwin as part of an essential struggle. Draper specifically believes that Protestants are rejecting central tenets of the Reformation by saying:

The Alliance failed to perceive that modern Science is the legitimate sister—indeed, it is the twin-sister—of the Reformation. They were begotten together and were born together. It failed to perceive that, though there is an impossibility of bringing into coalition the many conflicting sects, they may all find in science a point of connection: and that not a distrustful attitude toward it, but a cordial union with it, is their true policy.⁵

We can see the parallels here between the martial culture of the period and the themes evoked by the conflict thesis. Jackson Lears describes the martial spirit of the age as one of revitalization.⁶ Science was advancing rapidly in this period, and perhaps it was becoming too much for people to keep up with comfortably. The period would end with Relativity and Quantum Mechanics, both of which can be disturbing even to scientists for undermining such basic concepts as time, geometry and cause-and-effect. Scientists may have had the real sense of a need for martial revitalization as legal challenges to the teaching of evolution began to make their way through legislatures.

Interest in this period of apparent conflict between religion and science cooled through the long years of the Depression and through the end of World War II. The Red Scare renewed pushes for pro-religion legislation, which did sometimes result in renewed anti-science legislation, particularly with respect to the teaching of evolution. Religious minorities, non-believers and scientists took these controversies to court, resulting in a series of rulings abolishing organized prayer in schools, and banning the teaching of creationism. After the election of John F. Kennedy, the first Catholic American President in 1960, the banning of teacher-led prayer in public schools in 1963, and laws banning the teaching of evolution being ruled unconstitutional in 1968⁷, interest in the history of separation of church-and-state, and

religious responses to science were renewed. Books from the 1970s onward covered a wide range of religious responses to science. These books largely accepted the conflict thesis but examined different aspects of the ways this conflict manifested.

James R. Moore published *The Post-Darwinian Controversies* in 1979. His discussion begins, after Darwin himself, with the Draper book discussed previously. Moore takes on Draper's conflict thesis as, in part, being a response to the violence of the Civil War, rather than the lead-up to the Spanish-American War. Moore also looks at pre-Darwinian theories of evolution and the age of the Earth and how they shaped the debate over evolution. He examines Herbert Spencer, his advocacy for Darwinian Evolution in America, as well as his advocacy for Social Darwinism (a position not endorsed by Darwin himself). He also examines a variety of responses to Darwinism itself, including anti-Darwinian arguments, Christian Darwinism, and the impact of Darwinism on theology.⁸

Books similar to Moore's covering a similar, but slightly different, range of topics. David N. Livingstone's book *Darwin's Forgotten Defenders* (1984) was published only five years later. While Livingstone's focus was not so wide-ranging—he did not address later controversies such as Social Darwinism—he did look at the contrast between Christians that supported Darwinian Evolution, in whole or in part, with those that rejected it, giving the majority of the book over to supporters of various kinds. He also explored the theological commitments that impelled those that rejected Darwin to do so, and the impact that the development of natural theology in the decades that preceded Darwin had on religious thought. While Moore's book was certainly written with greater depth, we begin to see separation from the conflict thesis in Livingstone's work. Both books are trying to argue that religion is not inherently anti-evolution, but that specific theological commitments made certain strains of

religion go down this path. One notable factor in this view may be that both men live and work in the United Kingdom, where evolution is far less controversial than it is in the United States. This theme of the conflict between science and religion, and Darwinian Evolution and Protestant faith in America would reemerge as themes of books throughout the latter decades of the twentieth century and into the twenty-first century, include *Darwinism and the Divine in America* (1988), *Science and Religion* (1991), *Chronic Vigour* (1996), *Science and Religion: 1450-1900* (2004), *Negotiating Darwin* (2006), *The Evolutionists* (2007), *Storm of Words* (2014), *Private Doubt, Public Dilemma* (2015). Each of these books has the conflict thesis foremost in their argument, but each one attempts to either provide arguments that the conflict thesis goes too far, embraces it, or examines it from various narrow perspectives, including early America through Darwin, Catholic perspectives, immediate early reactions before the Civil War, and written by both Americans and non-Americans. It continues to be a perspective that fascinates those struggling to understand the place of evolution in America, even as new legal challenges over intelligent design and other aspects of public religion continue to be litigated in the courts.

