Infidel Science!

Polygenism in the Mid-Nineteenth-Century American Weekly Religious Press

By

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ABSTRACT

Beginning in 1850 a deluge of articles on the unity of the human race began to appear in many of America's weekly religious newspapers. The writers of these articles reacted to what they perceived as an infidel attack on orthodoxy in two ethnological articles, one authored by Dr. Josiah C. Nott of Mobile, Alabama, and the other by Harvard University's great naturalist Louis Agassiz. Both men attempted to reconcile polygenism—the plural origins of human beings, one for each race—with the Bible by claiming that the human race does not share a unity of descent from Adam and Eve. They were parents of only one of the many human races. The religious weeklies varied in their attitude toward science, but many saw science as an acceptable interest for the pious and promoted the study and practice of various scientific disciplines. At the same time newspaper writers also sought to expose the use of science by infidels—those who actively sought to undermine other people's faith. For two decades the religious weeklies treated preadamist polygenism as an attack on their faith and an episode in their ongoing war on infidelity. Measured by the volume and intensity of the articles in these papers, the unity debate was clearly the most important public controversy involving religion and science in the middle third of the nineteenth century. This dissertation describes the unity debate in America's mid-nineteenth century weekly religious press, especially exploring the role of rhetoric in this controversy prosecuted in a mass media for lay consumers. This story of the unity debate helps to contextualize the those late nineteenth-century evolution debates by describing the rhetorical forms and techniques designed to deal with threatening science that had been honed in the

religious press in the decades immediately prior. But this is not about Darwinism. The unity debate ought to stand on its own historiographically just as it did in the mid-nineteenth century, when newspaper stories entitled “The Unity of Man” abounded.

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Introduction

> And [God] hath made of one blood all nations of men for to dwell on all the face of the earth. –Acts 17:26a (KJV)

Eighteen centuries after the Apostle Paul made this declaration to a philosophically inclined crowd in Athens certain American men of science pronounced the idea of universal human descent from common parents untenable and argued that each human race was a distinct and separate creation.[1] Instead of the Adam and Eve of Genesis, humankind had begun with a polygenesis, and the most influential of these polygenists worked in America.[2] In 1849, Dr. Josiah C. Nott, a physician practicing in Mobile, Alabama, published a pair of lectures he had delivered some months before at the University of Louisiana, entitled *Two Lectures on the Connection between the Biblical and Physical History of Man*, claiming a plurality of human origins, one for each of the human races. A few months later, the Harvard zoologist Louis Agassiz startled readers of the *Christian Examiner*, a popular religious magazine, with similar arguments, concluding that most humans were not related to Adam and Eve.[3] Both Nott and Agassiz knew that their ideas ran afoul of the traditional Christian view that the entire human race shares a single origin as the offspring of Adam and Eve, so they aided the faithful by presenting an interpretation of the Genesis narrative—called preadamism—which was compatible with plural human origins. Read correctly, they declared, the Bible does not claim

that all humans descend from the Edenic couple. Rather, Genesis only recounts the creation of one race, the rest having been fathered by other and perhaps earlier Adams.[4]

Nott and Agassiz triggered a war of words, a controversy over the unity of the human race. At a time when race and its implications for the politics of slavery claimed the attention of a population dominated by evangelical Protestants, the preadamist polygenism advocated by Nott and Agassiz could not be ignored. Yet historians do not agree on how or where the theory of plural human origins penetrated the world beyond the scientific elites. Many mid-nineteenth-century Americans were talking about race, but who of them included polygenism and preadamism in those discussions? William Stanton's classic account of the controversy treats American polygenism as an issue divorced from the larger culture. The unity debate, in his account, stayed within the domain of learned society. George M. Fredrickson challenged Stanton's interpretation by devaluing Nott as a scientist and arguing that polygenism was not peripheral to the southern defense of slavery, stressing its presence in prominent journals. Reginald Horsman agreed, stating flatly that, "Nott liked to regard his writings as disinterested scientific endeavors, but in reality they were special pleadings of major political importance in the South."[5]

Studies of the unity debate have been limited by their sources. In recent decades historians of science have begun to look at how science was presented in the popular press. The nineteenth century saw enormous growth in literacy and in a periodical press that catered to new audiences, resulting in the first true mass media. Religious Americans, both Christians and Jews, took advantage of this trend to advance their faith and produced hundreds of weekly religious newspapers. Hundreds of thousands of Americans learned about this controversy through the

pages of their weekly religious newspapers. Historians have been preoccupied with the role of polygenism in the politics of race and slavery, and that issue surfaced in discussions of racial origins religious press, but only weakly. Its writers were far more concerned with the religious implications of Nott's and Agassiz's ideas than with their application to social theory or the slavery debate. These writers, largely evangelical Protestants, did not appreciate either the science or the biblical interpretation proffered by Nott and Agassiz and launched an aggressive and hostile campaign against it. The great majority of them understood preadamist polygenism as an attack on their faith, an attempt by the southern physician and the New England naturalist to abuse scientific ideas to undermine their religion. In their view, this was infidel science, and infidelity had to be opposed.

Even though many papers included scientific reporting on a fairly regular basis, ethnological ideas rarely appeared in the religious weeklies during the 1840s. In response to Nott's and Agassiz's publications, ethnology exploded onto the pages of the religious newspapers, and articles with titles such as "Unity of Mankind" or "Unity of the Races" made almost weekly appearances in many papers. By the late spring of 1850, religious writers' opposition to polygenism had become a crusade. What follows is a longitudinal study of a dozen major religious weeklies for the period 1839-1880, with addition material from two dozen other papers.[6] These sources reveal that Nott's and Agassiz's publications elicited an explosion of activity in the religious press, and that the ensuing unity debate became the most contentious public issue involving science and religion during the 1850s and continued to irritate the faithful into the 1870s, setting the context for later events. In fact, the publication of Charles Darwin's *The Origin of Species* in 1859 did not ignite anything in the religious press like the furor elicited

by Nott's lectures and Agassiz's *Christian Examiner* articles nine years earlier. Attention to the religious weekly newspapers reveals a previously unknown dimension to the unity debate—its dramatic presence in the sphere of popular religious literature. The public unity debate adds a crucial new element to our understanding of the relations of religion and science in the nineteenth century.

The War on Infidelity

Ronald L. Numbers has recently called for more attention to "the ordinary people in the pews" in research on the interaction of religion and science, a perspective that has been missing from studies of the unity debate.[7] Attention to the unity debate in American religious weekly newspapers demonstrates the importance of popular religious literature. Mid-nineteenth-century America saw dramatic developments in public media as technological improvements and plummeting material costs transformed newspapers from delicacies for the wealthy into the regular diet of the masses. Religious organizations used this new literary conduit to bring instruction, edification, news, and advice directly into the domestic sphere, from the pulpit into the parlor. The religious weekly newspapers belonged to the everyday world of all religious people. They reported everything from revival meetings to recipes. No published source can take historians closer to the world of regular religious Americans than their religious weeklies.

Although historians understand the interaction of science, religion, and the larger culture in the popular press better for the United Kingdom than they do for its New World offspring, it should surprise no one that science was also well represented in the popular press on the west side of the Atlantic. We have long known that many Christians placed a high value on science,

and, as Chapter 1 shows, the growing social status and independence of practicing men of science did not inhibit religious writers from drawing spiritual succor from new knowledge about nature.[8] By mid-century, science writing was well represented in the American religious weeklies and was used for a number of purposes, from sermonic illustrations to general education. Whatever the use, science writing in the religious weeklies emphasized that God's truth in nature both conformed to God's truth in scripture and, as an expression of God's activity, served as a source of spiritual inspiration and instruction.

Work on British popular science by Adrian Desmond, Bernard Lightman, Jonathan Topham, Aileen Fyfe, Geoffrey Cantor, and others demonstrates that elite scientists did not monopolize the construction, use, meaning, or communication of science. Nor did they serve as the sole judges of the meaning or significance of scientific ideas.[9] Many writers in the American religious weeklies shared their British counterparts' goal of presenting science as a pious and edifying activity. They did more than educate their readers on the work of the practicing men of science; they attempted to construct a worldview compatible with their religious ideals and with scientific developments of their day. More than a bridge between elite producers of science and passive consumers, it was land of its own. Popular religious science writing had unique goals and conventions, and, most important for our purposes, continued to invoke the religious utility of science to a far later date than did the literature of the savants. In the religious province of that land, writers described a science domesticated to the house of God, a task that both communicated the knowledge of nature to a large audience and interpreted that knowledge in a way that served their spiritual objectives.

But that land had to be defended. Throughout the nineteenth century the religious press kept the subject of infidelity before their readers, cautioning them that the enemies of traditional religion endured. Infidels, in this literature, were no mere unbelievers; like Voltaire and Tom Paine, they campaigned aggressively against the faith and occasionally deployed scientific ideas as weapons. When that happened, science got drawn into religious writers' war on infidelity.

Historians of science have long been purging the rhetoric of warfare from their accounts of the history of religion and science, and rightfully so. There has never been a war between religion and science.[10] There have been conflicts over particular issues involving religion and science and over the use of scientific knowledge in the religious sphere. Nineteen-century religious writers largely encouraged science and the study of science by their readers. Their attitude toward the efforts of the growing scientific community was typically benign, often enthusiastic, and only occasionally suspicious. They did not, however, tolerant those who used scientific knowledge to undermine the faith of religious folk. Preaching both diligence and confidence in the face of this threat, religious writers assured readers that true science could never damage true religion. Only through distortion, they claimed, could science be rendered a weapon of infidelity, but infidels did exist who would dare abuse knowledge of God's creation to challenge God's revelation. Religious writers campaigned against infidel aggression through the medium of their newspapers.

Why 1850?

Neither polygenism nor preadamism was a new idea at the time that Nott and Agassiz published, so why did their mid-century version ignite the ire of religious writers. Several

factors contributed. First, Nott, Agassiz, and their colleagues—dubbed the American School of Ethnology (ASE) by a British admirer—delivered the most comprehensive and persuasive arguments for plural human origins to date, and they came with impressive scientific authority.[11] Agassiz, a Swiss naturalist, enjoyed an immense reputation as heir apparent to the great Georges Cuvier, and he blessed the emerging American scientific community by first visiting the new nation in 1848 and then accepting a professorship at Harvard's new Lawrence Scientific School, where he educated a whole generation of American naturalists.[12] Although not well known outside the South, Nott was an elite physician with an M.D. from the University of Pennsylvania, which he had augmented with medical training in Edinburgh and Paris, hefty credentials in a day when most physicians had little more than apprenticeship training.[13] George R. Gliddon, an English merchant and lecturer who, with Nott, edited and wrote the group's two most comprehensive publications, *Types of Mankind* and *Indigenous Races of the Earth*, had grown up in Egypt and was America's foremost authority on Egyptian antiquities during his tenure there in the 1840s and 1850s, bringing first-hand knowledge of the latest in Egyptian archaeology, a field that contributed key components to the polygenists' arguments.[14] All drew on the work of Dr. Samuel Morton, a distinguished paleontologist and naturalist and professor of medicine in Philadelphia, whose quantitative studies of human crania, *Crania Americana* and *Crania Aegyptiaca*, had impressed even the European scientific elite and provided an impressive empirical foundation for the work of the American School ethnologists. Although he died in 1851, just at the outbreak of the unity debate, and his own polygenist views were not widely known, his work inspired Agassiz, Nott, and Gliddon. These four men produced key ideas and texts that put America at the forefront of mid-nineteenth-century ethnology.

Prior to the emergence of the ASE, science had seemed to support a monogenist view of human origins, one that harmonized easily with the Genesis creation narrative. Most American Christians read passages about Adam and Eve as literal history that demonstrated that all humans share "one blood." Likewise, the genealogy of Noah's descendants in Genesis chapter ten and the "tower of Babel" story—an account of the miraculous origin of the variety of human languages—that follows in chapter eleven functioned for them a divinely sanctioned ethnology. This information drawn from the Bible did not stand alone in Christian thinking. Science had supported and embellished it. Since the eighteenth century, western scholars had been fascinated by the correlation of climate with human diversity, including culture, language, and appearance. In 1748, the Baron Montesquieu ascribed everything from agriculture to laws of particular civilizations to the "empire of climate."[15] Georges Louis Leclerc, Comte de Buffon, and Johann Blumenbach added their prestige to the notion that the cause of human racial differentiation was the effect of the environment on the human organism. Is this view—which came to be known as "environmentalism"—human races were analogous to varieties of a particular kind of animal that diversified from an original population as it spread out over the earth into new climatic regions.[16]

Thus environmentalist monogenism, with its emphasis on the original physical and geographical unity of humankind, lent scientific support to biblical monogenism. By the turn of the nineteenth century, that accord was dwindling. Scholars have pointed out the weakening of the intellectual structure of a monogenic understanding of human unity that arose as Europeans explored and conquered much of the rest of the world.[17] As exploration increased, Europeans learned volumes about the world that lay just beyond their horizon. Their discovery of the New World opened up whole continents populated by unique flora and fauna and exotic peoples with

unfamiliar customs and tongues. How had humans come to be *so* different if they are all part of the same family? Perhaps most significant was the experience of centuries of transplanted populations in the New World, none of which demonstrated permanent physical changes that could be ascribed to environmental influences. Perhaps Africans thrived better in the southern part of the United States where the climate was closest to their original home, but Africans in the North still looked African. Likewise, northern European transplants to the American South had not darkened in complexion or altered in facial features. Thus the monogenists' leading naturalistic explanation of racial diversity, that populations varied under the influence of their common environment, had the distinct disadvantage that no one had ever witnessed the development of discernible and hereditary changes in any people group.

Scientists who may well have had a religious motive to attack polygenism were hobbled by a lack of compelling science with which to do the job, and the cultural milieu of educated European Americans and the general tendencies of the current ethnological work emphasized racial differences more than similarities. The clear implication that the processes of environmentally induced change took great time also undermined the theory's credibility as long as human chronology was still measured in thousands of years. In the context of a short human chronology, the period between creation and the earliest evidence of racial distinctions identical to those apparent in nineteenth-century America was simply too short for such differentiation to have taken place by natural means. By the late 1840s, the harmony of biblical and scientific ethnology had lost much of its former strength, and, before the successful promotion of high human antiquity by Charles Lyell in the 1860s and the aggressive promotion of human evolution, especially by Thomas Huxley in the 1860s and 1870s, plural human origins seemed to have the

empirical upper hand. Thus, the arrival of the ASE's version of preadamist polygenism in late 1849 and early 1850 represented to many Americans the fracturing of the harmony of science and religion on a topic crucial to their faith.

Nott's and Agassiz's preadamist interpretation of the Bible also contributed to their infidel status. Centuries before, this exegetical argument had presented the earliest challenge to biblical monogenism. Isaac de la Peyrére, a French Protestant of Jewish descent, had irritated seventeenth-century scholars with his reinterpretation of the story of Edenic couple. In his *Men Before Adam* (1655), he argued that the Bible really taught that Adam and Eve were not the first human beings, but merely parents of the Hebrew people. All other races had been created earlier than Adam and Eve and belonged outside the Old Testament stories, which concerned only the Jews. (Nott and Agassiz changed the Adamic race to Caucasians.) Peyrére's theological work was roundly condemned as heretical throughout the seventeenth and eighteenth centuries. The Vatican forced Peyrére to recant and convert to Catholicism, but his ideas were not forgotten.[18] In the late nineteenth-century, they would become an exegetical refuge for evangelicals attempting to reconcile human evolution with a historical Adam and Eve, but in 1850 preadamism still bore the aroma of infidelity.

