

History and the War between Science and Religion

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In 1896, Andrew Dickson White published *A History of the Warfare of Science with Theology in Christendom*, a two-volume landmark in the history of science. Written over the better part of two decades, White first broached the subject in a lecture titled “Battlefields of Science” that he gave at a variety of venues across the United States beginning in the late 1860s.¹ Originally motivated to redress criticisms leveled against him for insisting that the newly founded Cornell University be a non-sectarian institution, White published an expanded version of the lecture as *The Warfare of Science* in 1876.² He then continued working on the project for the next fifteen years, publishing revised sections of that essay regularly in *The Popular Science Monthly*. These, in turn, formed the chapters of what then became the definitive *A History of the Warfare of Science with Theology in Christendom*. Imposing in its command of the relevant literature, the work was the first on the subject to direct readers to further reading through an elaborate system of footnotes.³ But while the book enacts the same dispassionate search for truth that was the subject of his tale, White nevertheless deployed metaphors of battle, warfare, attack and retreat that left no doubt about his passionate desire to see science win against its theological foes. Though White insisted that his enemy was theology and not religion,

¹ Andrew Dickson White, *Autobiography of Andrew Dickson White with Portraits* (New York: The Century Co., 1905).

² White was co-founder of Cornell University, along with Ezra Cornell, and served as its first president between 1866 and 1885. For more on White’s life and career see: Glenn C. Altschuler, *Andrew D. White. Educator, Historian, Diplomat* (Ithaca: Cornell University Press, 1979).

³ For more on the genesis of the book, and its reception, see: ———, “From Religion to Ethics: Andrew D. White and the Dilemma of a Christian Rationalist,” *Church History* 47 (1978).

references to such well-worn specters as “the controlling minds in the Catholic Church,” and to a “Protestantism [that] was...as oppressive,” amount to a much broader assault on all orthodox forms of institutionalized religion.⁴ Though not as blatantly anti-Catholic as John Draper’s *History of the Conflict between Science and Religion* (1877), White joined Draper in helping to galvanize the image of a basic conflict between science and religion in ways that continue to inform popular and professional attitudes alike.⁵

Though White’s and Draper’s are in many ways “unfashionable histories” today, we should not overlook how their “enduring legacy...has been the perpetuation of the myth of a perennial warfare between science and religion.”⁶ In our own day, the image of a seemingly endemic conflict is very much alive, fueled by the sweeping attacks on religion by ‘new atheists’ such as Sam Harris and Richard Dawkins on the one hand, and by the efforts of some Christian evangelicals to have ‘intelligent design’ included in the school curriculum, on the other. Of course, President Bush’s endorsement of the latter helped give the issue a national profile. But even more generally, debates over the place of religion in universities, such as Harvard’s failed attempt to require students to satisfy a “reason and faith” credit, reflect a still strong sense among many that reason and faith, and by extension, science and religion, don’t belong together.⁷ While White and Draper may therefore not be authors who people read very much anymore, there is no denying

⁴ Andrew Dickson White, *A History of the Warfare of Science with Theology in Christendom*, 2 vols., vol. 1 (New York: 1896). 27, 60.

⁵ John William Draper, *History of the Conflict Between Religion and Science* (London: Watts, 1873).

⁶ Peter Harrison, “‘Science’ and ‘Religion’: Constructing the Boundaries,” *The Journal of Religion* 86, no. 1 (2006). 87.

⁷ For a useful overview of the contemporary implications of this ‘clash’ between science and religion, see: Richard H. Robbins, “Introduction. The History and Implications of a Cultural Confrontation,” in *Darwin and the Bible*, ed. Richard H. Robbins and Mark Nathan Cohen (Boston: Pearson, 2009).

that they stand at the beginning of a still potent tradition for how to conceive of the relationship between science and religion.⁸ And while there has been no shortage of compelling criticism of this tradition, showing how the very terms of the debate are fraught with problems, this scholarship has had little if any discernible impact on the public tenor of debate.⁹ The reason for this, as I hope to show by means of an extended re-reading and critique of White, is not due to any shortcomings in the research. Nor can it be explained by citing platitudes about public indifference to academics in the ivory tower.¹⁰ The failure, it seems to me, has rather been in underestimating the particular power of framing these events as a specific kind of history. For it is not just that White tells us something about events in history; his rendering of the conflict between science and theology—as one that encompasses humanity itself—plays a decisive role in constituting what modern history is. Seeing how he does this is especially important for, in the end, White makes common cause with modern history as the medium through which God communicates deeper truths about the world. This not only lays the basis for a bid to save religion from theology, but forces science and religion into a historical commensurability whose formal hold on the imagination is hard to break.

But to see this requires, first, resisting the urge simply to expose White's history as bad history. There is no question that, despite its being meticulously documented, his

⁸ For more on the printing and reception of both, see: Altschuler, *Andrew D. White. Educator, Historian, Diplomat*. Donald Fleming, *John William Draper and the Religion of Science* (Philadelphia: University of Pennsylvania Press, 1950).

⁹ Ian G. Barbour, *Religion and Science: Historical and Contemporary Issues* (New York: Harper Collins, 1997). David C. Lindberg and Ronald L. Numbers, "Beyond War and Peace: A Reappraisal of the Encounter between Christianity and Science," *Church History* 55, no. 3 (1986).