Another approach to addressing the conflict thesis has been addressing scientific issues in the context of a broader history of religion in America, or within a particular Church. When Pope John Paul II opened an investigation into the condemnation of Galileo, the Catholic Church was forced to conclude in 1984 that “Church officials had erred in condemning Galileo”.⁹ This prompted some authors to approach the conflict these from a more sympathetic position to the Church. Their aim being to reconcile mainstream religious sentiment with acceptance of modern science. Books like *Roman Catholicism and Modern Science* (2006) by Don O’Leary and *A History of Religion in America* (2018) by Bryan F. Le Beau both address the conflict directly in

their histories of religion. O'Leary looks briefly at the years between Galileo and Darwin; but spends much of the book examining reactions to Darwin and antimodernism in the late-nineteenth and early twentieth centuries. Catholicism is a particularly interesting case because there are some scientific claims they embrace wholeheartedly, like the Big Bang, as evidence of their theological positions, while struggling to adopt others that challenge their views and are difficult to reconcile.¹⁰ Le Beau addresses the conflict between science and religion directly in an extensive chapter covering this period. He examines the responses of various religious traditions within Protestantism, as well as secular responses to critics of science. Though a comparative brief treatment of the period under examination here, his book nonetheless provides important details and historical context for these developments in later chapters.¹¹

With the renewed interest from court battles in the 1960s, also came the period of the Civil Rights movement, and so naturally, some of the interest in the controversies around evolution from the Gilded Age and the Progressive Era focused on the relationship of Darwinian Evolution, Social Darwinism and race. In addition to reacting to race questions and issues around Civil Rights, we also see responses to Thomas Kuhn's book, *The Structure of Scientific Revolutions* (1962), which argued for seeing scientific knowledge in the context of social thought of the period in which it was developed.¹² While this book did not go so far, Kuhn's later writing would eventually form the basis of a sustained intellectual attack on the validity of scientific claims that went well beyond evolutionary theory. We see some of these same themes emerge in the historical literature late in the twentieth century.

A direct attempt to examine the role of Darwinian evolution on race relations in the Gilded Age was a book by John S. Haller, Jr., *Outcasts from Evolution* (1971). Haller looks at the period between the publication of *The Origin of Species* and the (re)discovery of Mendelian

genetics and looks at how scientific-sounding arguments were applied to non-white races in an effort to justify public policy. Haller's discussion is particularly interesting as he highlights racial arguments that are familiar, as well as those that are poorly known. Some Progressives advocated a deliberate and selective interbreeding of the races to erase racial lines, while others turned to Social Darwinism to justify the elimination of members of "inferior" races that could not adapt to the technology and structure of white society.¹³ One particularly disturbing argument that appears repeatedly in reference to both native populations in the New World, as well as free blacks is the notion of "natural extinction":

The evidence of all these works seemed to imply that the psychic nature of the black race had 'never been enlarged and refined by selection in response to a progressive environment', and thus remained 'inferior...'. Since the black race was unable to harmonize its hereditary instincts... the 'magic of education' could do little to change centuries of savage culture.'¹⁴

The sense that blacks and American Indians would inevitably be wiped out by evolutionary forces of natural selection laid a fatalist pall over efforts to stop violence against these communities or to do anything to alleviate the crimes committed against them as a group. Blame for white actions was assigned to natural forces and minorities own "flawed" nature. That this coincided with Calvinist thought that those blessed by God would be blessed in this world, and those shunned by God would suffer in this world remain a strain in modern political thinking about race, and whether minorities or whites are responsible for racial suffering.

Robert C. Bannister wrote his book on Social Darwinism as a distinct phenomenon separate from Darwinian Evolution, which in many ways, aligned more easily with Calvinist theology than did Darwinism itself. Social Darwinism attempted to take on the glamour of