Apart from any infidel applications, polygenism itself would have been a hard sell to nineteenth-century religions Americans, especially the evangelical Protestants. More than merely a statement about history drawn from scripture, human unity also played a crucial theological role in their understanding of the person and work of Christ. The Apostle Paul represented Jesus as the second Adam, arguing that, as the human race fell into sin through the first Adam, so all can be redeemed through the second, Christ.[19] Theologically and exegetically

biblical monogenism undergirded the extraordinary attempt by nineteenth-century evangelicals to proselytize the world. Nott's and Agassiz's polygenism collided with both a core theological tenant and the religious imperative underlining the missionary movement.

Rhetoric

Although it persists in popular culture, the notion of a reified state of war between religion and science lost credibility among scholars long ago. In fact, historians of science are now suspicious of anything that assumes the form of a "master narrative" governing the relationship of religion and science.[20] But there is something to be learned from how the notion of warfare was argued and how it was undermined. Frank Turner's famous interpretation of the language of "warfare" employed by Thomas Huxley and John Tyndall as a tool in their struggle for cultural place and professional status for new scientists in British society has assumed almost paradigmatic status in religion-science studies. Although understood in primarily sociological terms, this mode of historical interpretation involved, if covertly, rhetorical analysis. Both Huxley and Tyndall were brilliant rhetoricians, and their "warfare" interpretation of the history of science and religion included important rhetorical conventions. So, too, in the American context, debates over human racial distinctions or human origins were characterized by important rhetorical conventions. How things were said was as important as what was said.

The immediate reason why the weekly religious press reacted so explosively to Nott's 1849 publication and Agassiz's 1850 article has to do with the rhetoric of infidelity. Aileen Fyfe's study of Britain's Religious Tract Society (RTS) emphasizes the importance of tone in science writing intended for evangelical Protestants. As the mass print market grew, British

evangelicals became concerned with the kind of literature being consumed by the unsophisticated. Believing that "in a free competition, Good would win out against Evil," they endeavored to produce safe literature for the masses. Consequently, the RTS published its popular Monthly Series, a line of books addressing a wide variety of popular scientific topics that bore the correct tone. While the American weekly religious press addressed science in a number of ways, including overt natural theology and spiritual metaphors, many of these papers included science articles devoid of religious content but embodying the right tone. Editors of these papers shared the RTS's goal to provide literature that showed, though subtly, that seeking scientific knowledge need not endanger one's faith. The tone of these articles had to be correct, and that is an issue of rhetoric.[21]

Agassiz was an affable and popular man, whom religious writers had long admired for his theist take on natural history, even though his theism was philosophical rather than religious. He resisted to his death the trend toward the exclusion of "God-talk" in scientific publications supported by the rest of the scientific community.[22] His views on religion, though, belonged to the liberal end of the spectrum, and he seemed quite satisfied that preadamism would quiet biblical objections to his polygenism. Religious writers respected his intellect but resented instruction on how to interpret scripture coming from a man who did not share their reverence for it. Nott was worse. The tone of his writing dripped with contempt for religious opinions uninformed by the latest liberal European scholarship and for the American clergy, whom he viewed as intellectually feeble and willfully ignorant.

In short, religious writers read Agassiz's and Nott's publications as a challenge to orthodoxy, a challenge communicated by the tone of their writing as much as the content.

Whatever openness these writers could have mustered toward a theory difficult to accommodate to a traditional understanding of the Bible, an openness that allowed many to endorse new ideas such as old-earth geology, was preempted by the necessity of repelling the infidelity their tone represented. Nott and Agassiz did not place their polygenism on the table for the religious to consider; they dropped it in their laps and with the challenge to take it or leave it. Writers in the religious weeklies chose to leave it. The sudden, voluminous, and hostile treatment these writers accorded the polygenists suggests that, in 1850, the unity debate took on a new meaning and greater urgency within the culture of religious America than it had in prior decades. It became a new battlefield in the war on infidelity.

Rhetoric also plays a role in how America's religious newspapers opposed ASE polygenism. Only with difficulty could editors and writers convey detailed and complex scientific or theological arguments in the popular press. The public religious press constituted a separate discursive domain from the elite scientific and religious journals, having distinct ends and methods. Those domains had not become as widely distinct as they would by the end of the century, but in the case of the family-oriented religious weeklies writers and editors could assume of their readers little knowledge of science and had only limited space to persuade them of their point of view. Arguments and counter-arguments played a role, but their function was overshadowed by the rhetorical forms in which they were placed. Religious editors and writers did engage in apologetics, but not exclusively, and even the overt apologetics needs to be located in the larger world of pastoral concerns. Here science entered the everyday world of religious readers who looked to their newspapers with various expectations—encouragement, edification,

information, entertainment—but also for a baptized view of the rapidly changing world of the nineteenth-century.

Readers did not need to know, in detail, how each point in the polygenists' arguments could be answered by the orthodox. What they did need was a view of this seemingly science-based assault on their faith that gave them hope that things would not come down to a choice between a faith based on revelation and the facts of modern science. The nineteenth century delivered a host of such unsettling challenges, from the nebular hypothesis about the origin of the solar system and the geology of an aging earth to the phrenologists' physical mind and the materialism of John Tyndall's and T. H. Huxley's version of human nature and evolutionary origins. All these issues were met in the religious press with attempts at consolation and reassurance that the faith once delivered to the saints would endure, and this message came packaged in a collection of rhetorical forms that were both heavily stereotyped and impressively flexible in their application. Interpretations of history, anecdotal refutations, imposition of disciplinary boundaries, trumping one scientist's authority with another's, and more all served to comfort believers. Religious writers constructed an understanding of the role of new scientific ideas in the world that valued science as holy activity while disarming those who would use scientific authority to attack the faith.

Whether Nott and Agassiz had any idea of the response they would receive from the orthodox is an open question, but the combination of the odium of preadamism, the Pauline doctrine of Christ as the second Adam, evangelical missionary zeal, and the war on infidelity guaranteed a hostile reception to their ideas. No issue in the religious press involving science and religion compares to this controversy until John Tyndall's and T. H. Huxley's crusade for

"scientific naturalism" began in the early 1870s. The American polygenists, especially Nott and Gliddon, deployed in their writings a rhetoric identified by the religious as "infidel," and their religious opponents drew on their well-developed catalogue of rhetorical devices to expose and repel that infidelity. They also deployed ideas, information, and all the accoutrements of academic debate, but the rhetoric accounts for much of the heat of the debate. The unity debate in the American weekly religious press presents a sterling example of how rhetoric functions in a controversy with high public value. It is about the deployment and assessment of authority in a mass media and about attempts to identify, limit, and manage authority in a period of American history characterized by the polarity of dogged anti-authoritarianism and the growing authority of expertise.

* * *

The first two chapters of this study set the stage for the events of the early 1850s by describing the religious press and the state of American ethnology. The analysis of the role of science in the mid-nineteenth-century religious weeklies and the "war on infidelity," in Chapter 1, provides the literary and cultural context for the reception religious writers gave the American School ethnologists. The weaponry employed in this war consisted of rhetorical strategies that had become rather stereotypical by 1850, but had to be overhauled to deal with the unique aspects of the ASE. Chapter 2 presents the science of ethnology in the period leading up to 1850, and introduces the members, arguments, and literature of the ASE. Chapter 3 gives a detailed account of the outbreak of the unity debate in the religious press in the early 1850s and sheds new light on the literature of nineteen-century American religion and science. It situates the unity debate in its public setting—in the religious press—demonstrating its importance far

beyond the more exclusive world of elite men of science. The story continues chronologically in Chapters 4 and 5, which recount the controversy in the religious press through the publication of the ASE's major work, *Types of Mankind*, its sequel, *Indigenous Races of the Earth*, going up to the Civil War. That conflict distracted writers from the question of human unity, and the subsequent termination of legal slavery in the United States irrevocably altered the political and social context of the unity debate. The final chapter recounts the decline of the unity debate in the religious press in the 1860s and 1870s, a complex story utterly lacking the drama of its outbreak in 1850. This event found no definitive termination. No new discovery or crucial political event—not even Darwinism—ended the unity debate; instead, it dropped below the horizon as religious writers found new and more immediate threats. The war on infidelity continued, even escalated, but the new enemies had new names and new ideas. The most significant controversy involving science and religion in mid-nineteenth-century America faded away as other issues displaced and, eventually, rendered the unity of the human race a moot concern. The last sentence in this story has no period: it ends with a fading ellipsis.

A Note on Sources and Citations

Chapter 1 describes the advent and character of the religious weeklies in some detail. The point to note here is that editorial quality varied widely from paper to paper. Bibliographic data such as volume and page numbers can be unreliable in some. It seems that, on occasion, printers simply forget to change type on the masthead or header from one issue to another or from one page to another. For consistency's sake, I cite articles in the religious weeklies by date, ignoring volume and page numbers. Since most of the weeklies were small, four to eight pages, this should not greatly inconvenience the reader. Quarterlies are cited by the standard format.

Chapter One

Science in the Weekly Religious Press, 1840-1875

> It is now generally conceded that the Christian weekly is one of the necessities of the age,—that with the widely diffused intelligence of the times, the rapidly multiplying sheets of the daily newspapers raining down on the land everywhere,—with the teeming issues of the press sent out though every channel of the public mind,—we can no more dispense with the agency of an active, Christian literature, than the age, as one of physical progress, can dispense with the agencies of steam and electricity. Christianity must be immeasurably distanced if in this matter she allow herself in the person of her disciples to underrate or neglect the press as a primal necessity of her onward and aggressive march. And there is no form under which this can reach the body of her members effectively, except through the medium of the religious newspaper—religious in the sense of being marked by this as a leading feature, but at the same times having enough of a general and miscellaneous character to attract interest and secure a perusal . . . Journalism is, confessedly, the leading power of the times in moulding opinion and character both in the secular world and the religious.

So editorialized William Cromwell in the weekly Baptist *Watchman and Reflector* in late December of 1856, as he reflected on the prospects of his newspaper for the coming year.[23] His colleagues at other religious papers would have "amen'ed" his pronouncement on the necessity of the press in service of the "aggressive march" of Christianity in that age of steam and electricity. His allusions to these important new technologies exemplify how deeply such clergy identified the cause of their religion with the blending of cultural and technological progress that so characterized their age. Staggering improvements in production and distribution produced

dramatic increases in the volume, readership, and influence of periodical literature. As a result, newspapers became a staple of American life, generating perhaps the first truly mass media, a veritable engine of public opinion. Steam power, mechanization and partition of labor in printing houses, railroads, cheap paper, and the U. S. mail transformed the production and distribution of newspapers such that this was emphatically the "age of the newspaper."[24]

American Christians did not miss out on this information revolution. In fact, they led it. "America is undoubtedly the birthplace of religious newspapers," declared a Methodist writer.[25] These papers, usually weeklies, developed as part of this nation-wide explosion of popular literature and benefited from the same changes in production and consumption that the secular press enjoyed, changes that resulted in a flood of literature spreading across the nation. Early in the nineteen century newspapers, pamphlets, and books became routine furnishings in homes across the socio-economic spectrum. This burgeoning popular literature reflected the general interest in scientific developments, and the weekly religious newspapers added their share to the volume of literature belonging under the rubric of "popular science." Although Catholics, Jews, and Universalists had their weeklies, the bulk of the papers and their readers belonged to evangelical Protestantism. That particular group has been over-represented in the study of mid-nineteenth-century American religion, but they were, by far, the largest and most powerful religious community at the time, and their weekly newspapers held a significant part of the market for periodicals at precisely the time when the unity debate burst onto their pages.[26]

We know from the work of scholars such as Adrian Desmond, James Secord, Jonathan Topham, Aileen Fyfe, Geoffrey Cantor, and Bernard Lightman about relationships between science and religion outside the ivory tower in nineteenth-century Britain. They have taught us

that popular science served its own goals, both political and religious, had its own patterns of readership, and cannot be treated as just a poor or defective reflection of Oxbridge scientific orthodoxy.[27] We know less about American popular science in this period. And, with the exception of Louis Agassiz's very public campaign against Darwinism, we know little about what the often torturous and demanding discussions of religion and the new scientific ideas looked like to the average person in the pew in the 1800s. What might a man or woman who had only a passing interest in science know about these great issues? What understanding were their clergy and other church leaders providing? Which sciences threatened and which edified, and how did the landscape of these issues change?

The religious weeklies provide a unique insight into these questions. Hundreds of thousands of religious Americans experienced science in their pages, people who had no opportunity and most likely little inclination to read the likes of *Silliman's Journal* (formally the *American Journal of Science and Arts*) or the proceedings of the American Association for the Advancement of Science (AAAS). For them, the products of the scientific community brought excitement, inspiration, edification, yet also the potential for abuse. Likewise, those who wrote about science for this audience expressed little fear concerning the content of new scientific ideas but exercised constant vigilance that they might not be pressed into the service of infidelity. They warned readers of the religious press of a war, not between science and religion but between faith and infidelity, a war in which science was a prize sought by both sides. Fought in the pages of all modes of publication, it reached many religious Americans in their weekly church papers.

America's Weekly Religious Newspapers

The print revolution presented both a blessing and a curse to religious Americans. Literature was cheap and abundant. Rapid transmission of ideas of all kinds produced an unprecedentedly fluid intellectual environment. Ideas both good and bad flew out from countless presses to feed a public increasingly literate and hungry for literature. Newspaper publication became both a necessity and an opportunity to the faithful of all denominations, including the budding anti-denominations, such as the Christian Connexion. Religious leaders of all stripes found it necessary to fight the questionable literature with good, and the press presented a powerful opportunity, an eschatological opportunity to some, to spread the gospel rapidly and comprehensively.

The New England preacher and theologian Horace Bushnell quipped that Americans acted "as if God would offer man a mechanical engine for converting the world . . . or as if types of lead and sheets of paper may be the light of the world."[28] Mark Noll has made the strong but plausible claim that "[i]n the decades after the Revolution, American Protestants so effectively mastered the new nation's most powerful communication systems and its most pervasive system of interpretation that, by the time of the Civil War, the United States had become a Christian nation."[29] As part of that mastery, Protestants and, to a lesser extent, Jews and Catholics invested heavily in periodical publishing. "Virtually nonexistent in 1800, religious periodicals had by 1830 become the grand engine of a burgeoning evangelical culture," claims Nathan Hatch.[30]

According to Charles Lippy, the number of religious periodicals published in the United States "mushroomed from approximately ten in 1800 to 850 in 1840." Gaylord Albaugh's magisterial bibliography of the American religious press notes that, of the 590 papers that existed between 1730 and 1830, 360 of them began after 1820.[31] By one contemporary estimate, there were approximately 400 religious papers by 1873.[32] Since, by that date, many papers had had to merge to survive, the number may have been higher for the decades preceding the 1870s. This explosion mirrored the general increase in periodical literature in the Anglo-American world. The number of periodicals published in English in the nineteenth-century is estimated at 125,000. Scholars now recognize the significance role that the periodical press played in the dissemination of science in that period, reaching far more people and a wider variety of readers than the elite-oriented scientific book trade.[33] By 1840 the religious weekly had become a staple of American church life, and in the following decades the number and circulation of these papers continued to increase. Cromwell's *Watchman and Reflector* was one of the hundreds of weekly religious newspapers that lived and, usually, died in the course of the nineteenth century. Some survived into the twentieth century. Some still exist.[34]

Physically, the American religious weeklies were small papers, usually four pages, though printed on large sheets. Some grew to eight or even sixteen pages by the 1880s, often by reducing the page size and moving to a more magazine-like format. Several papers transformed themselves into magazines in both format and frequency, in the course of their careers. The distinguished historian of American journalism Frank Luther Mott observed that, though a newspaper in format, in content the typical religious weekly has always been more like its less frequent periodicals in that their mission was not to communicate late-breaking news, but to

interpret news according to a religious worldview and provide wholesome and edifying religious reading.[35] The major exception to this observation lies in the religious intelligence that belonged especially within these papers' domain.