¹⁰ Indeed, it is precisely in the fight between religion and science where demand for academic support for one's position might be reckoned to be at its highest.

book makes mistakes. Some of these are garden variety mistakes that are perhaps inevitable in such a big project; other mistakes strike at the heart of his very thesis about the conflict between scientific and theological thinking. For David Lindberg and Ronald Numbers, such mistakes show just how “White read the past through battle-scarred glasses,” preferring to see conflict when evidence suggested more complex interaction. Indeed, in the case of Darwin, they conclude that “White’s seeming compulsion to reduce every episode...to a simple warlike confrontation blinded him to the possibility that Darwin’s critics might have been motivated by honest scientific objections, or that his supporters might have been attracted for theological reasons.”¹¹ Similarly, John Lucas shows that White’s version of the debate not only depends on a slim set of sources but caricatures what really took place, grossly over-simplifying what both sides were trying to do.¹² Still, as important as it is to point out these shortcomings, it is not enough merely to show how White “and his imitators...distorted history to serve ideological ends.” On the contrary, it should motivate us to press further in asking just what those ideological ends were, and how they were served by this history of conflict. While I therefore agree with Lindberg and Numbers that “discrediting the warfare thesis” is not enough, I am not moved to echo their call to “construct a satisfactory alternative” from “a more neutral starting point.” For one thing, this seems an insufficiently self-critical endorsement of a traditional objectivist epistemology in history, one not that very much different from

¹¹ Lindberg and Numbers, "Beyond War and Peace: A Reappraisal of the Encounter between Christianity and Science." 351.

¹² J.R. Lucas, "Wilberforce and Huxley: A Legendary Encounter," *The Historical Journal* 22 (1979).

White's.¹³ But what is more, it seems to prevent us from looking deeper at how precisely this kind of objectivism is deeply enmeshed in presuppositions about how history works.

By showing how White was a prisoner of the ideological forces of his age, and correcting these by means of a commitment to 'neutrality,' Lindberg and Numbers ratify an image of historical research in which ever-increasing precision and objectivity promote more reliable and accurate knowledge. This is, it must be stressed, fundamentally congruent with White's commitment to forging a better, open-minded future by telling the history of science's overcoming theology. It thus offers a poor point of departure for seeing how White's history is about much more besides. In contrast, therefore, I propose that a more fruitful starting point might be to ask how this way of writing history generated a temporal environment for recasting the nature of both science and religion. I say 'environment' here to convey the way that time structures the background within which White treats "science" and "religion" as trans-historical categories, rather than as historically contingent concepts with a distinct origin and limited analytic purchase.¹⁴ For it is precisely as trans-historical realities that science and religion come into competition for the same time (and space) and take on colossal, one might say world-historical, proportions as inescapable competitors for the hearts and minds of humanity.

Though time might be said to be the basic pre-condition for any historical understanding, the assumption that time is a homogenous, universal medium—a container in which events happen—is a distinctly modern conception. It is predicated, as

¹³ Peter Novick, *That Noble Dream: The 'Objectivity Question' and the American Historical Profession* (New York: Cambridge University Press, 1988).

¹⁴ Harrison, "'Science' and 'Religion': Constructing the Boundaries."

Reinhart Koselleck shows in his analysis of the semantics of historical time, on the transformation of 'history' into the singular; for it is in the singular that the events in 'history' become relativized.¹⁵ But modern historical consciousness is also predicated on an acceleration stemming from an obsession with the future and with progress. The conviction that time must march on, as Klaus Lichtblau argues, "reduces historical time to a succession of 'points' in time and raises the episodic nature of their appearance and transformation to the actual criterion of historical consciousness."¹⁶ In this mode, history is perceived as time that flows unstoppably from past to future like the second hand of a clock, smoothly, unremittingly, and with a high degree of indifference to what people actually do in it. If this clock time clashes with how we 'live' time, as it frequently does, this does not diminish the power of this conception of time as a way of conceiving of, and writing about, history.¹⁷ We need to be sensitive, therefore, to how content depends on form, and in this instance that means looking at how White forges a history of science whose universal dimensions—of comprehensive, uniform progress through time—guarantee that the success of science must equal the failure of theology. In White's narrative, 'science' and 'theology' are no less universal and singular than history; indeed they seem to encompass virtually the same dimensions. By telling the story of the warfare between science and theology, therefore, White is telling a story whose implicit framework is history defined in a distinctly modern way. This might in itself not be

¹⁵ Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time* (Cambridge, Mass.: MIT Press, 1985). 40.

¹⁶ Klaus Lichtblau, "Sociology and the Diagnosis of the Times or: The Reflexivity of Modernity," *Theory, Culture & Society* 12 (1995). 31.

¹⁷ For a fascinating essay on the way emergent standardizations of time enabled, and clashed with, different experiences at the end of the nineteenth century, see: Stephen Kern, *The Culture of Time & Space 1880-1918* (Cambridge: Harvard University Press, 2003).

particularly revealing, except that I think that it puts into significantly different perspective White's conviction that he can save religion from theology.