science without being scientifically supported, and played on public misperceptions of science to justify, as Moore states, “dramatizing alleged outcomes in a world without social conscience....”¹⁵ The fact that Herbert Spencer was a prominent public advocate of both Darwinian Evolution and Social Darwinism only served to confuse the two completely separate theories: one a biological theory, and one a social theory. Bannister’s goal with this book is to separate these two theories, so that it is clear to modern readers which aspects of Darwinian Evolution are scientifically supported, and how Herbert Spencer conflated his racial views with non-scientific ideas drawn from certain strains of religion prominent in the Victorian Era and the Gilded Age. The adoption of Social Darwinist thought by the titans of industry of the period to justify their own success and their exploitations of their workers provided even more prominent advocates of these ideas.¹⁶ The conflation of these two theories has inspired religious critics of Darwin to persist in conflating the two, because it is much easier to argue that Social Darwinism is an inevitable outcome of Darwinism when so many people already believe that, and that Darwinism is inherently immoral because of the things that Social Darwinism supports, giving some a straw man to attack rather than the scientifically supported theory of Darwinian Evolution. Evolution is therefore tainted by association, entirely neglecting the fact that unpleasant implications, even if true, do not make a scientific theory false. The fact that Darwin specifically rejected the idea of applying natural selection to social matters is also conveniently ignored by Spencer and his followers.¹⁷ To say, however, that Darwin was not racist, would be to go too far in his defense. Even as Bannister himself notes, Darwin was a product of his day, a time in which racism was commonplace, and egalitarianism with respect to race rare.¹⁸

Stephen Gottschalk published *The Emergence of Christian Science in American Religious Life* (1973) and represented the third strain of work we see developing in the 1970s: an

examination of the outright rejection of science, particularly medical science, not just evolution, and anti-modernism. Unlike the other sources from this period, this book was not just in response to broad trends in intellectual history or the history of science, or in broad cultural currents. This book appears to have been inspired by something more specific: the sudden political prominence of famous Christian Scientists: H. R. Haldeman and John Ehrlichman.¹⁹ Major legal rulings against the Christian Science church were still in the future. Gottschalk wrote his history of the church, only to leave the church leadership two decades later, charging the church had become too “worldly”.²⁰

Christian Science was a religion founded during the Gilded Age, in 1879, and was extremely popular in the period. While Christian Science is not a response to Darwinism, per se, it is a response to the kinds of scientific and technological changes taking place in the era and represents a particularly strong reaction to those changes. What is particularly interesting, more than her rejection of Darwin, is the way in which the founder of the faith, Mary Baker Eddy, used scientific-sounding terms to outline her spiritual positions,²¹ something we still modern opponents of science also resort to. Mary Baker Eddy started out as a spiritualist, and claimed to have been healed spiritually, but eventually rejected the term spiritualism. The book is as much a personal biography of Mary Baker Eddy as it is of the church she founded, and it quotes extensively from her writings. While Eddy rejected medical science—which was admittedly primitive in that period—she did not necessarily reject technology the way the Amish do. Eddy links her healing to the work of Jesus²², so the rejection of medical science is more specific than a general rejection of all science and technology, and like rejection of evolution, is based on a specific theological idea. A more general, not specifically Christian Science perspective, *Faith in the Great Physician* (2007) was written by Heather D. Curtis. Her work connects advocates of

divine healing to a doctrine that connects physical suffering to spiritual holiness (a view held by more mainstream Christian ascetics as well).²³ Curtis examines the practice of Christian Science in this tradition, as well as spiritualist and other practitioners in the Gilded Age. The observation of this distinction leads us directly to a broader attack on science and modernity discussed by Jackson Lears.

Lears begins his book *No Place of Grace* (1983) describing how beneficiaries of modern culture in the late-nineteenth and early-twentieth centuries felt they were “secret victims”, who “recoil[ed] from an ‘overcivilized’ modern existence to more intense forms of physical or spiritual experience supposedly embodied in medieval or Oriental cultures.”²⁴ This feeling spurred different avenues of antimodernist thinking in both the middle and upper classes. We have seen some of these examined already in reactions to Darwin, and to modern medicine, but antimodernism was both deeper and broader than just this. He sees the late nineteenth century as a period of crisis of cultural authority. Rationalization is a key component of scientific and modern thought, and so rejecting modernism can include rejecting science, but also other forms of rationalism up to and including the embrace of mysticism, martial force. Lears examines a variety of cultural spheres including class, race, Catholicism and patriarchy.²⁵ I find it particularly interesting that the extent of this antimodernist sentiment was so deep, that the martial spirit Lears includes here affected even those like Draper and White who strove to protect science from these very forces. It would also be especially interesting to see how the Amish fit, or don’t fit, into this antimodernist tradition.