A great number of the weeklies were independent, owned and operated by individual clergymen as a form of religious entrepreneurship. Others had denominational affiliations, but received little or no financial help. Individual ownership allowed a paper to be the private mouthpiece of the owner, but most editors strove to serve the broader interests of their constituency rather than ride their hobby horses alone. Eventually, almost all the significant papers became the official organs of their local ecclesiastical bodies—Baptist state associations, Presbyteries, Methodist conferences, and so on. The exact nature of the relationship depended largely on the polity of the church in question. The *Biblical Recorder* was the official organ of Virginian Baptists, while the *Puritan Recorder* represented Congregationalist interests nation-wide; although it lacked an official endorsement from any church, it operated "with special cooperation of the pastors of the congregational churches."[36] In its early years the *Christian Intelligencer* was published by an "Association of Members of the Protestant Reformed Dutch Church" in New York. By late 1867, the Franklin Steam Press of Atlanta owned the *Christian Index* and used it to advertise its printing services while officially representing the Georgia Baptist Conference. Editors and proprietors benefited from this official status to some extent, but most papers remained under their control and their financial responsibility. The greatest aid that "official organ" status provided apart from endorsement was a distribution system. Clergy were expected to be promoters and, usually, agents for the paper, as well as correspondents providing local news of congregational achievements, revivals, and related information.

The Methodist church formed an important exception to this pattern. Because of the episcopal structure and the enormous growth of the denomination in the nineteen century, it had the luxury of managing its own papers. The visionary leader of the Methodist Book Concern in New York, the Rev. Nathaniel Bangs, established the *Christian Advocate and Journal* in 1826. His was not the first Methodist paper, but it was the first in a series of *Christian Advocates* that spread through the nation "advocating" Methodist principles. Throughout the country, as local conferences achieved stability and the requisite population, they received permission to publish their own *Christian Advocate*. Editors were appointed by the conferences, and clergy were required to act as agents, while the Methodist Book Concern underwrote many of these ventures in the hope that eventual profits could support a fund for retired ministers. These papers were owned, financed, and circulated as an integral part of that denomination's ministry. The result was the success of the New York *Christian Advocate and Journal* and the growing number of regional *Christian Advocates* established in the course of the century.[37] Consequently, these stable Methodist papers progressed across the nation in step with the church. Typically, the editors were closely tied to the church leadership, many going on to higher ecclesiastical posts.

Religious publishing in this period had an unusual relationship with the general market. The publishing industry was becoming one of the first large-scale specialized commercial enterprises.[38] Both the speed of printing and the size of the market outstripped the production of content so quickly that publishers scrambled for and often pirated material to print and sell. As production costs plummeted, so did retail costs, increasing profitability. Religious publishers, in contrast, while seeking to counter the effects of this flood of new literature, were rarely profit-driven. For example, the leaders of the American Tract Society sought to place good religious

reading in every household for cost, or less. So too, religious newspaper publishers were more concerned with circulation than profit, with the result that most religious newspapers lingered in a precarious financial state. The average proprietor and editor, running the business alone and without any financial backing charged $2.50 to $3.00 per year. Because of the denominational support and large circulation, Bang's *Christian Advocate* could drop its price from $2.00 per year to $1.50 per year, while most non-Methodist papers' rates ran at $2.00-$3.00 per year.

As a business plan, this proved unrealistic. Thriving, but volatile, the industry experienced a high mortality rate. Failures were estimated at the time to be as high as one in five, and could entail considerable personal cost.[39] Even as technology reduced printing costs and circulation grew, money remained scarce, and most proprietors, who often were clergymen-editors, subsidized their papers out of their own pockets. By one report, an editor of the *Christian Observer* lost $5000 during his tenure in the editor's chair—the "tripod" as it was called it.[40] Whatever business sense may or may not have been lacking, "getting up" one of these papers was a ministry, a lofty endeavor not calculated to make one rich.

The biggest problem was the behavior of the subscribers. It was not unusual for 30 percent to 40 percent of them to be in arrears. Editors regularly cajoled their subscribers, pressured their agents, and even published lists of delinquents, but with little success.[41] Occasionally papers would purge their subscriber list of delinquent accounts, but that was rare. Usually they carried malingering subscribers for years. Thus, the responsibilities for newspaper failures fell on the readers as much as the proprietors. Failures also came from competition between papers of the same tradition operating within the same market. Arguments over who should shut down when a market could not sustain sibling papers were sometimes settled by

mergers. Editors of Boston's Baptist *Reflector* claimed that it was established by popular demand because its older rival, the *Watchman*, would not publish on certain issues of interest to their constituency. Ten years later the two merged into the *Watchman and Reflector*, one of the most influential religious papers in the nation.[42] However they survived, most religious weeklies struggled. "With very few exceptions, the religious papers of the country are sustained with great difficulty," noted the *Lutheran Observer* in 1842, repeating a comment from the *Charleston Observer*. Nevertheless, editors and proprietors persisted: theirs was a holy vocation more than a commercial enterprise.[43]

Acting out of such sacrifice, editors had high expectations of their constituencies. As with all periodicals, a healthy subscription list was necessary to remain solvent, but unlike their commercial peers, religious editors considered their subscribers to be partners in ministry rather than customers to be courted; they persistently exhorted their readers to take, pay for, and act as agents for the paper. Some offered premiums to subscribers who generated subscriptions, but typical commercial incentives took a backseat to sermonic editorials about the duty of readers to support the paper. Editors expected every Christian household to subscribe and complained bitterly of those who fell short. In 1840, the *Boston Recorder* happily published this endorsement from a Thanksgiving Day sermon by an anonymous New England clergyman: "But I really see not how any family not too poor to have meat or sugar or any superfluity whatever, can be content without the weekly use of a good religious newspaper. Such a paper is good for the young, and good for the old, good for Sundays, and good for week days. It is always a welcome visitor and greeted with smiles."[44]

Editors and proprietors pressured both clergy and lay subscribers to recruit new paying readers. One Presbyterian exhorted, "There are very few persons who cannot induce at least one other to read the same newspaper that they do; and with such an army of canvassers, the work of increase would be rapid."[45] The *Lutheran Observer* responded to a complaint about the number of ads it printed by putting the onus on the complainer to raise the number of subscribers.[46] Some offered premiums and other incentives to readers in hopes of recruiting them as agents. Here the distance between the pulpit and the pew intervened. Clergy editors considered subscription to be an act of religious stewardship, but the need persistently to preach this message suggests that readers understood it as an act of commercial consumption.

As precarious as the religious newspaper business was, it was not for lack of markets. Bangs's paper proved that. In its first year it achieved the enormous circulation of 17,000 copies, which rose to over 20,000 by the end of the second year, the highest circulation of any paper in the country at that time, possibly in the world. At one point, Bangs estimated his readership at 120,000. In the opinion of one historian, the *Christian Advocate* was, "for much of its 150 year history the most popular weekly periodical in the United States." The most significant papers in larger urban regions, such as Cincinnati's *Western Christian Advocate*, could and did achieve numbers as high as 15,000.[47] However, this was unusual. The New York *Christian Advocate and Journal* functioned as a national paper; not surprisingly, its circulation declined as the establishment of regional *Advocates* cut into its subscriber list. Most papers had a more local market, and editors often began with runs as small as 500, perhaps reaching 3,000 to 5,000 at their paper's maturity.[48]

But circulation is not the same as readership, and, since the religious weeklies were aimed at the family market, editors assumed a readership of three to five times the circulation. Because of consumer practices such as reading rooms, joint subscription by several families, and newspaper circuits, it may have been higher. As with all periodicals, the religious weekly's influence extended beyond paying subscribers. Editors and proprietors were happy to have the influence but complained of readers who borrowed papers rather than subscribed themselves. Even worse were the cheapskates who read other people's weeklies while loitering at the post office, before the rightful owners had laid hands on them.[49] However they gained access, many religious Americans read one or more of these weeklies.

The Pulpit in the Parlor

Shaped by the interests of their editors, many papers had particular drums to beat, be it temperance or abolition or some other issue, while the denominationally supported papers were filled with news and apologetics pertaining to their national church. The publishing revolution especially served the interests of the distinctively populist religious movements that characterize the nineteenth-century American religious landscape. Elias Smith designed his *Herald of Gospel Liberty* to model the very populist dialogue on religious issues that lay at the heart of his anti-institutional and anti-elitist views on religion. Shortly thereafter it became the organ of Barton W. Stone and Alexander Campbell's "Christian Connexion" and continued that affiliation for decades, even after Smith himself slipped over into Unitarianism.[50]

Many religious newspapers were, like Smith's, the result of the vision, efforts, and investment of individuals, almost always clergy, to promote their version of religion or to crusade on pet moral issues. But the major denominations quickly entered the religious newspaper market to check these critics from usurping this powerful communications medium. Even denominational papers were influenced by their editors' special interests and personal views on intra-denominational controversies, but they were also balanced by the larger denominational agenda. When Benjamin Kurtz took over the editorship of the *Lutheran Observer* from John G. Morris, he dropped Morris's anti-slavery sentiments and added his own interest in temperance and revivalism, all the while serving the interests of English-speaking Lutherans.[51] Likewise, each paper bore the mark of its editorial staff. Presbyterians, for example, defended Calvinism; Methodists, Arminianism; while both defended pedobaptism against Baptist papers, which, in turn, generated more articles on the meaning of the Greek word *baptizo* than anyone's interest could possibly sustain.

The editors of all persuasions shared the mission to provide safe and edifying religious news and literature in the face of a growing and seductive secular newspaper press. They understood that times had changed and that if the church were to retain an influence on its own people, much less the larger culture, if it were to succeed in the battle for the "empire of the mind," it had to publish newspapers. A writer in an 1870 issue of the *New York Evangelist*, a New School Presbyterian paper, observed that "The time was when the pulpit was the only medium of thought and information to the masses of the people. Now the press does much of this work in a better way; and the people look to the newspapers for what is transpiring in the world."[52]

His point is well taken. Traditionally the pulpit had been a community's point of communication as well as the place to expound the gospel. The pulpit delivered not only sermons but also news, government communications, and even political harangues. Now newspapers were taking over these functions, contributing to a privatization of discourse and a loss of clerical influence in general. This was part of a larger transformation in American religious culture that Nathan Hatch has called the "democratization" of American religion, a process characterized by a new openness at the expense of church tradition and the elevation of individual opinions at the expense of traditional church authority, especially among the Baptists, Methodists, and the various new sects that emerged in the course of the nineteenth century.[53] In the colonial period, information was the domain of the elite, but religious awakenings had increased interest and demand for literature, and the rhetoric of the American Revolution made newspaper reading a civic duty.[54]

The clergy advocated neither censorship nor the suppression of the independent press, an astute strategy since neither was a realistic option in post-revolutionary America—both the cultural ethos and the new printing technology would have prevented them. Instead, religious Americans of all traditions whole-heartedly embraced newspaper media as a means to engage other cultural influences. Combating print with print, their enemy was the influence of cheap secular publications of all kinds. An observant writer in the *Christian Intelligencer*, a Reformed Church weekly, seeing a new class of readers consuming a new class of literature, leveled the charge that the cheap press of the day "inculcates erroneous views of life," endangering young people in particular.[55]

Many clergy viewed novel-reading as a pernicious practice, corrupting at its worst and destabilizing at its best, possibly even causing that particularly nineteenth-century malady: moral insanity. This estimate was shared by a larger segment of American society than the churched, but was especially entrenched in the religious literature.[56] The *Boston Recorder* admonished parents that a religious newspaper "may prevent your children from clandestinely procuring a licentious novel and reading it in bye corners, or at unseasonable hours, or from sitting with the lewd, the intemperate and abandoned, shuffling cards til the stars set."[57] Lutherans got an earful for preferring to their *Observer* "a political newspaper—a 'Dollar Weekly,' full of silly stories and sickening details of crime."[58] Likewise, a Baptist paper complained of periodicals "filled with romance and fictitious tales of an immoral or doubtful tendency" but celebrated the popular appeal of religious newspapers because these were more likely to be read than "thick books."[59] Fighting ink with ink, the goal of the writers and editors of the weeklies was to put wholesome literature into hands tempted by the flood of morally inferior publications. The vulgar press could not be controlled, but it could be met, page for page, with better literature, if only the faithful would discipline their reading.

In one respect Mott's claim that the religious weeklies were magazines in content needs to be amended.[60] Religious newspapers also carried out a specialized version of the journalistic function by supplying the religious news that the secular press ignored. This included the triumphs of the gospel in revivals and the success of overseas missions. Churches had their own version of the gospel of progress that gripped western culture in that period. For Christians, especially those with evangelical convictions, the time of the consummation was at hand. The missionary movement and the various moral reform movements were gathering momentum, and

for the faithful to keep up with these events, they needed news. "The family who reads no religious paper, lives in ignorance of the spread of the church, and of the success of religions enterprise. Such a family live [*sic*] thirty years behind the age."[61]

Religious weeklies also served as watchmen, warning of advancing threats. They exposed dangerous political ideas circulating in the secular press, especially the specter of the French Revolution lurking in the back of religiously orthodox American minds. They noted the press's power to give wheels to radical ideas; New England's *Puritan Recorder* blamed the French press for leading that country into its violent and infidel excesses, and called the religious press "the high-priest of public opinion on all the great moral questions brought before a reading community."[62] A Baptist shared this xenophobic moralizing: "Weaken or destroy the power that the religious press now has in the United States, and soon even France may teach us morals, and Italy, religion."[63] Another *Puritan* writer presented a more common argument for countering cheap publications. "A cheap press, if not a positive evil, is at least an equivocal blessing. A vast majority of its productions are of a vicious character. . . . The religious newspaper press—we take occasion to say—affords ready and efficient means of counteracting these pernicious influences, of creating a healthful literary ta[s]te, of enlightening the mass of mind, and of promoting sound morality and true religion."[64] In his eyes, moral outlook and literary taste were organically connected. A Universalist writer agreed, admonishing parents to inspect their religious paper so they may "learn whether it is calculated to cultivate a truly religious character, or a sickly, vitiated taste."[65] Thus, the goals of the religious press included more than mere morally acceptable reading, and the reformation of taste and sensibility provided religious newspapers the mandate of supplying acceptable literature even of a non-religious nature.[66]

Appropriately, editors and writers of all denominations held a lofty view of their calling and agreed on the nature and importance of their work. They considered their newspapers as second only to the pulpit; indeed, some hesitated to concede a secondary status, pointing out, for example, that a single paper reached far more people than any single pulpit and was not impeded by human frailty:

> How necessary then is it, that there should be some preacher, who shall move about in silence, enter almost every house, addresses himself to the reason of men, and preach of thousands and tens of thousands, without any danger of the bronchitis or consumption. So it is with the religious newspaper . . . it never grows weary; it flies from a distance to you on the wings of steam, and although sometimes cramped by poverty, it never dies of disease.[67]

It "is in many respects, of the same kind with that of the ministers of Jesus Christ, while its influence is immensely wider."[68]

Other editors, careful not to poach too much on their pulpit-bound colleagues, prudently articulated an ancillary role for their papers: "It aims not to do, and if it did, could not do, the work of the pulpit; but most powerfully does it assist and perpetuate that work."[69] Still, the paper was essential to the health of the church however subordinate it might be to the pulpit. "The Church newspaper has thus a distinct sphere, which can be filled by no other agency." It is the "great ally of the pulpit."[70] "We believe that in this day of novelties and impostures, of strange innovations and 'damnable heresies,' the permanency and prosperity of no church can be preserved without the aid of a well-conducted religious newspaper."[71]

These periodicals insured that religion entered the home of their readers, nurturing their faith and protecting them from the impious influences. The editors interpreted all aspects of life for their readers, not just their denominationally distinctive news and views. Their breadth of

vision included the natural world and the increasingly voluminous and rapid developments in science and technology.