The scale and scope of the conflict White describes presupposes an "empty time," whose ultimate purpose, as Walter Benjamin so forcefully argued, is to shore up a vision of progress.¹⁸ As a history of science, more specifically, White's work is deeply enmeshed in what Bruno Latour calls the "modern constitution." A tacit separation and delegation of power inherent in the consciousness subtending modern societies, this constitution is based on the simultaneous purification of a sphere of human life and human values from allegedly non-human ones, and the effacement of that process.

Modernity is often defined in terms of humanism, either as a way of saluting the birth of 'man' or as a way of announcing his death. But this habit itself is modern, because it remains asymmetrical. It overlooks the simultaneous birth of 'nonhumanity'—things, object, or beasts—and the equally strange beginning of a crossed-out God, relegated to the sidelines. Modernity arises first from the conjoined creation of those three entities, and then from the masking of the conjoined birth and the separate treatment of the three communities while, underneath, hybrids continue to multiply as an effect of this separate treatment.¹⁹

Far too complex to summarize in detail here, Latour's point is that a thorough-going historicization of this process reveals it to be fraught with paradoxes. Indeed, the litany of exceptions to the rules laid down by the modern constitution is so great as to challenge its fundamental premises. The proliferation of "quasi-objects," whose hallmark is that they belong to multiple temporalities and so fall outside of the flow of modern time, strictly speaking, is what motivates Latour to re-position himself as never having been modern. Our motivation need not be so ambitious. But what his perspective helps us see

¹⁸ Walter Benjamin, "Theses on the Philosophy of History," in *Illuminations*, ed. Hanna Arendt (New York: Schocken, 1969).

¹⁹ Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard, 1993). 13

is White's contribution to the modern constitution, by yoking together personalities, events, and things into a narrative history manifesting internal coherence and the distinct momentum of modern progress. This narrative of historical change is especially important, since, as Latour notes,

[t]he impression of passing irreversibly is generated only when we bind together the cohort of elements that make up our day-to-day universe. It is their systematic cohesion, and the replacement of these elements by others rendered just as coherent in the subsequent period, which gives us the impression of times that passes, of a continuous flow going from the future toward the past....²⁰

What I intend to show is that White's rendering of the conflict of science and religion is precisely such an act of "bind[ing] together... [a] cohort of elements," and "replac[ing]...these by others rendered just as coherent in the subsequent period." Of course White is not alone in this effort, nor is this something that can be narrowly delimited as an activity within the history of science, or even science more generally, as Bruno Latour shows. But what White does is to forge a basic commensurability between science and theology, as ways of thinking, whose viability is directly imperiled by the success of the other.

Reading White today, one encounters familiar—indeed iconic—episodes intended to illustrate the relentless persecution of the scientific spirit, including the death of Bruno, the trial of Galileo, and the controversy surrounding Darwinian evolution. Likewise, one meets those heroic defenders of science like Copernicus, Kepler and Descartes who, for White, comprised some of the "greatest men our race has produced."²¹ Indeed, re-reading White, one is struck by how familiar it all is. Precisely this familiarity

²⁰ Ibid. 72.

²¹ White, *Warfare*. 15.

might do much to explain Brad Gregory's observation that the reason so many secular academics ignore religion today is because they assume that "the important questions about the relationship between religion and science were settled a century or more ago."²² As Gregory points out, to read some contemporary accounts of the relationship between religion and science is to be "transported back to a late-nineteenth-century world innocent of the revolution in post-Newtonian physics." Not only do such accounts ignore how "scientists today have no idea how to unite *scientific* knowledge...*within a scientific* worldview;" they fail to acknowledge how arguments against God from an entirely naturalistic standpoint perhaps presume the wrong things about God, namely, that God exists and acts in the same way as other beings in the world. If God is not a being in the same way as other beings, as the late medieval nominalists reasoned, then perhaps it is incorrect to reason by analogy about God at all. This has implications for how we approach the conflict between science and religion of course because, as Gregory points out in his polemic against Tor Egil Følrand, the claim that God does not fit into "how the world works" is not a neutral assessment of science's success; it is "contingent on certain theological presuppositions linked to particular metaphysical views...[and] makes assumptions about what God would be like if God were real."²³ The net result is a "historical picture [that] fits with the typical narrative of modernization and secularization," but that effaces its own theological roots.

²² Brad S. Gregory, "No Room for God? History, Science, Metaphysics, and the Study of Religion," *History and Theory* 47 (2008). 496.

²³ *Ibid.* 501.