While the 1968 case *Epperson vs. Arkansas*, which ruled that banning the teaching of evolution was unconstitutional, spurred some of the earlier histories of America’s response to Darwinian evolution, a series of cases in both the 1980s and 1990s banning creationism, equal

treatment, creation science, and other attempts to water down or cast doubt upon the scientific teaching of evolution in biology classes added more fuel to the fire. This string of judicial losses culminated in the 2005 ruling barring the teaching of intelligent design. These rulings spurred renewed interest in the first case of its kind to test the legal framework attempting to protect religious convictions against the scientific theories some conservative religions see as a direct threat to their beliefs.

Edward Larson's Pulitzer Prize winning book *Summer for the Gods* (1997) is considered one of the most definitive texts on the Scopes trial. Not only does the book put the trial into context for the period, but it seeks to put it in context for the modern world in which evolution continues to be a flashpoint. A new afterword was added in the wake of the Dover, Pennsylvania case on the teaching of intelligent design. The Scopes Trial was one of the most pivotal and public battles between religion and science, and between competing cultures in the United States.²⁶

Larson begins by describing the event, if there can be any singular event, that led to the Scopes trial: the discovery of Piltdown Man. The discovery was unveiled in 1912, and the tale told in a New York Times editorial which rejected this possible discovery of an ancient "simian Man", rejecting this as the "missing link" predicted by Darwinian evolution. This discovery prompted a wave of fundamentalist efforts to ban the teaching of evolution in public schools.²⁷ When the bill banning the teaching of Evolution in Tennessee was making its way through the legislature, inspired as it was by former Presidential candidate William Jennings Bryan, it was initially attacked as being against freedom of expression. Some ministers attacked the proposed law as an insult to the Christian faith, as if it needed to be protected from modernity.²⁸ In the end, however, conservative religious leaders won out, and the bill that led to the Scopes Trial

was passed. The newly formed American Civil Liberties Union, along with Scopes as a test case, would challenge the law.²⁹

Larson takes readers through the trial using court transcripts, as well as contemporary news reports to bring the debate into full context, and specifically addresses places where the book and movie *Inherit the Wind* deviate from available facts. Particularly of interest to the modern reader, he also takes the story through to the present, looking at how the Scopes trial fits into the Supreme Court rulings on Evolution and Creationism through the 1980s and 1990s. The most recent edition also includes a new afterward on the Dover ruling.

By the twenty-first century, scholars began to again look more broadly at the role of Darwinian evolution in other currents of the Gilded Age and the Progressive Era. A close examination of eugenics and scientific racism more broadly warranted a closer look, even as some practices based on these theories continued to be uncovered going on into the present day. Eugenics has received a particularly close scrutiny. Receiving less attention, but which is no less important, is the role that evolutionary theory and science more broadly played in the women's rights movement.

Kimberly A. Hamlin's book *From Eve to Evolution* (2014) is particularly interesting for this period because it examines an unrecognized role that evolutionary theory played in movement for women's suffrage, and for women's rights in general. Figures that took inspiration from Darwin included Elizabeth Cady Stanton.³⁰ An aspect of a cultural movement that may have contributed to the backlash against Darwin as further evidence of what some would have seen as a detrimental effect on the culture: as a force encouraging pious young women to question or even abandon the Church, or at least the traditional roles that women were expected to play in a Christian society. This book touches on several important, and inter-

related issues, including the implications of Darwinian evolution, birth control, “Eve’s curse”, and working mothers that impacted the relationship of women to the society at large, but also their place in their churches.³¹ One can see in this context why women would find evolution appealing: the Bible had been blaming women for the fall from paradise for thousands of years, but if evolution proved that there was no such event, then they would no longer have to shoulder the blame for the suffering of mankind. Every few books examine the relationship between evolutionary theory, and science in general, and the women’s rights movement.