Science in the Weekly Religious Press

The nineteenth century saw a massive increase in the doing, publishing, and applying of science. By the end of the century there were careers to be made, as the social structure of scientific practice shifted from gentlemanly activity to professional vocations and the technologies associated with scientific knowledge transformed the patterns of everyday life. Science was a concern to religious editors, but so were doctrine, piety, morality, and social agendas such as slavery, temperance, and the women's movement—and space in their small-format newspapers was at a premium. Their dual functions as pastors and journalists meant that little lay outside of their interests and responsibilities, and editors were already pressured to satisfy the potentially distracting demands of their constituencies. One even pleaded with his readers to reduce the size of the obituary notices he felt obligated to include. Papers with close denominational ties had to report every ordination, installation, visitation, revival, death, and building project within their often large domains, not to mention controversies both within and without their denominations.

The faith was their first concern, but that included all benefits and threats to their readers' spiritual well-being that American culture could supply. The industry of religion, its expansion and institution building, and ongoing sniping among denominations also demanded space in the weeklies. As pastors, the editors additionally had the obligation to advise on the more intimate

aspects of life in the family and mundane aspects of work on the farm. Thus the presence of science in these papers indicates how important they believed it to be.

The level of attention editors gave to scientific matters varied dramatically from paper to paper. Location, tradition, and individual editorial interest all played a role. For example, the *Lutheran Observer* displayed a consistent interest, publishing something on science almost weekly, while the short-lived *Confederate Baptist* was too preoccupied with war and the cause of secession to cover science at all. Scientific subjects appeared in the *Catholic Mirror* only in the context of larger philosophical topics until the mid-1860s, when it began to publish occasional pieces similar to the standard Protestant fare.

Geography played a key role. Newspapers published in regions rich in scientific activity generally reflected that advantage. Science was part of their cultural milieu, and their clergy-editors happily popularized and propagated scientific information. Such papers included New York City's the *Christian Intelligencer*, an organ of the Reformed church, and *Evangelist*, a New School Presbyterian paper; Boston's *Trumpet and Universalist* (Universalist) and *Watchman and Examiner* (Baptist); and the *National Baptist* in Philadelphia. Certain well-situated southern papers also showed interest. Though not as consistently as the northern papers mentioned above, the Episcopal *Southern Churchman* and two southern Baptist weeklies, *The Biblical Recorder* and the *Religious Herald*, gave frequent attention to science. The *Southern Christian Advocate*, reflecting the heady intellectual atmosphere of Charleston, outdid most northern papers in the 1840s and early 1850s. But, by the late 1850s, its science reporting fell to approximately one third of its former amount. In the 1870s, after a history of little scientific interest, the *Raleigh Christian Advocate* began to rival the best years of its Charleston sibling. Western papers, such

as Cincinnati's *Western Christian Advocate* and the Chicago Baptists' *Christian Times,* occasionally showed great interest as well.

Once geography is factored out, however, Baptist papers, with their more distant relationship to the broader culture generally, gave science less attention than papers from the Reformed or Wesleyan traditions. For example, the Baptist *Christian Secretary* published in Harford, Connecticut, lagged behind other northern papers while the Georgia Baptists' *Christian Index* seemed almost indifferent. Yet inconsistencies in these patterns suggest that individual attitudes of editors and proprietors played a large role in determining the volume of science in any particular paper. Those who ignored science altogether were, however, rare. Most papers heeded its increasing importance to American life and American religion, and readers of these religious weeklies encountered scientific topics routinely. For them, the task of comprehending through the eyes of their faith included, as an indispensable part, attention to science and its developments.

Articles in the religious press contributed to the general literature popularizing science in the nineteenth-century. But, as has been said, popularizers were not merely parrots reducing the science of the elites to a form palatable to the masses.[72] Their goals did not map perfectly onto those of their scientific betters; rather popularizers shaped their discussions of science to their own purposes and packaged it in a form integrated into the worldview of the editors and their audiences. This form was closely connected to the Anglo-American tradition of natural theology, which strongly reflected the views of the English natural theologian the Rev. William Paley in the 1840s but later evolved to meet developing notions of natural law and consequent ideas about how God relates to the natural world.

In keeping with their pastoral concern, religious weeklies that devoted significant attention to science presented it as a comfort and encouragement to the faithful. The metaphor of God's revelation in two books, scripture and nature, expressed a conviction primordially deep and centuries old for English-speaking readers, especially Protestants. It practically functioned as doctrine, and religious writers repeated it like a mantra whenever addressing the topic of religion and science. It was axiomatic to these writers that the results of true science could not be in tension with the true interpretation of scripture. This well-nigh unshakable faith was displayed on every occasion broaching the relationship of religion and science. Science, in their view, reinforced the authority of scripture, authenticated the faith, and declared the glory of God.[73]

Many of the more established Protestant papers eventually ran columns devoted largely or exclusively to science. A few did so as early as the 1840s; many, by the 1870s.[74] Often these columns mixed science with the arts, literature, or health. Varying from a half to one and one half columns in length, they contained a number of short reports usually no more than eight lines in length. In these columns science and technology were rarely distinguished. Occasionally "pure" science was represented, but practical uses of scientific knowledge received far greater attention in these columns. In these articles science appeared as progressive, productive, and non-threatening. Invariably, these short pieces were devoid of religious glosses. Here was a celebration of scientific and technological progress infused weekly into the most accessible of popular religious literature. Well, almost weekly. In several of these papers, the "scientific" column ran rather irregularly, perhaps inserted only as space allowed. Small pieces on science of

this character also turned up in the "Miscellany" columns of papers lacking a dedicated "scientific" column.

Many papers' book-review sections covered selected scientific works. This too varied according to the particular paper; some deeply invested in book reviews, others largely ignored them. At best, a book review was only a few lines long. Only the most popular scientific works made this section, but the popular scientific press burgeoned in this period, and editors had much to note. Some papers took particularly interest in promoting textbooks.

Some weeklies occasionally hosted a long series on a specific scientific topic. These could be extensive, equivalent to a long pamphlet or short book. The Rev. Jay Dana's twenty-four-part series on geology graced the front pages of the influential *Boston Recorder* from January through August, 1858. Dana justified his effort on the grounds that God is manifest in nature, yet made few religious comments until the last third of the series.[75] Two years later, the *Recorder* treated its readers to Charles C. Coffin's twelve-part series, "The Testimony of the Stars."[76] The *New York Evangelist* discussed geology in its five-part "Hints and Selections on Geology" in late 1842 into 1843.[77] Although not a leader in science journalism, the *Christian Secretary* began the 1840s with a long series on natural history by "Amicus."[78] In 1873, the *Raleigh Christian Advocate* reprinted a series from the *Louisville Medical Journal* by E. S. Gaillard, M.D. Under the several titles—"Ethnology," "Philology," and "Development"—it surveyed these topics in a dozen installments from February to June.[79] L. D. Williams, who in the late 1850s regularly wrote on scientific topics for the *Western Christian Advocate,* included in those efforts five parts on the nebular hypothesis.[80] These various series often contained a

religious gloss on the science, but mostly they taught and promoted the value the particular scientific topic. Most of these extended series had front-page status.

In both serialized and occasional articles, astronomy and geology ranked as the most popular of scientific topics. The nineteenth century saw dramatic changes in physics, but these were too esoteric for public consumption in short newspaper articles, though technological changes related to physics appeared in science columns and stories. Samuel Morse's telegraph and the trans-Atlantic cable, the Anglo-Irish astronomer Lord Rosse's massive telescope, and a host of chemical, electromagnetic, and mechanical devices for manufacturing and agriculture made regular appearances. Some religious papers had agriculture sections, which regularly preached the need for "scientific" agriculture.

This enthusiasm for science fit well with the goal of providing edifying reading material. Religious writers prized scientific pursuits as acceptable and uplifting activities, especially for the youth. In 1840, the *Western Christian Advocate* hosted a series of practical articles on how to start a family geological cabinet, in which the author, H. O Sheldon, promoted the value of geological collections for itinerant preachers, families, and, especially, young boys. In the midst of this series, a supporter of his views argued that geological cabinets are so ideal an education for the young that they ought to start collecting even before they can read. This geological enthusiast believed that collecting would improve children's book learning, reading, and writing, though he did not explain how this pedagogical theory worked. Less eccentric was his claim that such a hobby protects youth from "vicious and expensive amusements and of course from dissipation and ruin."[81] A writer in the *New York Observer* agreed, noting that boys with geological cabinets do not waste their time playing marbles. "The friends of science, sound

morals and religion, have reason to rejoice that this subject [geology] is gaining so large a share of public attention."[82] Likewise, "Amicus" argued that doing natural history is a better practice than reading the "*worse than useless novels* that are constantly poured upon the public." Better to have young people discussing natural history than the base topics that would otherwise occupy their interest.[83] Science was a tool in the clergy-editors' crusade to save American culture from the dissipating influence of modernity.

So great was the confidence in this tool that scientific information could be packaged free of religious commentary. For example, "Our Wonderous Atmosphere," a description of various atmospheric phenomena and their importance to humans, extracted from Alexander von Humboldt's enormously successful *Cosmos: A Sketch of A Physical Description of The Universe*, appeared many religious newspapers. The baron's lofty prose—"The atmosphere rises above us with its cathedral dome, reaching towards the heaven of which it is the most familiar synomyme [*sic*] and symbol"—resonated with religious editors.[84] The literary quality and romantic view of nature of Humboldt's work exemplified the moral and sentimental tone editors sought. Here was worthy literature, uplifting and displaying the glories of God's creation, valuable even though the piece carried no spiritual reference, no mention of God, and no hint of natural theology. Humboldt himself professed no Christian faith, and the idolization of his work illustrates the fact that many religious editors were content with scientific articles of acceptable tone and did not require that such pieces present overtly religious ideas.

To the regular reader of America's weekly religious press in the mid-nineteenth century, science appeared as one of the topics appropriate to pious interests. Nature revealed God's existence and attributes, the scientific study of nature served as a sanctified alternative to the

corrupting and inferior literature of the day, and the onward march of science and technology belonged to the general rise of western civilization, which to most of these writers was closely identified with the progress of the gospel. They did not claim modern science exclusively for the church, but neither did they treat it as hostile nor foreign to the house of God.

The War on Infidelity

As positive as all this was, scientific activity was not without a darker side in the eyes of Christian writers. Nineteen-century Protestants' outlook on science and scientific developments was conditioned by two convictions. First, the metaphor of God's revelation in two books, scripture and nature, functioned practically as doctrine. Second, in tension with that faith, however, was their experience of infidel attacks that deployed scientific "facts" as an epistemological high ground from which to discredit revelation and, thereby, Christianity. The nebular hypothesis, organic evolution, old-earth geology, phrenology and, as we shall see, American School polygenism were all implicated in these attacks on one occasion or another.

But science was only one campaign in a larger war on infidelity that bore a remarkable uniformity across the landscape of American religion. Other fronts appeared under rubrics such as "rationalism" and "materialism." Liberal European biblical scholarship, the work of David Strauss and Ernst Renan especially, drew heavy fire as well. American religious writers found the liberal Anglican *Essays and Reviews* especially irksome, coming from a source they had not hitherto suspected. Then came Bishop Colenso's equally controversial publications. These scholars questioned traditional assumptions about the historical veracity of the Bible, a project

that many Americans understood as an attack on biblical authority. By "infidelity" religious writers meant something more specific than mere unbelief. Unbelievers were lost souls in need of the gospel. Infidels were hostile souls, intent on undermining the gospel. Thus, the heat of the anti-infidel rhetoric reflected the perceived aggression of the infidels themselves. It was the pastoral duty of the religious editors and newspaper writers to provided defense, aid, and comfort to their readers.[85]

The response to the threat of infidelity was remarkably ecumenical. Evangelical Protestants, Universalists and Unitarians, Jews and Catholics alike used their newspapers to warn of the infidel insurgency while comforting readers with declarations on the ultimate impotence of infidel aggression.[86] These declarations were made credible by various stereotyped anecdotal accounts of the dissipation and misery produced by infidels' lifestyle and the weakness of their reasoning. Countless stories described the terror of infidels facing a comfortless death, their financial and moral failings, and, perhaps most poignant, infidels confounded by the simple reasoning of godly children or uneducated but devote adults. These articles circulated widely as papers copied stories from their peers, with the result that many provided an almost weekly diet of anti-infidel reading. The overall message was twofold: while the threat was not serious to the attentive and informed believer, vigilance remained necessary, and readers should enlist as soldiers in the war on infidelity.

As confident as religious writers were about the weakness of this persistent threat, some also warned that infidelity had, of late, changed character. They described an older infidelity, that of Voltaire and Thomas Paine, as overtly hostile and characterized by a puerile sarcasm and ridicule of religion. The current infidelity often concealed itself as a friend of the faith.

Purporting to be "on the Lord's side"— while its rationalizations and reinterpretation actually undermined the very foundations of the faith—the new infidelity had an insidious character. As one southern Methodist put it, "Modern infidelity resembles vice which has thrown away its coarseness and assumed the garb of polish and refinement." He also accused contemporary infidels of dissimulation, complaining that you "have to track the enemy as you would an Indian through the forest, who fears to leave a foot print, lest you should run him down. Why must you tie him to a definition, and then force him to explain himself, before he will admit that he is an opposer of Revelation"[87]

Strangely, though, the immediate enemy had no name. Through the 1840s, 1850s, and 1860s, only rarely did these articles identify any living, breathing infidels. Voltaire and Paine continued to serve as figureheads, but they were combatants of previous generations, now retired from the field by their own mortality. Even when stories circulated about Paine's disciples celebrating his birthday in various American cities, the emphasis was more on Paine himself than on the celebrants.[88] Religious newspapers represented infidelity as an immediate menace, but the contemporary infidels themselves remained anonymous abstractions. Robert Chambers's *Vestiges of the Natural History of Creation*, which appeared in 1844, caught the attention of some papers as case of contemporary scientific infidelity. An extraordinarily ambitious work, it explained everything from the solar system to the human race in terms of evolutionary development. The *New York Evangelist* declared it "a monstrous libel on the whole character of God." The alarm was short-lived however, since prominent scientists, such as Louis Agassiz, quickly attacked it as defective science. [89] Although religious writers persisted in vigilance, the

rather abstract cast to their writings on infidelity and the anonymity of the infidels suggest that the 1840s were a rather peaceful time.