There is ample evidence that White's stock images of 'persecution' of scientific trail-blazers are much more complex episodes than he ever lets on, and here the case of Galileo is perhaps most interesting. Indeed, White himself devotes considerable attention to it since, as he says, "[o]n this new champion, Galileo, the whole war was at last concentrated."²⁴ According to White, the trouble began in 1610, when Galileo "announced that his telescope had revealed the moons of the planet Jupiter. The enemy saw that this took the Copernican theory out of the realm of hypothesis, and they gave battle immediately." To defeat him, his enemy marshaled, at different times, a "prodigious theological engine of war," "smaller artillery in the shape of...scriptural extracts," and "heavy artillery."²⁵ In their rage they even hurled "the epithets 'infidel' and 'atheist'," weapons that, for White, "can hardly be classed with civilized weapons." With great indignation, White writes:

These are burning arrows; they set fire to masses of popular prejudice, always obscuring the real question, sometimes destroying the attacking party. They are poisoned weapons. They pierce the hearts of loving women; they alienate dear children; they injure a man after life is ended, for they leave poisoned wounds in the hearts of those who loved him best—fears for his eternal salvation, dread of the Divine wrath upon him.²⁶

And yet, in the face of these attacks, Galileo sought "[i]n vain...to try and prove the existence of satellites by showing them to the doubters through his telescope" who, more often than not, refused even to look. But though "the little telescope of Galileo still swept the heavens," he failed in the end to convince his enemies "that biblical interpretation

²⁴ This episode, and all of the quotations cited, are found in: White, *Warfare*. 130-52.

²⁵ It is interesting to speculate the degree to which White's battle imagery was reinforced by his appraisal of world affairs. See: Andrew Dickson White, *Seven Great Statesmen in the Warfare of Humanity with Unreason* (New York: The Century Co., 1910).

²⁶ White, *Warfare*. 135.

should not be applied to science.” Besieged on all sides, Galileo was eventually silenced by Rome, and in a final act of humiliation was “forced to perjure himself ...and to swear that he would denounce to the Inquisition” anyone else teaching the Copernican system.

In his analysis of more recent approaches to the Galileo affair, Maurice B. Finocchiaro concludes that recent historical treatments have invalidated White’s interpretation, not so much because he gets the facts wrong, but because he deploys certain assumptions that structure his very approach. The most important of these is that there was a clear divide to be made between scientific supporters and religious detractors. To be sure, Galileo and his research represented a new and provocative foray into experimental science that would force many people to think differently about how they looked at the physical world. But in his own day, one looks in vain to find either a scientific consensus defending him or a religious consensus arrayed against him. As Finocchiaro points out, there was a wide spectrum of opinion on the merits of his science as well as on the theological implications of his research, and Galileo had supporters and detractors on both sides. Indeed, in sharp contrast with the all-out assault that White sketches, recent research shows how Galileo received significant support from a variety of figures within the Church, including Pope Urban VIII, who was initially a patron of his work.²⁷ In their analysis of the episode, Lindgren and Numbers argue that the crux of the debate was over hermeneutics, rather than any direct concern for ‘science’ as such. In a post-Tridentine context, Galileo’s attempt to reconcile his observations with certain passages in the Bible challenged directly the basis on which a Counter-Reformation

²⁷ Maurice A. Finocchiaro, "Science, Religion, and the Historiography of the Galileo Affair. On the Undesirability of Oversimplification," *Osiris* 16 (2001). 116.

Church sought to ground itself. Though “this dramatic tale has come, for many, to symbolize the theological assault on science,” what is too frequently overlooked is how “[a]ll of the participants called themselves Christians, and all acknowledged biblical authority.”²⁸

This latter fact is crucial, of course, to understanding correctly a whole host of historical figures that White otherwise subsumes under his rubric of a mutually exclusive conflict. And here I would like only briefly to mention Christopher Columbus and Isaac Newton. Though Columbus might not loom large as a combatant in the history of the war between science and religion, nevertheless for White, it is precisely his kind of bold spirit of discovery that embodies the overcoming of theological limitations. Therefore, he writes:

The warfare of Columbus the world knows well: how the Bishop of Ceuta worsted him in Portugal; how sundry wise men of Spain confronted him with the usual quotations from the Psalms, from St. Paul, and from St. Augustine; how even after he was triumphant, and after his voyage had greatly strengthened the theory of the earth’s sphericity...the Church by its highest authority solemnly stumbled and persisted in going astray.²⁹

What complicates this heroic picture of Columbus—namely that he persevered through such attacks—is the fact that, as David Noble points out, Columbus saw his own voyages in deeply apocalyptic terms. Deriving “both his scientific geography and his apocalyptic outlook” from Pierre D’Ailly’s *Imago Mundi*, Columbus was much more deeply influenced by medieval cosmology than the image of him as a bold trailblazer suggests.³⁰ As Noble

²⁸ Lindberg and Numbers, “Beyond War and Peace: A Reappraisal of the Encounter between Christianity and Science.” 346.

²⁹ White, *Warfare*. 108.

³⁰ White does note that Columbus possessed a copy of the *Imago Mundi*, and that he based his voyage in part on what he found there, but in the following way: “It is a curious fact that this single theological error

shows, Columbus's apocalypticism provided the fundamental framework for how he understood the significance of his explorations; believing that history was nearing the end of days, Columbus firmly believed that the 'new' world he saw might be the new Eden.³¹ And yet, in White's treatment, Columbus is the iconoclast who is contrasted precisely with Pierre D'Ailly, who White characterized on the immediately preceding page as "one of the most striking examples...of a great man in theological fetters."³² This effort at divesting historical figures of their religion—so as to consecrate them as embodiments of a deeper 'scientific' spirit of discovery—also influences how White treats Isaac Newton. In our own day, of course, it is well known that Newton was deeply enmeshed in a variety of esoteric interests.³³ For White, however, these dalliances are explained away by looking at Newton's overarching commitment to reason. In the following passage, one can sense how hard it was for White even to conceive that Newton might be perfectly content with the variety of his interests: "It is hard to believe that from the mind which produced the *Principia*, and which broke through the many time-honoured beliefs regarding the dates and formation of scriptural books, could have come his discussion regarding the prophecies; still, at various points even in this work, his power appears. From internal

thus promoted a series of voyages which completely destroyed not only this but every other conception of geography based upon the sacred writings." Ibid. 112.