Among all the books that cover the eugenics movement, most take the modern liberal point of view on science, race and economics. They decry the treatment of the poor, the behavior of businesses of the day, and defend Darwin against guilt-by-association with the destructive policies rooted in the Spencerian corruption of survival of the fittest. Thomas Leonard’s *Illiberal Reformers* (2016) is a little different. The book has received praise from the Wall Street Journal, Bloomberg View, and Reason magazine who apparently see this book as an attack on liberal values. Leonard himself is an economist, and so begins his book with praise for progressive economists that made economics into a university-level science. However, he acknowledges that progressives in the Progressive Era were somewhat contradictory. They had a zeal for remaking society to make it better.³² The book provides a critique of some of the illiberal positions of the Progressive era politicians, including the influence of “race science” and eugenics. Leonard discusses how Darwinism, Social Darwinism, and other currents of the period interacted to encourage reforms of the *laissez-faire* capitalist era, but those same reformers were infected by some of the same ideas of race, class, superiority and inferiority that they believed was supported by scientific-sounding arguments. This book fills in a very important part of the history of the reaction to science, that form the connective tissue to the pre-World-War-II

world.³³ Leonard dives more into the dynamics of the reform movement itself, more than to examine the specific policies that other books on eugenics, scientific racism, or other such reforms that are examined in other books in this family of histories.

Alarming-recent stories of forced sterilization programs have continued into the twenty-first century and have sparked more attention to eugenics.³⁴ A number of sources have explored eugenics and its intersection with race, as well as its intersection with religion, spanning the Progressive Era, and in some cases, into the modern period. Two books that address specifically religious aspects of Eugenics are *An Image of God: The Catholic Struggle with Eugenics* (2013) by Sharon M. Leon, and *Eugenics and Protestant Social Reform* (2017) by Dennis L. Durst. Leon's book takes a Catholic perspective, highlighting how the Catholic Church resisted at least some of the eugenics measures inconsistent with Catholic doctrines. Sterilization plays a key role in their resistance.³⁵ Durst, on the other hand, examines the theological commitments of some branches of Protestantism that led them to embrace eugenics. In particular, he focuses on the theory of degeneration:

Degeneration theory may be traced to the French psychiatrist Benedict Morel.... Originally embedded in theological categories of creation and the fall,...[the theory] had obvious strong theological and Biblical antecedents, not the least of which was a reinterpretation of the Christian doctrine of original sin.³⁶

That science appeared to them to align with their theological commitments must surely have been a powerful inducement to advance their agenda, without much regard for the consequences to the victims of these programs. Much like the Inquisition and witch trials, a great deal of suffering can be justified if one is saving an immortal soul; and if one is striving to produce a

kingdom of God on Earth, people that remind one of the fall from grace must surely be an unpleasant reminder that those goals are unachievable.

Other books on eugenics focus on racial aspects more than the religious aspects. Books like *The War Against the Weak* (2003) by Edwin Black, and *Medical Apartheid* (2006) by Harriet Washington examine how science, particularly medical science, has been employed against minority populations in the United States, in particular against the black population. These books address eugenics specifically, as well as medical experimentation more broadly.

Taken together, these texts form a solid foundation for examining the religious responses to scientific advancement, with Darwinian evolutionary theory as a running theme. The different perspectives offered are sometimes inspired by modern court cases ruling against religious attempts to combat science, or to limit the impact of scientific views they see as a threat. These texts also illustrate some of the alternative responses, like those of Christian Science. They look at how Darwin, or misunderstandings of Darwin, influence, for good and sometimes for ill, social currents of the period, from the women's movement to eugenics. They speak to us in the modern world, and perhaps more so now that we live in an era where fact itself is under attack, and a new science, the science of climate change, had come under religious and political invective. America's reaction to the development of science, particularly Darwinism, was not particularly unique in the beginning, but the persistence of resistance and the role that resistance continues to play is modern American life is.

The sources cited so far only begin to scratch the surface of American responses to science in the Gilded Age and Progressive Era. A large body of books address the conflict thesis less directly. The responses of religion to science in this period were not monolithic, and so books like *The Village Enlightenment* (2000) by Craig James Hazen try to look at popular

reactions to science and religion in this period.³⁷ We also see books about Robert Ingersoll, a prominent member of the Republican Party, a public speaker who defended science and sometimes mocked conservative religion. Richard Hofstadter's book *Anti-intellectualism in American Life* (1963) and followed up in recent decades in several books by Susan Jacoby, examines persistent strains of antimodernist views, as well as the roles that secular or non-religious Americans played in promoting scientific thought among the more moderate religious believers. The degree to which conservative religious thought, or radical believers of various stripes, dominated American intellectual thought is still a ripe area for examination. Certainly, the roles played by various strains differed in different cultural contexts, political contexts, and in reaction to current events. There is still much more to explore in terms of how these other factors impacted broader religious currents and the way in which they impacted the general acceptance or rejection of science in this period.