The unity debate, ignited in the 1850s, paralleled a peak in anti-infidel articles. Unlike a later wave of articles attacking the British scientists Thomas Henry Huxley and John Tyndall, articles on infidelity in the 1850s did not single out American School polygenists with comparable specificity. Yet the increase in attention suggests that the polygenists stirred the waters enough to elicit greater anti-infidel rancor. The reasons for the dissimilar treatment of these two events will be explored in a later chapter. For now, it suffices to note that, although Josiah Nott and George Gliddon happily deployed irreligious rhetoric similar to that of Huxley's and Tyndall's, Louis Agassiz and Samuel Morton did not. Agassiz's immense scientific authority was the greater threat, but his blend of exemplary science and pious-sounding natural theology put him in a very different rhetorical category from the British combatants of the 1870s.

In the three decades preceding 1870, American religious writers deployed a standard set of arguments to counter what they considered the infidel abuse of science. Central to those arguments was a stereotyped narrative based what the defenders of the faith understood as centuries of experience of such attacks. English deists and French *philosophes* had advertised every new scientific achievement as the end of the church, but it had survived. By 1840, Protestants had a long enough history of rebutting infidel insurgency that they could use that history as both an apologetic defense and a pastoral consolation. "Once infidels looked to stars, geology, human history to show no God. Now these disciplines support religion," chirped the *New York Evangelist*, in 1852.[90]

Religious writers characterized the infidel use of science as attacks by mere dilettantes who expropriated information from very young sciences, information that appeared to be factual but had not been tested by time. "[I]t is only science pretending to knowledge beyond its discovery that antagonizes the truths of revelation."[91] These infidels, according to the story, then spun unfounded speculations and hypotheses that exceeded any empirical foundation. Claiming this scientific "knowledge" as true, infidels declared that it put the lie to revelation and religion in general. But, as the science in question developed and matured, it exposed these infidels' arguments as impetuous, even puerile, speculations. Over and over, as this story went, the infidel scientific arguments proved unfounded. Readers could rest assured that any new threat would likewise wither in the light of developing scientific knowledge. It only took time.

Religious writers supported one element of this formulaic view of history, the dilettantish character of science-wielding infidels contrasted with the religiosity of true men of science, by noting scientists who conformed to this expectation, men such as Edward Hitchcock, James Dwight Dana, the Benjamin Silliman's, Sr. and Jr., and even Louis Agassiz. Biographical articles and tidbits on Isaac Newton's religious views also became common, especially after the publication of Sir David Brewster's hagiographic biography of Newton supplied the necessary anecdotes.[92] According to a popular story repeated in several papers, Newton had been a skeptic until a through study of the Bible converted him. Another had Newton rebuking Edmund Halley for criticizing Christianity; "for you have not studied it. I have, and am certain that you know nothing about the matter."[93] So deep did this expectation of "science engendering faith" run that when Alexander von Humboldt died, one newspaper writer argued, against all evidence, that he was a Christian.[94] Though this attempt to baptize the dead by means of printer's ink was

unique—most papers acknowledged that Humboldt expressed no Christian sentiments, and praised him as a scholar and a gentleman, rather than a saint—it illustrates the force of their expectation.

Infidels and their literature, in contrast, did not belong in the ranks of true science. "The present age, above all that has gone before, is peculiarly the age of physical science: and of all the physical sciences, —not excepting astronomy itself, geology—though it be a fact worthy of notice, that not one of our truly accomplished geologists is an Infidel, —is the science of which Infidelity has most largely availed itself," noted the *Southern Christian Advocate*, borrowing from the editor of the *Witness*. But, this writer continued, their scientific writings, such as Robert Chambers's *Vestiges of the Natural History of Creation* are written in a popular style, comparable to the *Arabian Nights*. "[Infidel writers] are formidable simply as the earliest popularizers of some interesting science, or the first promulgators of some class of curious, little known facts, with which they mix up their special contributions of error—often the only portion of their writings that really belongs to themselves." Infidels had the upper hand because their refutation required mastery and articulation of technical details that makes for hard reading. Christian ministers, he concluded, must attend to science to "meet the enemy in his own field."[95]

Even with these solemn warnings, the overall tone of anti-infidel rhetoric in the newspapers expressed confidence that infidel propaganda would always fail in time. This narrative framework enabled religious writers to embrace science while enthusiastically deploying various strategies harmonizing nature and revelation. They heralded each success as a triumphant refutation of past infidel aggression, all the while comforting their readers that, no matter what, in the long run science would always support their cause. Behind this view of

history lay a Baconian suspicion of hypothesis.[96] According to the faithful, the infidels erred in building empirically doubtful speculations and hypotheses on the shallow ground of infant sciences. One writer expressed this view in a piece provocatively titled, "Science Correcting Its Own Errors":

> But uniformly it has been found that objections [to the Mosaic narrative] were based on hasty inference, or that the conclusions drawn were refuted by more careful investigation. The very facts relied upon to sustain them, have turned out to be no facts, or to have been imperfectly apprehended, till the conflict has settled down to a clashing of science with itself, and the old Greek fable of the armed host that sprang from the sowing of dragon's teeth, but which fell by mutual slaughter, has been realized in the case of the scientific assailants of the Mosaic record.[97]

Religious writers celebrated astronomy as a prime example of a formerly threatening science now fully domesticated to the house of God; indeed, it had become a "sacred science."[98] This triumph of the stars also illustrates the close connection they perceived between the orthodoxy of science and that of its practitioners. Newton's religious rhetoric coupled with the success of his natural philosophy presented forceful proof that the best science emanated from the most religious of scientists. In the hands of truly pious men of science, genuine scientific knowledge would always harmonize with correct religion. When skeptics assail, a writer in the *New York Evangelist* exhorted his readers, have courage that the greats, like Newton, were orthodox. Citing the pious Richard Owen, Hugh Miller, Joseph Henry, and Alexander Dallas Bache, he set the challenge: "Let those who vaunt authority, produce names more authoritative than these."[99]

Uneasiness over the nebular theory of the origins of the solar system occasionally surfaced in articles on the huge new telescopes. Then, by mid-century, those instruments began resolving apparent nebulae into clusters of stars, demonstrating once again that science's onward march always returns to orthodoxy. One writer believed that God had sent new scientific information as providentially timed rebuttals to infidel claims. History proved it: a French philosopher, Pierre Simon Laplace, had used the nebular hypothesis against Christianity until a powerful telescope began to resolve nebulae into star clusters.[100] Even in these pieces, the emphasis was on the great advances in astronomy far more than on infidelity, and, by the 1840s, the aphorism "An undevout astronomer is mad" had become a cliché.[101] Yet, for all this confidence wariness hovered persistently in the background of religious reporting on science.

With astronomy safely on the Lord's side, religious writers also attended to the genuinely young science of geology. Here again, there was more to affirm than to admonish. Infidels claimed that old-earth geology burst the "Mosaic account," but the work of a host of religiously orthodox geologists such as William Buckland, John Pye Smith, and especially Hugh Miller, as well as the Americans Benjamin Silliman and Edward Hitchcock, downgraded the threat of an aged-earth to an enlightening episode in the reinterpretation of the biblical creation narratives. Many celebrated this achievement, though some doubted, and disputes about the age of the earth endured. Either way, writers pronounced that geology's youth mitigated its authority and, therefore, anxiety about its potential conflict with revelation was premature. A reviewer of Hitchcock's *Outline of the Geology of the Globe* in New York's *Christian Advocate* articulated this view well:

> That geology is still in its infancy may be safely inferred from the fact that even one so well informed of all that is known in regard to it as Professor Hitchcock so frequently refers, even in this 'outline.' to the 'suggestions' of others, not yet verified, in respect to geological indications and probable facts in regard to our own continent. It is therefore too soon for infidelity to array geology against the Bible. We have no fears for the Bible from the investigations of scientific men. We have learned from the past that support, instead of damage, it will derive from all scientific truth—and we are indifferent to all speculation.[102]

As with astronomy, Baconian reservations regarding speculation and hypothesis informed this approach, but the emphasis here was on history rather than epistemology. The adjudication of a potentially threatening science as "immature" likely served the pastoral purpose better than detailed discussions of a claim's empirical weakness. It also had the advantage that successful examples seemed abundant and unambiguous. Most famously, Newton's work took nature from the infidels. They must now prove untrue what Newton "has shown to be *unquestionable* truth."[103] Astronomy's return to the fold provided encouragement that geology would ultimately do the same.[104]

Of course, not all agreed in their assessment of geology's maturity. In an 1852 article in the *Christian Observer*, "Reviewer" put his argument for "Genesis and geology" in the form of a dialogue with "Editor," who favored Genesis over geology. Advocating Eleazar Lord's scriptural geology, which rejected all extra-biblical geological ideas that might alter a traditional reading of the text, "Editor" claimed that geology was too young a science to be conclusive.[105] "Reviewer" retorted that, as young as geology is, "its *great principles* are as settled as those of Chemistry or Astronomy." Samuel Morse's telegraphy is younger, but its results are certain. The antiquity of the earth, he concluded, is as certain as the Copernican system.[106]

Most writers shared "Reviewer's" views on the age of the earth, and those weeklies that reported on geology, which was most of them, supported the new geology in one of its forms. Not all their readers were convinced, however, and occasionally letters appeared criticizing old-earth theories. Some preached a version of scriptural geology. Rarely did these objections go unanswered, though. The *New York* Evangelist often published on the new geology, clearly supporting "old earth" theories as perfectly compatible with scripture. But in July of 1859 they published a bitter letter by "Senex," who declared that an elderly earth undermines the Mosaic account and that scriptural geology is unfairly "poo-poo'd" by men of science and theological professors who follow blindly along. Citing David Nevin Lord—brother of Eleazar Lord—and Dr. Martin Payne, Senex pronounced modern geology "speculative," and accused geologists such as John Pye Smith, Edward Hitchcock, and Hugh Miller of claiming respect for the Bible while they "actually subvert its authority, in the minds of many of our inquisitive and educated young men." Men of science, he charged, acted as a closed and intolerant group, "priests" who "stand in the Temple of science and flatter each other." Senex dared the editors of the *Evangelist* to publish his letter.[107] He got his hearing, but in that same issue the editor defended the religious integrity and scientific authority of the slandered geologists and, while claiming no expertise himself, emphasized that "those who have studied Geology longest, and who understand it best, seem to be pretty unanimous in support of the opinions which our correspondent proscribes." He published Senex's letter because it was by an "honored and venerated minister in the Presbyterian Church." The tone was polite, but the effect was to marginalize both Senex and scriptural geology.[108]

Early the next year, the *Evangelist* published a dismissive review of "Answer to Hugh Miller and Theoretical Geologists" by Thomas Davies—American soldier, engineer, and merchant--declaring that "Mr. Davies has undertaken a task beyond his powers." The reviewer opined that people are generally satisfied with modern geological theories and see them as no threat. Writers in most religious newspapers shared this view, and many, including the *Watchman and Reflector*, the *New York Observer*, the *Lutheran Observer*, and number of the *Christian Advocates*, published similar denunciations of scriptural geology.[109] Writers praised those pious geologists who both contributed to old-earth theory and helped others make exegetical peace with it. They exemplified the narrative of maturing science by rescuing geology from the infidel's hands. Their respect for Hugh Miller, who was one of the most often named men of science in the weeklies, ran so deep that even his tragic suicide could not tarnish it. Clearly, his immense mental effort in service to God had overtaxed his brain, leading to insanity and suicide. In this view, Miller died a martyr's death by his own revolver.[110]

Conversely, the narrative that science "will always come around" as it matures reinforced the support of science by religious writers. For all the anti-infidel polemic and patrolling of scientific literature for abuses, the overall attitude toward science in the mid-nineteenth-century weekly religious press was positive. "Whoever would compute the great forces which are moving forward the intellectual and social progress of our race, must give a high place to scientific discovery," declared *New York Evangelist.*[111] It and the *Lutheran Observer*, in particular, were great fans of science, but they were not alone. In the *Puritan Recorder*, a writer named Gail Hamilton exhorted readers not to reject science when infidels used it, fearing that they would throw out the baby with the bathwater.[112] A writer in the *Christian Advocate* warned

that those who decry science presented a greater danger than the men of science who had moved to materialism and atheism; another in the *Lutheran Observer* declared that it is better to sacrifice reading Augustine and Calvin than not understand world of modern science.[113]

Science Serves the Gospel

Religious newspaper writers did more than celebrate the advance of western science; they also expropriated it for their own purposes. As has been pointed out, popular science writing often served different functions than did the men of science's own publications. Here the pastoral role of the newspapers is clear, and the variety of pastoral applications of science is impressive. In genres as diverse as traditional natural theology, apologetics, sermon illustrations, and doxological eulogies inspiring awe and devotion, writers in religious newspapers drew on modern scientific knowledge to edify, encourage, and nurture their literary flock.

A common application of new scientific information involved traditional natural theology. God's existence and attributes were clearly manifest in nature. Religious writers declared with the Psalmist that the heavens—indeed, all of nature—"declare the glory of God."[114] Divine wisdom and power are seen in the functions of the atmosphere: in light and water and in producing the Aurora Borealis.[115] The highly stereotyped argument from the complexity of the eye endured.[116] In the same vein, religious writers pointed to design in geography, in bees and silkworms, in spider's webs and globules, in the hardening bill of the platypus, in the sea and air, and in the precise tuning of the gravitational forces of the solar system.[117] In 1864, one writer invoked John Tyndall's work on heat and combustion in a

gushing celebration of God's power in nature, an ironic moment since Tyndall would be demonized by religious writers just a few years later.[118] But before the controversies of the 1870s, the religious weeklies could blithely declare that "It would be impossible for a contemplative and reflective mind, to read that wondrous volume [of nature] without beholding glory written upon every page, in letters of fire."[119] The structure of these arguments was traditional, with the details being supplied by contemporary scientific literature.