³¹ David F. Noble, *The Religion of Technology. The Divinity of Man and the Spirit of Invention* (New York: Penguin Books, 1999). 32.

³² White, *Warfare*. 107.

³³ Ayval Ramati, "The Hidden Truth of Creation: Newton's Method of Fluxions," *British Journal of the History of Science* 34 (2001).

evidence he not only discarded the text of the Three Witnesses, but he decided that the Pentateuch must have been made up from several books....”³⁴

A focal point of White’s book is his treatment of Darwin, where he not only misrepresents the deeply divided spectrum of opinion beneath the surface of his glib generalizations, but actually misrepresents facts about the legendary debate between Thomas Huxley and Bishop Samuel Wilberforce. Their encounter, held at a meeting of the British Association at Oxford in June of 1860, featured the following, allegedly off the cuff remarks:

Referring to the ideas of Darwin, who was absent on account of illness,...[Bishop Wilberforce] congratulated himself in a public speech that he was not descended from a monkey. The reply came from Huxley, who said in substance: “If I had to choose, I would prefer to be a descendant of a humble monkey rather than of a man who employs his knowledge and eloquence in misrepresenting those who are wearing out their lives in the search for truth.”³⁵

White called Huxley’s retort a “shot that reverberated through England, and indeed other countries,” and his description of the episode became nothing short of a legend among scientists. As J.R. Lucas puts it, “[i]n this memorable encounter Huxley’s simple scientific sincerity humbled the prelatial insolence and clerical obscurantism of Soapy Sam.”³⁶ If only it were that simple, for Lucas demonstrates that there is sufficient discrepancy in the contemporary sources to question whether the conversation is correctly reported at all, and there is even greater evidence to suggest that Wilberforce was far more interested in taking Darwin to task for his science, than his theology.³⁷ However, these complexities

³⁴ Andrew Dickson White, *A History of the Warfare of Science with Theology in Christendom*, 2 vols., vol. 2 (New York: 1896). 310.

³⁵ White, *Warfare*. 70-71.

³⁶ Lucas, “Wilberforce and Huxley: A Legendary Encounter.” 313.

³⁷ Ibid.

mattered little in the context of the changing relevance of science as an institution in British society. As Lucas argues, the real issue was less about what happened—as it rarely is with legends—than with what it meant. In the struggle for professional scientists to claim autonomy from those they increasingly saw as amateurs and dilettantes, Huxley’s supposed rejoinder to Wilberforce had all of the elements of a manifesto. In contrast with the reigning assumption heretofore, namely that investigation into the nature of things was part of a larger and mutually compatible set of learned endeavors, scientists increasingly policed the boundaries of theirs as a professional enterprise. In this context, according to Lucas, Huxley’s remarks were important because they gave scientists a “form of expression in their communications with the learned world” whose hallmark was professional seriousness, above all else.³⁸

Is this how we should interpret White, namely, as helping to lay the foundation for professional science? Taking this kind of approach certainly offers a salutary way of exploring deeper connections between science and society than is possible by remaining within the strictly “epistemological” terms of the debates themselves. In this regard, Frank Turner has shown how much is to be gained by not “tak[ing] too much at face value the statements of polemical interchange.”³⁹ Though his specific research focuses specifically on Victorian science in Great Britain, I think that much of what he says about the professionalization of science is applicable in a general way in the second half of the nineteenth century, especially the cultivation of a distinct “public image” that leant

³⁸ Ibid.

³⁹ Frank M. Turner, “The Victorian Conflict between Science and Religion: A Professional Dimension,” *Isis* 69 (1978). 358.

scientists power and prestige.⁴⁰ But while contextualizing the debates in this way might help to overcome the stock image of a necessary conflict between science and religion—a goal this essay endorses—taking such an approach in this instance would overlook entirely the fact that White was a historian. He was thus invested in a vision of things that cannot properly be assessed from within a strictly scientific frame of reference, that is to say, as a set of discrete scientific achievements. No matter how much he helped define the image of science, for White, scientific achievement only made sense against a background of other social facts. His conviction that science and theology necessarily conflicted was not one that he learned in the laboratory or from a personal struggle over competing convictions. Rather it emerged as a function of his effort to understand convergent events, in historical time, and from a certain perspective as an independent-minded Christian.

From this perspective, it is crucial to understand how White saw the brave and inspired genius who ‘discovers’ truths about the inner workings of the physical world as the essential ‘motor’ of historical change. By telling the history of science in this way, White reduced discovery to what Simon Schaffer calls “single events of individual mental labour whose analysis requires the examination of logical or psychological manoeuvres.”⁴¹ Thus we see in his account of Galileo, how White foregrounds contending psychological and intellectual impulses, preferring to see his detractors as obsessed with Galileo’s own soul rather and greatly exaggerating Galileo’s ‘suffering’ while under house-arrest. What is

⁴⁰ Ibid. 358.