We have focused on Darwinism in our examination of the literature, and we have followed a few threads into social Darwinism and eugenics. However, much more remains to be explored that appears to be largely untouched in the literature. I would like to focus on a couple of those areas as possible avenues of future research.

Perhaps to most glaring omission is a close examination of reactions to advances in medical science. We saw a glimpse of this in the Gottschalk book about Christian Science; however, reactions of religion to medical practices remain in the forefront of modern religion-science controversies. Not just with respect to Christian Science, but also Jehovah Witness's refusal of blood transfusions, opposition to abortion, as well as particularly Catholic resistance to end-of-life care and in-vitro fertilization. Many of these religions frame their reaction to certain medical treatments as "playing God". In the 19th century, there were rapid advances in medicine,

in understanding the human body, as well as the germ theory of disease, anesthesia and consequently, improvements in surgical practices. What led some religious believers to reject modern medicine and others to embrace it? And how are those themes playing out in modern medical controversies? What role do they play in resistance to birth control and abortion? Or the anti-vaccine movement? Is this just part of a larger pattern of anti-modernist strains, or are these reactions specific to identifiable theological commitments?

Another major innovation in the Gilded Age was technological and embodied by electricity. The Amish and the Mennonites stand out as modern religions that largely reject technology in general, and electricity in particular. Conservative religious reactions to innovations are sometimes still seen, but were they more prominent in the period when moving pictures were brand new? When phonographs were novel and mysterious? Technological advances were part of “wonder shows” that showed off the amazing new things technology could do, and Fred Nadis, in his book *Wonder Shows* (2005) begins to address some of the intersections of these technological shows and religious belief.³⁸ This strikes me as just a taste of what there is to explore in this regard.

While Darwinism and medicine took the brunt of the assault of conservative and fundamentalist religious attacks on science, biological areas were not the only parts of science undergoing major and revolutionary advancements in this period. Physics and astronomy both saw major changes. Relativity (general and special) overturned our notions of gravity, Euclidean geometry, and even time, early in the twentieth century. The Big Bang Theory was built on observations from American astronomer Edwin Hubble that the universe was expanding, which was followed up by the weird world of quantum mechanics. The public reaction to these theories must have been somewhat muted because they all depend on very powerful

mathematics; nonetheless, reactions to these developments, if they exist, would be interesting to examine. The Big Bang Theory tends to be embraced as proof of creation, and some scientists resisted accepting it initially for exactly that reason: as too religious. The reaction to the expanding universe appears to turn the conflict thesis on its head, and so a deeper exploration of the reasons both inside scientific circles and in religious circles might help shed light on reactions to other modern scientific-religious controversies such as surrounds climate change. One possible place to examine these ideas is in the pages of early twentieth-century science fiction. As we see with Darwinian controversies, how proponents of the theory see religious responses can exhibit perception bias. How one determines general religious responses has to be examined carefully, because controversial reactions will get the most press, while more mainstream views that accept the science, may remain obscure.

An area addressed to some extent in books that cover the Scope Monkey Trial are attempts in some states to legislate on the issue of science and religion. A closer examination of legislative debate across the states might serve to uncover the extent to which religion influenced science education directly on these issues, and its connection to geography and broader cultural strains. However, more revealing, might be examining the way in which local school boards influenced what was and was not taught in classrooms on a smaller scale or less formally by applying social pressure. This area remains among one of the modern problems: state science curricula generally supports the teaching of evolution despite assault from religious conservatives, and yet a significant proportion of biology teachers experience enough social pressure in their communities to water down how they teach evolution, or they avoid the subject entirely, despite that it is a required topic.³⁹ This begs the question: to what extent was evolution taught prior to legislative restraint? How did local clergy approach the issue in various

communities? We often perceive the Scopes' Trial as the classic example of the war between science and religion, but to what extent did religious leader support Scopes and other biology teachers at the time. The conflict thesis remains powerful, but religion, especially in America, is hardly monolithic, and so to acknowledge there was a diversity of opinion would further serve to undermine the perception that all religions react to science in a singular way. To the extent that conservative religions use the idea of conflict with science as a means of binding their followers to them as a people under siege, undermining the conflict thesis' "us vs. them" mentality helps us move beyond these struggles to fully embrace the benefits of modern science, and helps us to understand better the conflicts that do persist.

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