Unending harmonies between nature and scripture reinforced both the authenticity and authority of revelation and the religious sanction of modern science. Religious writers happily pointed out occasions in which modern science, in their view, supported or confirmed specific doctrines. Common topics include claims that chemistry and geology demonstrated the possibility of the earth ending in a global conflagration and that Sabbath rest was a physiological necessity. More generally, religious writers cited a barrage of points of harmony between modern science and the Bible that they claimed undergirded the doctrine of inspiration. Geology was an especially popular science in this endeavor.[120]

In a less apologetic and more devotional mode, religious writers gleefully drew on the awe-inspiring immensity and scale of creation revealed by the telescope and microscope. Readers were both entertained and moved to adoration of the One who could create the huge numbers of stars in the sky and innumerable grains of sand, yet still be concerned with each of the over 200,000 known species.[121] Descriptions of the dimensions of the universe, often expressed in the time it would take light or a steam train to traverse some portion of it, impressed on readers both their insignificance in nature and their importance to God and amplified their awareness of God:

> And you ask despairingly, What is man? We will tell you what he is in one respect: the Creator of all these worlds is his God. . . . It does one good to think long and deeply on these stupendous facts. By no other means accessible to us can we so well climb toward a just apprehension of the greatness and majesty of the Lord our God. These measurements and estimates seem as a ladder let down to us in our narrow prison houses, up which we may ascend to look abroad a little way over the vast dominions of our King.[122]

Here the tools of modern astronomy and physics served the ancient pastoral task of lifting believers' eyes unto their maker. The important point is that the new empirical evidence of the unimaginable vastness of the universe, coupled with the newly established figure for the speed of light, served this purpose with greater intensity than previous cosmologies—the larger the numbers, the more emotive the effect.[123]

Science also supplied religious writers with a rich supply of sermon illustrations and moral analogies. "Physical science has a claim to be included in any complete course of education, on account of its striking analogies with moral and religious truth."[124] They encouraged the faithful to look into themselves in moral scrutiny, as with a microscope, while looking beyond themselves to eternity as the telescope looks to the stars.[125] Again, astronomy did yeoman's service. Solar gravitation as an analogy to divine love became a trope. When centered on God, as a planet's orbit is on the sun, then God's love keeps the believer's life in an orderly (orbital) relationship with God, close enough to enjoy the divine warmth. The unrighteous center on themselves rather than God's love, and are "wandering stars, comets broke loose from their orbits, straying off in illimitable space," drifting in the dark, frozen depths of the universe. Once beyond the gravity of God's love, the sinner's path has no moral restraints. "Where these wandering stars unite their evil influence, as in wars and conspiracies and slavery, they scatter

around them firebrands, arrows and death." [126] The comet of 1858 occasioned the reflection that Christians are like comets that have no light of their own until they approach and reflect the light of the sun.[127] Solar analogies had polemical uses, too; in what was probably a barb against liberal Protestantism's diminished Christology, "Irenaeus" declared that Christianity without Christ is like a solar system without a sun.[128]

Science also taught Christian virtues directly. For example, in a article on the scientific likelihood of the earth ending in fire, a writer in the *New York Evangelist* sermonized, "Now, it is this littleness and this insecurity [in face of overwhelming and uncontrollable natural forces] which made the protection of the Almighty so dear to us, and bring with such emphasis to every pious bosom, the holy lessons of humility and gratitude."[129] A Methodist paper broadened the claim: "The legitimate result of a proper study of Nature is to increase our humility and reverence."[130]

While these pastoral expropriations of scientific information clearly put many scientific developments in a positive light, another class of articles in the religious weeklies claimed science for Christianity directly. Some writers argued that clergy and missionaries needed to be familiar with the latest science. A widely copied story recounted how a missionary in India used a microscope to prove to Brahmins the absurdity of their views. How could one be a pure vegetarian if there were countless animals in each pomegranate or drop of water? Thus "a way [is] prepared for the reception of religious truth, by the simplest philosophical inventions—Christianity and Science may then go hand in hand." One version ended with a plug for the H. Rawls & Co. of Albany, who "have prepared some very valuable philosophical apparatus which has been purchased for the use of the missionaries in India."[131]

Conclusion

In countless households across America, religious weeklies sat in parlors and kitchens available to farmers and mechanics, laborers and professionals, lawyers and ministers—men, women, and children. They went where learned books and quarterlies did not. They addressed the needs of families and congregations. They were a conduit of scientific information, albeit not in great quantity or technical detail; yet most of these papers actively and enthusiastically promoted the scientific learning of the age as an important part of the religious culture they advocated. The religious weeklies presented science packaged for the laity, the average Christian, if such a person was to be found.

As a historical source, the weeklies do not tell us what this "average Christian" thought, but rather what they were told. This literature provides insight into the minds and concerns of the religious leaders who edited and wrote for them. These people were not the rank and file but neither were they exclusively the elites. What they saw in the scientific developments of their day was an extraordinarily useful intellectual product, one that they applied to a number of uses for the sake of their religious ends.

Geology and astronomy enjoyed the lion's share of attention in the 1840s, and the religious press celebrated the domestication of both in the Lord's house, while the science of ethnology was all but ignored. A few writers—most notably Charles Caldwell and Josiah Nott—had challenged the unity of humankind in America in the course of that decade, but their voices went largely ignored in the religious press. All that was to change at the century's mid-point. While America's politicians debated the compromise of 1850, the question of the original

biological unity of their country's varied population exploded in the religious press. America's preoccupation with race became headline news in politics, science, and religion. That tripartite connection had always existed; now, at the half-way mark of the century, it rocketed from the obscurity of an esoteric and learned concern into the hands of the country's faithful through the pages of their church newspaper.

Chapter Two

American Ethnology and Polygenism in the Mid-Nineteenth-Century

In the late eighteenth and early nineteenth centuries the new discipline of ethnology emerged, consisting of the scientific study of people groups, their languages, their cultures, their geographical distributions, their migrations, and their physical distinctions. To a degree it was a child of the eighteenth-century attempt to apply the taxonomy of organic forms to the human animal—but in the context of the social and political turmoil of mid-nineteenth-century America, ethnology functioned as the science of race. Its proponents presented it as objective, rational discourse on the varieties of human beings, their characteristics, natural history, and relationships to one another.[132] This science was to generate knowledge that transcended particular human interests, political, social, or otherwise. But it was, in fact, about how *Europeans* thought about race. The people who would come to call themselves "Caucasian," a coinage of Johannes Blumenbach's, used this new science to comprehend their relationship to the manifold groups of people they had encountered in their voyages of exploration, conquest, and exploitation.

Topics bearing such immense emotional consequence for today's reader must be treated with an appropriate historical distance to prevent a distorted reading of the past. We must first acknowledge that, by today's standards, participants in the "unity of mankind" debate were all racist, from the liberal James Cowles Prichard, who deplored colonial abuses, to the staunch defender of the Old South, Josiah Clark Nott, who denounced egalitarianism as false philanthropy and contrary to nature. The superiority of Europeans and European Americans was a fact to be explained, not a question to be answered. But that consensus can too easily obscure a profound diversity of views. The debate was not between racists and non-racists but within the milieu of racism and between those who disagreed fiercely over the nature and meaning of racial differences.

For European Americans in the early nineteenth century, ethnology had exceptional currency because the United States functioned as a frenzied ethnological laboratory, populated by four politically important races: the ambitious Caucasians rushing in from across the Atlantic; the surviving native peoples who had fallen to the bullet when they had escaped disease; the imported Africans, whose heritage of involuntary and violent immigration haunted European Americans north and south; and the Asians, whose influx played a role in the Far West toward the end of unity debate.

Ambivalence is, perhaps, the best word to describe European Americans' attitudes to those who were "other" to them. Heirs of the eighteenth-century concept of a universal human nature and advocates of the "rights of man," they were not quite sure what a "man" was, at least in the political sense. Clearly he was white, but could he be red or black? Many rejected the slave trade as a moral obscenity, but millions of Africans remained in bondage on U. S. soil. The

native peoples, the misnamed "Indians," were studied and educated and evangelized by some European Americas, while others hunted them down or relocated them. At a moment of such colossal political consequence, clarity on the concept of race would be welcome, if it could be found.

The Biblical Narrative in an Expanding World

Europeans were not without a system of organizing their relationship to other peoples. The Bible teaches that God created a man and a woman in a garden, and that after their descendents fell hopelessly into sin, God started over with Noah's family.[133] The flood obliterated all humans, and from the Ark teetering on Mount Ararat came forth Noah, his sons, Shem, Ham, and Japheth, and their wives. Here lay an implicit ethnology: a tripartite taxonomy of the human family. But there was more. The story of the confusion of tongues at Babel explained both the origin of the plurality of languages and the beginning of human migrations, a historical starting point for the geographic distribution of people across the planet. To top it off, the "table of nations" of Genesis, chapter ten, supplies additional detailed ethnographic data from which studies could begin. The full ethnological exegesis of this chapter required, however, extra-biblical knowledge in order to establish the identities of the contemporary descendants of the individuals named in the text. These identifications were neither obvious nor stable. Visual representations of the sons of Noah in western literature do not agree on which one was black.[134] In discussions of this text, exegesis, antiquarianism, and ethnology often met, as writers marshaled all their resources to answer some very troubling questions: Who exactly were the groups of people named in Genesis ten and eleven, and where on earth had each settled? What

languages did their descendents speak, and what physical and physiological features distinguished their bodies? These questions provided an ample field of research that could be happily pursued within the framework of the Bible.

But as often happens with comfortable theories, eventually the data would not cooperate. By the end of the eighteenth century the catalogue of nations and tongues had grown beyond all reasonable expectation. Newly discovered people groups stretched the Caucasians' notion of "human" to the limit. Europeans debated whether the Hottentots and Bushmen—who explorers brought back to the Old World and displayed like zoological specimens—were really human. It was a "tragic happenstance of nature" that the people Europeans experienced as most "other" lived on the same continent with the great apes, the animals that seemed most human.[135] Were chimpanzees related to these people? These apes were eerily human and the Hottentots seemed unusually bestial. Fantastic tales of savage women being taken by apes for sex fired lurid imaginations—fantastic to us, but less so to Victorians. Could "they" really be like "us?" The question of how to understand the relationship between differing peoples was often overshadowed by the question of how to understand the relationship between humans and the primates.[136]

Perhaps the most vexing phenomenon, though, was the near ubiquity of the human race. Wherever intrepid European explores went, other humans were already there, which raised the question: if "they" are "our" brothers—Noah's descendants like us—how did "they" get to distant and isolated regions like the remote islands of the South Pacific. How could "they,"—who barely know how to make a canoe, much less navigate an ocean—traverse the seven seas

countless generations before us?[137] The expanding catalogue of people groups and the mystery of their distribution around the globe drove renewed interest in the Genesis "table of nations."[138]

These problems for the traditional biblical narrative arose at a time when natural history was gaining in sophistication and taxonomic power. The Swedish naturalist Carl Linneaus had brought taxonomic order to the world of organic nature, and the French zoologist Georges Cuvier was perfecting the tools of comparative anatomy. Human differences could be discussed in the terminology of "genus" and "species," and by means of anatomical discourse. The epistemological power of these new forms of natural historical inquiries promised to provide authoritative answers to the puzzle of human diversity, a puzzle stocked with profound political and social consequences. Linneaus's classification of humans as part of the same order as apes and sloths was a significant step in muddying the distinction between humans and animals, but it and similar steps taken by other naturalists also encouraged the study of human differences by the methods of natural history.[139]

This scientific approach did not corner the market on this issue. At the same time, scholars trained in philological skills learned the new peoples' languages both to preach the gospel to them and to seek out some understanding of where they came from. English Orientalist William Jones discovered the relationship between the disparate languages we now classify as Indo-European, and many other scholars labored to construct a family tree of languages in the hope that this would elucidate the relationships between the peoples of the new and the old worlds. Even with these tools, the job seemed overwhelming, and the traditional notion of the common descent of all humans from one couple became a point of dispute rather than a settled conviction.

Polygenism—the theory that each human race has a separate origin—has roots as old as antiquity: many ancient peoples considered themselves autochthonous products of their homeland soil, and hints turn up in western writers as early as Julian the Apostate.[140] Modern notions of a racial polygenesis appeared in the work of Paracelsus and Giordano Bruno in the fifteenth century, but the work of Isaac de la Peyrère in the seventeenth century produced an enduring undercurrent that neither Rome's interdict nor Protestant pulpits could squelch. Although esteemed as a geographer, an expert on Greenland, Peyrère began his polygenist argument with biblical criticism. In Romans 5:12-14 the apostle Paul distinguished between Jewish and Gentile responsibilities to the Hebrew law. Peyrère pried out of this text evidence that Adam and Eve were the parents of the Jews only, not the entire human race. All other races had been created earlier than Adam and Eve and belonged outside the Old Testament stories, which concerned only the Jewish people. The existence of preadamites, people before Adam, explained a number of awkward problems with certain biblical stories, such as how Cain had found a wife when he and his brother were Adam and Eve's only offspring, and who had peopled the biblical land of Nod, which coexisted with Eden. His preadamism supported an eschatology in which the Jews, along with the French monarch, would play an important role in the advent of the Messianic kingdom—perhaps a self-serving theory since Peyrère was likely of Jewish ancestry. His motives were more political and religious than scientific, and those who denounced his preadamist polygenism were protecting religion from caustic skepticism rather than from new scientific ideas.[141] Perhaps more ridiculed than denounced, Peyrère's ideas met with widespread, but not complete, rejection. Sometime after polygenism reemerged with new

and forceful scientific authority in the nineteenth-century, Peyrère's name and idea gained renewed currency.

During the eighteenth century Europeans learned a great many things about the rest of the world that they were hard pressed to fit into the traditional reading of the Bible, and more people began to entertain the idea that human beings did not belong to one great family. By the early nineteen century, the problem had become acute. To his death James Cowles Prichard, Great Britain's premier ethnologist, defended monogenism—the theory that all human races share the same origin—but fully appreciated the attraction of the idea of plural human origins. Indeed, his heroic ethnological efforts were motivated largely by his distaste for polygenism, evangelical commitment to human unity, and desire for a patriarchal society built on mutual obligation, a social theory that demanded a common human nature and a social hierarchy.[142] Yet he admitted that polygenism accounted for the physical variations of the races, for the antiquity of the seemingly incommensurate structures of different human languages, and for the origin of "differences in manners and habits which have been thought to characterise particular races." And, to cite a phenomenon that must have been eerily mysterious to Europeans, "it has often been observed that whenever the enterprising spirit of modern navigators has brought them to hitherto unknown lands, though ever so remote and difficult of access, they have almost invariably found such countries already stocked with inhabitants." Possibly even more mysterious was the evidence of ancient but long extinct civilizations in the New World.[143] For the first time, the thought that these races did not all share a common origin and parentage became credible, even compelling, to some.

Lord Kames and His Opponents

In the eighteen century, Jean-Jacques Rousseau and Voltaire had preached a plurality of human origins, perhaps more for the anticlerical punch than out of serious scientific concern. Either way, for Anglo-Americans the word of French infidels carried little weight. In the opinion of one, Voltaire was a "wretched philosopher."[144] A more credible threat came from the work of the Scottish aristocrat and man of letters, Henry Home, Lord Kames. Here was a Scot, a philosopher bearing the intellectual pedigree most valued by American Protestants. Kames popularized polygenism in his *Sketches of the History of Man*, published in 1774, dismissing the conventional environmentalist explanation as improbable. It was far more likely, he declared, that humans were made for the climates of their various homelands than that they had adapted to those climates after their arrival from elsewhere; he toyed with the idea that each race had begun as a separate creation in its own native land. Sincere or not, and most scholars take it as "not," in print Kames stopped short of declaring his allegiance to polygenism and acceded to biblical authority by suggesting the miraculous partition of the human family into distinct races as part of the confusion at Babel.[145] Still, his flirtation with plural origins alarmed his contemporaries and rewarded him with two determined opponents in the English-speaking world, an American cleric and professor, the Rev. Samuel Stanhope Smith, and a British physician, Dr. James Cowles Prichard.

Both had religious reasons for defending human unity but did so with scientific arguments. Samuel Stanhope Smith, a Presbyterian professor at the College of New Jersey (later

Princeton University), son-in-law and heir apparent to the college's president, John Witherspoon, delivered a lecture on human natural history before Philadelphia's American Philosophical Society in 1787.[146] Published under the title *An Essay on the Causes of the Variety of Complexion and Figure in the Human Species* and later expanded and republished, this work educated a generation of Americans in monogenetic, environmentalist arguments. Prichard took the task to the next level by critically dissecting a host of polygenist claims and delivering a mountain of ethnographic information in support of unity. His work began as a medical-school thesis, which he publish in 1813 as *Researches into the Physical History of Man*, and then, over the next three and one half decades, revised, expanded, and developed it through two subsequent editions culminating in a five-volume opus published in 1836-1847.[147] To the great advantage of orthodox American writers, the final volume of the third edition appeared in 1847, just in time to digest it before the unity question became a major public issue. Prichard's work became the mainstay of monogenist ethnology on both sides of the Atlantic, and American polygenists clearly identified him as their most significant opponent.