⁴¹ Simon Schaffer, "Scientific Discoveries and the End of Natural Philosophy," *Social Studies of Science* 16 (1986). 388.

important in White's case, however, is that these impulses transcend individuals in ways that suggest the protagonist is humanity itself, rather than merely factions lobbying for either religion or science. This Manichean vision of opposing forces is also at work in White's descriptions of the rise of modern medicine, where he writes:

Men of science also rose, in the stricter sense of the word, even in the centuries under the most complete sway of theological thought and ecclesiastical power; a science, indeed, alloyed with theology, but still infolding [*sic*] precious germs. Of these were men...all of whom cultivated sciences subsidiary to medicine, and in spite of charges of sorcery, with possibilities of imprisonment and death, kept the torch of knowledge burning, and passed it on to future generations. From the Church itself, even when the theological atmosphere was most dense, rose here and there men who persisted in something like scientific effort.⁴²

Or consider his way of summarizing the origins of modern meteorology:

But at a very early period we see the beginning of a scientific view. In Greece, the Ionic philosophers held that such phenomena are obedient to law. Plato, Aristotle, and many lesser lights, attempted to account for them on natural grounds; and their explanations, though crude, were based upon observation and thought.... But, as the Christian Church rose to power, this evolution was checked; the new leaders of thought found, in the Scriptures recognized by them as sacred, the basis for a new view, or rather for a modification of the old view.⁴³

In both of these instances, science and theology contend, not merely for the minds of individuals, but for the space of history. In the classic sense, of a zero-sum game, White treats a gain for one as automatically a loss for the other, and so it goes throughout history. Though he acknowledges the fact that there are men within the Church who might have been drawn to science, this happens in spite of their theological convictions and is never nourished by them. What is most important in this way of approaching these cases is that humanity, or perhaps it is better to say "civilization," is the horizon against

⁴² White, *A History of the Warfare of Science with Theology in Christendom*. 34

⁴³ ———, *Warfare*. 333.

which these “logical or psychological manoeuvres” take place and establish the progressive thrust of science. References to Galileo’s “little telescope” notwithstanding, the main impulse of the narrative is not the evolution of technology or the global diffusion of knowledge among networks of scientists; it is not about the rise of institutions promoting scientific activity or the refinement of method. White’s narrative is, to quote Schaffer once again, “an heroic model of discovery in which analysis concentrates on the inspired genius” that ultimately “bolsters an account of how science changes.”⁴⁴ It is also, implicitly, an account of the nature of history, something I think has hitherto been overlooked.

Part of a strong tradition of history writing in the nineteenth-century, this focus on the great men of science and their discoveries is not just a question simply of style or historical immaturity (in the sense that we write about merely those we venerate). The question of narrative style here is directly related to how we understand the nature of both science and history. It is not simply the case that historians report facts about the past. They select, interpret and emplot them in ways that allow those facts to take shape as a narrative that readers can understand, as Hayden White has shown. Though White’s *Metahistory* has suffered a notable decline in popularity in recent years, his fundamental insight still seems to me to hold true, namely: “[b]efore the historian can bring to bear upon the data of the historical field the conceptual apparatus he will use to represent and explain it, he must first prefigure the field—that is to say, constitute it as an object of

⁴⁴ Schaffer, “Scientific Discoveries and the End of Natural Philosophy.” 388.

mental perception.”⁴⁵ And this prefigurative effort of historical consciousness is “indistinguishable from the linguistic act in which the field is made ready for interpretation as a domain of a particular kind.” Let me be clear that I am not affirming a radically skeptical (or postmodern) view of history, namely, as contingent on the telling. But one thing that has been too much neglected it seems to me in discussions about the conflict between science and religion is how this conflict unfolds in history, as a story that defines modernity. As Charles Taylor has recently analyzed in his *A Secular Age*, the narrative form of modernity as a story in which, to put it crudely—science gains, and religion wanes—is deeply embedded in our sense of what “modern” means. If we are to better grasp the nature of modernity and the role of secularization in it, then this will mean understanding history better. To do this, it will not be enough to debunk what Taylor calls the various “subtraction stories” that claim to show how humans have “liberated themselves from certain earlier, confining horizons, or illusions, or limitations of knowledge.”⁴⁶ We will also need to understand how these stories—and here the case of White is exemplary—were creative ways of thinking in their own right, and not just bad history. In the case of A.D. White emplotting the history of science as one of heroic discovery establishes a basic commensurability between science and theology as irreconcilable avenues to world-historical truth. This construction of a mutually exclusive dichotomy has the effect, to recall Latour, of “bind[ing]” them together in such a way that they help regulate the ‘flow’ of modern historical time. Here it is important to see how it

⁴⁵ Hayden V. White, *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore,: Johns Hopkins University Press, 1973). 30.

⁴⁶ Charles Taylor, *A Secular Age* (Cambridge: Harvard, 2007). 22.

is precisely because science and theology function as inherently opposed ways of thinking that heroic individuals become the *loci* for measuring how far the theological or scientific spirit have gained or receded in different eras. Leaving aside the vexing way that White leaves no room for the possibility that any of these people might be ambivalent about their various activities, embedding the conflict between science and theology in a struggle between heroic individuals in this way establishes as the only arena for deciding the truth between them.

White's history of the conflict between science and religion was embedded in a different set of investigative presuppositions and operated, for lack of a better term, according to a different mandate than is often assumed. As a historian—and not a scientist—White's efforts were oriented towards a whole different kind of truth, whose meaning should not be identified with his own conclusion about the inherent antipathy between science and theology. A fundamentally better starting point for grasping White's efforts is thus to remember that the common assumption in his own day was to assume that all knowledge was fundamentally compatible. Though White may have done much to create the impression of an inherent conflict between science and religion, he belonged to an era that still believed in the unity of all knowledge.⁴⁷ This unity was still premised on the goodness of a creator God who would not deceive people about his true nature, or the world he created for them. The manifestation of conflict therefore had to be the result of a mistaken, flawed, and deeply human ways of apprehending the otherwise orderly

⁴⁷ R. Laurence Moore, *Touchdown Jesus* (Louisville: Westminster John Knox Press, 2003). 133.

universe. It is at this level, of course, that we encounter White's important distinction between religion and theology, and his desire to rescue the former from the latter.

For White, religion lived in the hearts of men and was a source of inspiration. He did not, therefore, seek to destroy religion, but to "aid...in the gradual and healthful dissolving of this mass of unreason, that the stream of 'religion pure and undefiled' may flow on broad and clear, a blessing to humanity."⁴⁸ In contrast to the nourishing potential of religion, however, theology tended necessarily to dogmatism, and this White understood, not as a failure of religion, but as a failure of reason. Citing the case of Kepler, and the way his conclusions were tested, refined and refuted by others, White concludes:

Very different was this from the theological method. As a rule, when there arises a thinker as great in theology as Kepler in science, the whole mass of his conclusions ripens into a dogma. His disciples labour not to test it, but to establish it; and while, in the Catholic Church, it becomes a dogma to be believed or disbelieved under the penalty of damnation, it becomes in the Protestant Church the basis for one more sect.⁴⁹

Of course, as White sees it, theology is not therefore a benign form of rational interpretation of revelation, but contains within itself a perverse tendency to stifle the life of the mind. Though White does not deny its roots in the "human desire...to know what the creation really is," the evolution of "a sacred science of creation" and its development "purely by theological methods," restricted these efforts "to throw[ing] light into Nature by ingenious use of scriptural texts."⁵⁰ It was the sad fate of this basic desire to know, therefore, that "pious use was constantly made of this science" as a means to say that "the

⁴⁸ Andrew Dickson White, *The Warfare of Science* (London: King & Co., 1876). p vi.

⁴⁹ White, *Warfare*. 203.

⁵⁰ *Ibid.* 33.

structure and mischief of monkeys proves the existence of demons” and “the fact that certain monkeys have no tails proves that Satan has been shorn of his glory.”⁵¹ By subordinating itself, at every turn, to the conformity demanded of dogma, theology offended the scientific spirit of rational inquiry. But more than that, it threatened the very lifeblood of religion itself, whose presence in White’s book is not central but appears in the interstices of his narrative thread. His most sustained elaboration of religion, and here I will cite the entire passage, reads as follows:

However overwhelming then, the facts may be which Anthropology, History, and their kindred sciences may, in the interest of simple truth, establish against the theological doctrine of ‘the Fall’; however completely they may fossilize various dogmas, catechisms, creeds, confessions, ‘plans of salvation’ and ‘schemes of redemption’, which have been evolved from the great minds of the theological period: science, so far from making inroads on religion, or even upon our Christian development of it, will strengthen all that is essential in it, giving new and nobler paths to man’s highest aspirations. For the one great, legitimate scientific conclusion of anthropology is, that, more and more, a better civilization of the world, despite all its survivals of savagery and barbarism, is developing men and women on whom the declarations of the nobler Psalms, of Isaiah, of Micah, the Sermon on the Mount, the first great commandment, and the second, which is like unto it, St. Paul’s praise of charity and St. James’s definition of “pure religion and undefiled,” can take stronger hold for the more effective and more rapid uplifting of our race.⁵²

As I read it, this passage expresses a belief, not only in the future of religion, but in history. To grasp this, one needs to see how deeply enmeshed White saw the rise of science with the purification of religion, both of whom, together, will aid in “the more effective and more rapid uplifting of our race.” White’s primary concern is therefore not the history of science, but global history; a history whose dimensions fill the ‘container,’ so to speak, and that constitutes God’s ongoing revelation of himself to humanity.

⁵¹ Ibid. 35.

⁵² Ibid. 322.