Smith was convinced on both scientific and religious grounds that the environment and civilization worked together to modify human bodies. Yet, with unfailing confidence in the harmony of nature with revelation, Smith chose to defend the unity of the human race against Kames' criticism with science alone. It was a heady thing for an American disciple of the Scottish intellectual world to take on one of its natives, but Americans had something to prove, and the Presbyterian professor leaned heavily on his advantage living in a veritable "ethnological laboratory." Again and again, throughout his essay, Smith referred to the apparent whitening of Africans in America over time. But more than the "fact" of the whitening, the circumstances of

this process demonstrated his theory. Domestic servants, Smith claimed, came to approximate the refined complexion and features of their masters, while field slaves remained far closer to their original appearance. Better clothing and household work sheltered domestics from the physical environment and they enjoyed finer food than field slaves who were more exposed to the elements both at work and in their shacks often far from the "big house." Domestics were also incorporated into the civility of the Euro-American household, which improved their moral condition and altered their physical character, losing, in his words, "these peculiarities so offensive to our eye."[148] Thus Americans could plainly see, in Smith's view, how physical environment and the moral influences of civilization worked together to alter the human form. Few scholars shared his convictions in print: one of the few was his brother-in-law, Dr. David Ramsay, of Charleston. His critics, on both sides of the Atlantic, were not too sure how plainly this transformation could be seen, but Smith was adamant. At home, the irascible Dr. Charles Caldwell, ridiculed Smith's environmentalism, and not without effect: if domestic slaves look more European than field workers, it was because they were chosen for their looks.[149]

Smith's double-barreled theory of the causes of human variation served both orthodoxy and politics. Variability in human physical nature meant that "inferior" peoples could be improved and eventually made into good citizens. The fledgling American republic could justify its democratic ideals only if all humans were equal, potentially if not actually. If distinctions between various human races could not be explained without invoking an act of God, then the egalitarianism of American political rhetoric was unnatural. And, if moral principles were rooted in one's nature, unless all humans shared the same nature, no established universal principles exist by which to govern a political body.[150] Here Smith articulated one of the

enduring moral principles at stake in the unity debate: What is the ground of human mutual obligation, if we are not participants in the same nature? "It is a debt which we owe to humanity to recognize our brethren in every class of men into which society is divided, and under every shade of complexion which diversifies their various tribes from the equator to the poles."[151]

Ironically, Smith's defense of the doctrine of the unity of humankind was more naturalistic than Kames's repudiation. The Scot ascribed human racial diversity to a miracle that had not been recorded in the Bible, while the American provided an entirely naturalistic explanation of the same phenomenon: the effects of the environment. Part of Smith's reluctance to invoke miracles arose out of his Calvinist conviction that the age of miracles had ended, but politics played a role as well. Grounding egalitarianism in natural improvability was a safer tactic than freezing human differences as the static products of a primordial miracle. Even so, the clergyman's investment in natural philosophy which was reflected in his curricular reform at the College of New Jersey, raised concern among his peers, especially those on his college board.[152]

To his credit, Smith dealt with contemporary physiology with some competence. He attributed darker skin color to the buildup of bilious secretions in the *rete muscusm*, a structure in the skin identified by the seventeenth-century Italian microscopist Marcello Malpighi.[153] The great German anatomist Johann Blumenbach suggested the same process, though Smith was not aware of this work until after the first edition of his *Essay*.[154] Still, the preacher-professor received rough treatment at the hands of the more scientifically qualified. Men such as Peter Camper, Dr. John Hunter, and English surgeon Dr. Charles White were turning the tools of comparative anatomy on the human animal with ever increasing precision. With the all-

important exception of Blumenbach, it certainly looked like anatomists were uniting around the goal of parceling humankind into distinct groups and aligning them on a hierarchical scale, with those at the bottom dangling precariously close to the simian taxon.

Although Smith's defense of the environmentalist theory became required reading for many Americans in the early nineteenth century, his efforts were soon outshone by the work of Prichard. British ethnology, even the word "ethnology," began with Prichard's *Researches into the Physical History of Mankind.* His lifelong labors can be traced through the three editions of this work. As a friend of Prichard's once remarked, "the history of his book" was "the history of his life." [155] Prichard's views changed significantly over the three and a half decades between the first and last editions, but the overarching goal remained the same: the steady defense of the unity of the human race.

A Quaker by birth, Prichard joined the Church of England, most likely identifying with the evangelical branch, and his commitment to a human monogenesis had roots in his religious commitment. Yet, like Smith, Prichard took a purely scientific approach to the issue. As a physician, he was freer to restrict his arguments to scientific grounds than the Presbyterian clergyman. Still, the religious ramifications of his theory pressed him to justify his approach. He admitted that special revelation communicates particular information, such as the nature of future state, the existence of invisible agents, and the relationship between humans and God, that cannot be known any other way, but he also noted that scripture deals with themes open to knowledge derived from outside revelation as well. Here diversity of opinion requires scholarly work:

But the most sincere believers in revelation do not give precisely the same species of assent to those parts of the Sacred Writings which relate to subjects open to the ordinary methods of investigation; such as matters of fact and historical testimony. These portions of Scriptures have ever been regarded as admitting, and even as challenging the most unwearied and severe scrutiny. Truth can never be in opposition to truth; and the investigation of all subjects comprehensible and scrutable to the human faculties is the undoubted privilege of a rational understanding. . . . From all these considerations it appears better to proceed to the inquiry to which the following pages are devoted, as if the testimony of the Sacred Scriptures were altogether indifferent as to its decision.[156]

No narrow biblicist, Prichard worked in the faith that God's two books would, in the end, speak with one voice. Having justified the path of natural history Prichard then turned to method. Smith had simply elucidated physical causes of variation with examples, a crude but direct approach. By appealing to the Anglo-American devotion to inductive empiricism, Smith believed that his facts demonstrated the influence of climate and civilization on human variability, even if he did not know the exact physiological mechanism of those variations.[157] Prichard approached the issue with more sophistication. He began with an analysis of the geographical distribution of organic forms on the earth, attempting to determine whether nature had ordained one center of creation for any particular species, or allowed more than one:

If it should appear, on examination, that animals or plants of each kind have their existence, in general, in those tracts only to which it is probable they may have wandered, or whither they have been conveyed, by accidental means, from some single point . . . there will be a sufficient reason for believing the whole number belonging to each species respectively, to

have descended from a single origin. But if, on the contrary, organized beings of the same species are met with in places remote from each other, effectually separated by vast distance, or by natural barriers, . . . it must be allowed that creatures of the same kind had probably distinct and separate origins.[158]

The conclusion of this study from non-human organic creation had the status of an inductive law of nature, which could be applied, through analogy, to human beings. Prichard did, indeed, conclude that each animal species had only one center of origin, but rejected the more traditional notion that all species had the same center of origin. This he squared with the Bible by positing a limited flood and a Noachian Ark filled only with animals relevant to human needs, that is, domestic and sacrificial species. In Prichard's view, this interpretation of Genesis was rational, not arbitrary,. Since disparate creatures cannot live in the same environment—take the polar bear and the hippopotamus, for example—it would have taken a miracle to collect, care for, and then redistribute such creatures. But no such miracle is recorded in the Bible. Thus a limited flood and restricted passenger list are rationally implied in the story of the Ark itself.[159]

As Prichard saw things, the "law of nature" that each species had only one center of origin did not rule out human polygenism, if it could be shown that the genus *homo* had more than one species. Natural history could only provide the analogy that, if by analyzing geographical distribution and cultural and linguist relationships, it could be shown that people groups "have their existence, in general, in those tracts only to which it is probable they may have wandered." Lest the application of this law of nature to humans be questioned, Prichard pointed out that humans are more, not less, mobile than other creatures. "It is the more improbable that a plurality of races exist in one species [i.e., single-species polygenism] with

reference to man than with regard to any inferior tribe, as the locomotive powers of mankind, aided by the resources of human sagacity, are greater than those of brute animals."[160]

Thus, natural history did not prove unity but set the historical agenda to accomplish that task. Proof, in his view, came by an exposition of the historical evidence of common descent. This entailed the huge task of surveying every identifiable people group and assembling all the data pertaining to their descent through history and relationship to other groups. That is why only part of one volume of Prichard's masterpiece dealt with physical arguments, while the rest of the five-volume work was devoted to a grand and seemingly infinitely detailed ethnography, recounting linguistic affinities, common traditions, histories of migrations, and sprinkled with occasional descriptions of physical and moral characteristics. The emphasis on philology was a defining characteristic of Prichard's work, although "philology" is too narrow a term. Certainly he had great confidence in the comparison of languages as a tool in tracing ethnological ancestry, but that was part of a range of techniques belonging to cultural anthropology. Prichard also examined traditions and myths—flood narratives were a favorite— migrations, religions, and whatever seemed appropriate to his task.

The effort was breathtaking, and even the most insistent polygenists admired it. Ironically these volumes were, in a sense, their own worst enemy. Who could digest that material or skillfully abstract an argument from such an encyclopedic work? Prichard's authority lay in the vast empirical foundation of his claims. Polygenists could hardly out-argue his ethnographic sections. But they did not have to. Their approach came from a different direction. By the 1840s, there were, in fact, two very distinct ethnological methods, the physical

and the philological. Prichard drew on the first to set the task for the second. American polygenists would deny the validity of the second, investing all their capital in the first.

This was one of the distinguishing features of American ethnology in contrast to British. At the seventeenth meeting of the British Association for the Advancement of Science (BAAS), held in 1847, five prominent ethnologists, Prichard, Dr. R. G. Latham, the Chevalier Bunsen, Dr. Max Muller, and Dr. Charles Meyer, presented papers, all of which took a philological approach. Until that date, the BAAS leadership had kept ethnology out of the limelight, fearing its social relevance would undermine the apolitical character required by their professionalizing goals.[161] Prichard had worked for recognition with success, and ethnology became its own subsection in 1846. Then, at the 1847 meeting, the BAAS leadership more than made up for the neglect by assigning almost two hundred pages of its report to the ethnologists. Here Prichard emphasized the liberation of ethnology from the rubric of physiology, a move that both reinforced its independence as a scientific discipline and reinforced the authority of the philological approach from encroachment by the anatomists. Ethnology lies closer to history than physiology, Prichard argued, more in the direction of archaeology.[162]

This had to have been a high point of Prichard's career; only eleven years before, when the first volume of the third edition of his *Researches* had came out, he complained of the "low degree of interest" in ethnology in general and that most of the publications since 1810 argued against unity.[163] He must have felt less neglected and less out gunned at the 1847 meeting of the BAAS. Britain had scholars who mirrored the American emphasis on physical characteristics, and like the Americans, some tended to be polygenist. Specimens include James Hunt, Robert Knox, Luke Burke, and other contributors to the London *Ethnological Journal*. But philological

ethnologists dominated the discipline in the BAAS meeting, and they, to a man, defended the specific unity and common origin of every human on earth.[164]

America had its philological counterparts in Albert Gallatin and others who made their mark collecting vocabularies of American Indian languages. Lewis Henry Morgan would later push past mere philology into kinship studies, making a critical contribution to modern anthropological method.[165] But at the time, American philological ethnologists failed to coalesce into a coherence movement. In 1842, Gallatin organized the American Ethnological Society, but it was so dependent on him, his money, even his home, for meetings and publications that, as he fell into decline in the late 1840s, so did it.[166] These feeble efforts made little impact on America, much less on the community of scholars across the sea. But once Dr. Samuel George Morton began pouring buckshot into human skulls, American ethnology captured the attention and respect of Europeans.

Morton, Nott, and American Polygenism

Morton, the patriarch of American polygenism, provided striking empirical support for the theory, evidence that served as the centerpiece of the polygenetic argument. A practicing physician and respected professor of anatomy in Philadelphia, Morton in the 1830s began measuring the interior volumes of the skulls from his personal collection of hundreds of specimens. Taking several series of skulls, one for each race, he determined their volumes by stopping up the openings, filling them with tiny pellets of shot, and then measuring the volume of that shot with a graduated cylinder. The resulting data indicated that Caucasians possessed the

largest mean cranial capacity at 87 cubic inches, followed by Mongolians, Malayans, and Americans (that is, Indians), with Ethiopians (black Africans) at the bottom with 78 cubic inches. The late Steven Jay Gould argued that Morton's racial prejudices, reflective of Euro-American views in general, unconsciously but clearly influenced his results. For example, according to Gould, Morton favored small-brained individuals in calculating the size of American Indians but eliminated small skulls from his Caucasian sample. These claims have been challenged by a group of anthropologists who re-measured many of Morton's specimen skulls and reanalyzed his data, concluding that, however racially bias Morton was, his science was not. At the time, though, Charles Hodge, star of Princeton Seminary's faculty, faulted Morton's method for not distinguishing between male and female crania. Regardless of the outcome of this debate, the important point here is that Morton believed in his own objectivity, and his detailed descriptions of his meticulous procedures and the quantitative character of his data deeply impressed other men of science, both in Europe and America.[167]

In 1839 Morton published his findings in an ethnological study of the native people of the Americas, *Crania Americana*. He contended that, with the exception of the Eskimos, all Native Americans belonged to the same race or type, distinct from all other types, and denied that Native Americans had come to the New World from Asia, an important plank in the environmentalist theory of racial origins.[168] Five years later he published a similar study of 137 Egyptian skulls and mummified heads, *Crania Egypticana*, in which he concluded that the ancient Egyptians had been Caucasian—not African, as some believed—and that racial distinctions were as old as recorded history. He also concluded, both from his personal collection of Egyptian heads and from depictions of people on Egyptian monuments, that

"negroes were numerous in Egypt, but their social position in ancient times was the same that it now is, that of servants and slaves."[169]

Although Morton stopped short of advocating polygenism in either of these works, his findings left little room for any other view. His reputation was based more on his craniometric work than the other arguments in *Crania Americana* and *Crania Aegyptiaca.* The skull work clearly reinforced a racial hierarchy, but did not directly imply polygenism. Yet, the sterling reputation he acquired from the skull measurements transferred to his polygenist arguments once Morton made his belief in plural origins public. This he did not do until 1846, and not very publically then, by which time his reputation as one of America's finest scientists had become engraved in the minds of educated Americans.[170]

While Morton had enjoyed respect as a physician, geologist, and paleontologist before the publication of *Crania Americana* in 1839, that work secured his reputation as one of American's finest men of science. Even the Europeans noticed and admired his work, which fueled the pride of the insecure American intellectual community. The book itself was a first-class production, a credit to the American publishing industry, and Europeans could not have improved on the work of Morton's lithographer. The seventy-eight plates illustrating key skulls in Morton's collection are beautiful, gruesome, but above all, photographic in their realism and minute detail. In a day when ethnological works often contained illustrations of the various human "types" that were caricatures at best, the lithographs in *Crania Americana* represented authoritative science. Readers' impression from the plates would be reinforced by the content and style of the text. Morton's careful quantification and reasonable and restrained rhetoric had the air of an exact science, a quality few at the time would have associated with ethnology (with

the possible exception of Blumenbach's and Pritchard's work). But, even there, Morton had more skulls and a quantitatively precise method. Prichard's, with all its critical acumen and voluminous detail, was primarily a literary work, while Morton's belonged to the laboratory. His diagrams and tables of measurements exuded the epistemology of precision, and Morton's careful descriptions of his method, including the setbacks, repetitions, and improved techniques insulated him from the suspicion of partisanship and, above all, from any of the theory-mongering that good Baconians rejected with such determination.