For White, history needed to be made ready for another revelation, namely, the ‘good news’ that is science. It needed to be purified of theological over-reaching, and it needed to be knit together in a way so that events disclosed in it (i.e. the great discoveries) would have universal significance. It also needed to be spoken of in terms that reflected the seriousness of the moment. This explains White’s preference for talking about cumulative gains or impending changes in the rise of science by using natural and organic metaphors. Thus science first appears as “the germs of a fruitful skepticism,” and then grows such that it becomes nearly impossible to “arrest the swelling tide.”⁵³ At the penultimate moment, White writes how the “current of evolutionary thought could not...be checked: dammed up for a time, it broke out in new channels and in ways and places least expected.”⁵⁴ This rhetorical shaping is also at work in his treatment of Darwin where he paints a picture of a man absolutely devoted to quiet research in a way that effectively immunizes him from any other motives. Darwin’s disinterest is crucial for setting the stage effectively for his ‘breakthrough,’ an event that White describes—in nothing short of a rhetorical crescendo—as providential: “Not until fourteen years later occurred the event which showed him that the fullness of time had come—the letter from Alfred Russel Wallace, to whom, in brilliant researches during the decade from 1848 to 1858...the same truth of evolution by natural selection had been revealed.”⁵⁵ This revelation precipitated a “flood of new thought pouring over the world” that “stimulated and nourished strong growths in every field of research and reasoning;” in a veritable act

⁵³ Ibid. 40; 61.

⁵⁴ Ibid. 64.

⁵⁵ Ibid. 67.

of creation, “masses of accumulated observations, which had seemed stale and unprofitable, were made alive.”⁵⁶

Now this kind of language is important for two reasons: it rhetorically enacts the power of nature (and of providence) in place of scholarly explanation, and helps efface White’s hand from the story as the author of the narrative.⁵⁷ Taking himself out of the picture is especially important, of course, if White was to convey properly the message of the good news of science. Support for this interpretation, namely, that White might have considered it a violation of his vocation as a new evangelist to say too much about the gospel, comes in the form of a deep reticence to engage with critics who seemed to sense all too well the theological import of his conclusions. In his correspondence, as Glen Altschuler shows, White was keenly aware that his bid to save religion by allowing science to demolish theology was fraught with paradox. But unlike Altschuler, who calls this “White’s dilemma,” I would argue that replying “weakly that he was doing his best to save the Bible” was fully consistent with “his aim...to provide a new stronger basis for the Christian religion.”⁵⁸ Rather than speculate about how this “long and embarrassing exchanges indicates all that he had to say about religion,” as Altschuler does, it seems to me just as defensible to suggest that White considered it important not to say too much in this instance. Unlike scholars, prophets depend on their ability to act as passive conduits for new critical insights about the existing order and its future. If, for some contemporaries, “White fell short in his attempt to strengthen religion and kindled fear

⁵⁶ Ibid. 68.

⁵⁷ Kenneth Burke, *The Rhetoric of Religion: Studies in Logology* (Boston: Beacon Press, 1961).

⁵⁸ Altschuler, “From Religion to Ethics.” 320.

about the future course of Christianity and society,” then avoiding debate with others might be much more deeply rooted in his faith that what he was writing was, in the last instance, not his story alone, but one with divine origins.

Looking at *A History of the Warfare of Science with Theology* this way goes beyond simply turning White around and showing how he sought a more fundamental “harmony” where there was “conflict.”⁵⁹ Not only does this vision of a deeper harmony flat-out contradict White’s hostility towards theology and institutional religion, generally; it ignores precisely the historical dimension that I have tried to show White took so seriously. White was serious about preparing humanity to accept the new revelation that was science, a revelation that could only take place in the “fullness of time.” To grasp this, we need to change our perspective fundamentally so that we can talk about people like White and what he was trying to do without tying ourselves into interpretive knots. Seeking to contain his distinctly *theological vision* in narrow terms of conflict, harmony, or any similar rubric that presumes the centrality of the same dichotomies (even when it seeks to overcome them) overly schematizes what was actually a much more complex plea for better religion. White saw this religion distinctly as unfolding in the future, which, if we take him seriously, makes it hard to simply argue that he was captive to some generalized Christian past, and hence to the “dilemmas of a Christian rationalist,” as Altschuler puts it.⁶⁰ His critique of traditional institutional Christianity cannot be ignored simply because it makes it easier to connect the ideological dots, to wit, in a way

⁵⁹ Bernard Lightman, "Victorian Sciences and Religions. Discordant Harmonies," *Osiris* 16 (2001).

⁶⁰ Altschuler, *Andrew D. White. Educator, Historian, Diplomat*.

that allows us to say that he is ‘really’ (deep down) still a Christian in a traditional sense. While I am not saying that we treat White as a failed Luther or Melancthon, I do think that it makes more sense to take him seriously as a religious innovator than simply dismissing his religious efforts as marginal to his more important work as a historian. In this instance they were mutually overlapping, and this fact complicates our understanding of what is perhaps the real issue underlying these events, namely: the vexed role of the scholar as a prophet of modernity. In the end, what should not be overlooked is how White’s account of the “warfare between science and theology” maps the modern differently, that is to say, from within a distinctly religious vision of the future.⁶¹ This may or may not help explain the hold his vision of conflict continues to exert on our social imaginary.⁶² But it does help us see the need for cultivating a better historical sensibility in how we approach the history of the conflict between science and religion.

⁶¹ For a defense of the need to adopt a new view of the multiple trajectories of modernity, see: S.N. Eisenstadt, ed., *Multilple Modernities* (New Brunswick N.J.: Transaction Publishers, 2002).

⁶² Charles Taylor, "Modern Social Imaginaries," *Public Culture* 14, no. 1 (2002).

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