When the public unity debate broke and the orthodox had to face the threat that the polygenists had Morton's authority on their side, they were not without recourse. The German anatomist Friedrich Tiedemann had also performed cranial volume studies, and concluded that there is no consistent difference in the brain sizes of the various races.[171] This may have comforted those whose religious views required human unity, but Tiedemann's work did little to lessen the impact of Morton's craniometric triumph.

Morton was well aware that the idea of a plurality of human origins kicked against the goads of orthodox religion. Whether he feared religious censure and expected his arguments to undermine the orthodox view of unity circuitously, or whether he simply preferred to keep to academic rather than public circles is unknown. He had, at least, a nominal religious faith and believed that polygenism was compatible with biblical authority, claiming that it is more in keeping with God's provision "that each Race was adapted from the beginning to its peculiar local destination. In other words, it is assumed, that the physical characteristics which distinguish the different Races, are independent of external causes." But he chose not to take his pluralist opinions public until almost the end of his career.[172] In 1847, just a few years before his

death, Morton publish an article in the prestigious *American Journal of Science and Arts* arguing that a "latent power of hybridity exists in many animals in the wild state," such that prolific hybrid offspring between species and even genera are possible and even frequent, a claim that challenged the use of fertility as a test of common species. The startling application of his conclusion to the unity debate—"the mere fact that several races of mankind produce with each other, a more or less fertile progeny, constitutes, in itself, no proof of the unity of the human species"—brought a rare disclaimer from the editors that they "commit . . . to none of the opinions of the author."[173]

Morton's reticence and restraint stand in startling contrast to the career of his friend and follower Josiah Clark Nott, M. D., who entered the debate with a splash in 1843, publishing an article in the *American Journal of the Medical Sciences* with the transparent title, "The Mulatto a Hybrid---Probable Extermination of the Two Races If the Whites and Blacks Are Allowed to Intermarry." Here Nott, using statistical data that was probably from the fraudulent 1840 census, claimed that mulattoes, and free Africans in the North, were short-lived and disease-prone.[174] That it appeared in one of the country's most prestigious medical journals illustrates the depth of the racism inherent in European Americans' social outlook. Nott did not explicitly promote polygenism at this point, but this article does epitomize his life-long crusade against miscegenation.

That article did not, however, betray his commitment to very liberal religious views and passionate anti-clericalism. Educated at South Carolina College in the early 1820s, during the presidency of Thomas Cooper—who had lost an appointment at the University of Virginia because of his reputation for unorthodoxy and would later resign from South Carolina College in

the midst of controversy—Nott admired Cooper's rationalist pursuit of truth, radical religious views, and love of science. Cooper questioned the scientific authority of the Bible and challenged the harmony of geology and Christianity advocated by Benjamin Silliman, editor of the *American Journal of Science and the Arts*.[175] The rest of Nott's contributions to the unity debate would betray irritation with those he understood to be more committed to tradition than to truth.

In his 1843 article, Nott applied quantitative evidence, rehearsing statistics on mortality rates and Morton's crania measurement, to argue that mulattoes had much higher mortality rates than full blacks, free or slave. To these borrowed numbers Nott added extensive observations and conclusions from his own experience as a physician. He reported that mulattoes' level of intelligence lay between that of whites and blacks; they had less physical endurance, were short lived and less prolific among themselves than when crossed with whites or blacks; and the women were delicate, sickly, bad breeders, and poor nurses. In short, they had all the qualities of hybrids. Thus, his title was his conclusion.[176]

Nott's personal observations were not quantitative, and he excused himself by saying that statistics were hard to come by in the South because of the habits of the mulattoes. Here he only wanted to "throw out materials for reflection."[177] This sort of qualification became habitual for Nott. In fairness, he had a busy medical practice, but his ethnological arguments seldom had the quantities of precision or restraint. Samuel S. Smith had rejected the hybridity test of species as unverifiable—one would have to experiment with every species to confirm it—and, though Prichard had revived the argument, he treated it carefully.[178] Nott applied it like a club. Still he

attracted Morton's attention, and the Philadelphian supported Nott's adjunct career as America's most vocal and uncompromising polygenist.

In February of the following year, Nott lectured on ethnology in his adopted hometown of Mobile. As in his article on mulattoes, the goal of the lectures was to establish the specific differences of the human races: "I set out then with the proposition, that there is a Genus, Man, comprising two or more species—that physical causes cannot change a White man into a Negro, and that to say this change has been effected by a direct act of providence, is an assumption which *cannot be proven, and is contrary to the great chain of Nature's laws.*"[179] He led with one of his favorite topics, chronology. Recent excavations in Egypt had uncovered art work on monuments depicting various human races seemingly identical to those now existing. These monuments were so old, dating to approximately 1500 B.C., that they left too little time for human racial differences to have developed naturally since Noah's flood.[180] This was a compelling argument at the time, when most men of science still believed that the history of the human race could be measure in thousands of years. Nott acknowledged the Egyptian monument evidence as a necessary piece of his polygenist argument and spent the next decade honing and developing it.

Nott believed that the moral and intellectual differences among the races were even greater than physical ones and used Morton's argument that the ancient Egyptians were Caucasian, an important political point against the popular notion that they were Ethiopians. This appealed to white America's racism, since the Egyptology craze made the public aware of the heights of Egyptian civilization and reinforced the notion that their civilization had roots in the fertile soil of the Nile basin. All this supported, conclusively in Nott's view, the notion that

humans came in distinct types and that race mixing was unnatural and culturally suicidal. He did not, as one would expect, preach the purity of primordial blood lines; instead Nott claimed that the wide range of human varieties, not all of which could be a primordial type, had resulted from the amalgamation of the original types. Later he would even claim that his precious Caucasians were such a product.[181] Somehow, Nott never seemed to see the contradiction between his amalgamation theory and his claims about the inherent lack of fecundity of hybrids.

Nott was aware that his work flew in the face of Prichard's, whose fourth volume of his magnum opus appeared that year, and he established in these lectures a rhetorical strategy to deal with the English ethnologist's authority, one that Nott would employ throughout his career. He acknowledged Prichard's labors and mined his work for material, claiming again and again that Prichard's research was exemplary but his inferences from it mistaken. He fully expected, or so he said, that Prichard would become a polygenist if he kept to his course. Prichard died in 1848, without satisfying Nott on that point. But in all his borrowing from Prichard, whom he quoted regularly and voluminously, he never explained to his readers Prichard's arguments.

Nott adopted Prichard's definition of species as "a race of Animals or Plants, marked by peculiarities of structure, which have always been constant and undeviating—two races are considered specifically different, if they are distinguished from each other by some peculiarities which one cannot be supposed to have acquired, or the other lost, though any known operation of physical causes."[182] But he turned the historical component against monogenism. While Prichard was busy writing his two thousand pages of ethnographical evidence for the natural production of human varieties in the past, Nott simply pointed to the lack of historical evidence for such changes. Nothing in Nott's work would inform the reader of the nature of Prichard's

cumulative and inferential argument. Prichard's authority told them that species are historically determined, and Nott announced that history showed human races to be original. "My belief is, that the human races are descended from original stocks, which were essentially different—that original stocks were placed by an Allwise Creator in the climate and situation best suited to their organization."[183]

Nott's tactic was to parrot aspects of Prichard's work, twist them against their author's purpose, and attempt to refute the defender of unity while backhandedly expropriating his authority. Agreeing with Prichard, whom he called "the great orthodox defender of the unity of the human race," that the question of human species and origin had to be settled on analogy with the rest of creation, he chose to analogize a different point in natural history: "it would be almost an anomaly in nature if man should be restricted to one species" when, for example, the nearest group to man, the apes, have thirty. Then drawing on the description of zoological provinces in Prichard's account of animals distribution, Nott argued that animals are so well adapted to particular environs that they must all have been created where they now live. If animals could have more than one location of creation, then why not humans?[184]

The natural history in Prichard's first volume was only intended to open the possibility that humans were of one origin and one species, a possibility confirmed if their histories and linguistic and cultural affinities pointed backward to a common event and a common location. Nott pillaged the natural history, and then dismissed the arguments from philology and culture: "nothing can be more fallacious—the faintest resemblances in grammatical construction, or in particular words, have been seized with avidity and confidently put forth as evidence of common origin. . . . Is it not , however, more reasonable to believe, that in ancient times (as in the present)

the nations who were more civilized, stamped their characters, both in language and religion, upon the inferior tribes with whom they held communication."[185] He ignored the fact that Prichard understood the role of colonial influences but believed that they did not always account for the evidence. For example, the philological and mental affinities shared by ancient Egyptians and Asian Indians were due to a pre-historic shared ancestry rather than a later colonization of one by the other because influences specific to such a relationship, such as writing styles, were absent.[186] Nott did not engage Prichard's work at this level.

It is not surprising that the physician should misunderstand a philologist's argument, though Nott likely acted more out of ideology than ignorance. Prichard was a physician, too, but he was also a natural linguist, and, as such, he could fully appreciate the accomplishment of Sir William Jones and his colleagues, who had demonstrated that a whole host of languages across Europe and India had one common ancestor. The technique was not, as Nott had it, based on the "faintest resemblances" but the slow and systematic accumulation of particular affinities in grammatical construction and words of certain kinds. Prichard used philology in most sections of the hundreds of pages of his ethnographic survey, and it provided a large share of the historical evidence of the unity of the human race. Nott disposed of it all with one line.

Nott's Use and Abuse of Prichard

For Dr. Josiah Clark Nott of Mobile, Alabama, the mammoth labors of Dr. James Cowles Prichard of Bristol, England, were both a blessing and a curse. The English ethnologist was, in Nott's words, the Nestor of the orthodox, but he also delivered a wealth of information

that Nott would be hard pressed to find elsewhere, especially in the relative isolation of his home town.[187] The development of Prichard's argument through the various editions also provided succor for his enemies. As the text grew in bulk and detail—it became "a virtual ethnographic encyclopedia of the world"—the argument became more diffuse.[188] His determination to defend unity on scientific terms led to revisions in his evaluation of the ethnological relevance of the Bible and to ever-increasing ambiguous evidence. Nott could both trumpet Prichard's theoretical back-pedaling and raid Prichard's *magum opus* for information supporting polygenism. It is to Prichard's credit that the more he worked, the less he bent his data to fit his theory. He never abandoned unity, but his defense became ever more complex and nuanced. The third edition of his work presented an elaborate method and immense detail, not all of which was relevant to his objective. All but the most determined reader would have gotten lost as he ranged the globe and world history, all the while engaging such diverse disciplines as philology, classical literature, cultural traditions, and comparative anatomy.[189]

The nature of their publications shaped the debate. Both men participated in scientific literature, Prichard's work consisting mostly of monographs and articles in medical journals while Nott contributed to the *American Journal of Science and Arts* (*Silliman's Journal*) and the *American Journal of the Medical Sciences*. Prichard presented at the BAAS, as did Nott at the American Association for the Advancement of Science (AAAS). But Nott was perhaps more at home writing for popular journals, such as the *Southern Quarterly Review* and *DeBow's Review*, and was not above engaging in very public disputes with his critics. Nott's published lectures received reasonably wide distribution, especially, as we shall see, those delivered at the University of Louisiana in 1848. Naturalists read these works, but Nott certainly intended to

educate the larger public. As much as he claimed to be a devotee of scientific endeavors, a humble servant of truth, he crusaded against what he considered false philanthropy in politics and social reform movements. The characteristics of the races ought not to be overlooked by statesmen, he routinely reminded politicians. In 1850, he made the political relevance of his race science explicitly clear in an address to the Southern Rights Association.[190] Nott had a distinct advantage as he attempted to expose Prichard's errors. Most readers would not have—indeed, could not have—digested the 2,000-odd pages of Prichard's *Researches*, and few of those would be able to comprehend or evaluate its two-stage argument with all its inferential interdependencies. Therefore, when Nott presented details from Prichard to illustrate the orthodox "Nestor's" weaknesses, he had no compulsion to address Prichard's argument directly. Prichard's methodological sophistication, whether it worked or not, could not penetrate a public debate.

A dramatic example concerns the role of biblical chronology. In Prichard's first efforts, he treated the Bible as an authoritative source of ethnological history, based on a fairly traditional version of biblical chronology. Over the next decades he abandoned that chronology, recognizing that it did not allow sufficient time for racial diversification to have taken place before the Egyptians carved the monuments that depicted racial groups identical to today's. His reading in German biblical criticism convinced him that the key texts, especially the primeval prologue of Genesis 1-11, contained no reliable chronological marks and were not intended to serve as such by the inspired writers. He closed his life's work with a note on biblical chronology in which he explained his new views.[191]

The further back in the biblical narrative one goes, he explained, the less the text has the character of historical narrative and the more uncertain the chronology becomes. The date of Solomon's temple can be ascertained with some precision, but the all-important connecting narrative of the book of Judges, which takes the Israelites from the conquest to the monarchy, entirely lacks chronological indicators. Nothing in the text excludes some or even all the judges from being contemporaneous. The genealogies of the primeval prologue skip generations. Discrepancies in chronology among the Hebrew text, the Septuagint, and the Samaritan Pentateuch show that the ancient Hebrew means of recording numbers was lost, and translators and copyists attempted to recover the numbers by more than one system. Prichard went so far as to deny the proverbial longevity of the antediluvians on the basis of the lost system of numerical representation, indulging in a rare bit of exegesis to support his claim. Why would Abraham's wife Sarah laugh at the notion of bearing a child in her old age when she was young by antediluvian standards? Prichard even adopted the hypothesis that the early chapters of Genesis are a redaction of several documents, based on the variation in vocabulary and style, "There is nothing like the ordinary method of historical narrative," he declared. All is divine fiat and the text is fragmented and disjointed. "The compiler appears to have been particularly careful to preserve each original document in its integrity without introducing even such verbal alterations as might have served to give the appearance of unity in composition."[192] Prichard forthrightly defended his new critical approach: "By some it will be objected to the conclusion at which I have arrived, that there exists, according to my hypothesis, no chronology, properly so termed, of the earliest ages, and that no means are to be found for ascertaining the real age of the world."[193]

Nott was delighted. He viewed his own career as the heroic attempt to free ethnology from the restraints of false religion, preaching that the Bible contains no ethnological information, and now he could trumpet Prichard's conversion on the subject of chronology:

> But if he, the orthodox head and front of the unity party; he whose life and energies have been spent in upholding the opposite opinions, closes his career by abandoning the authenticity of the Pentateuch, on which the unity has mainly reposed, no well-informed man will hardly be found again obstinate enough to insist upon the so-called Mosaic account as infallible. . . . His authority alone should be sufficient to shield us from unfair and ungenerous imputations.[194]

But Prichard did not give up on the authenticity of the biblical narrative or the value of the Bible's ethnological information. "Nestor" ended his "Note on Biblical Chronology" with an argument that the authenticity of Genesis as revelation is not dependent on knowing authorship or whether it contains accurate chronological information.[195] Though he made an explicit choice not to argue unity theologically or exegetically, Prichard did treat the Bible as an ancient source of historical information given the restraints of his new higher critical views. Nott, too, would make ethnological arguments from the Bible, and neither did he deny its authenticity as revelation. But in his crusade to get the clergy off his back, such fine distinctions suffered. His was a polemical rhetoric, intent on scoring persuasive points rather than conveying subtly and nuance. This is clearly seen in how Nott and Prichard deal with that hallowed Baconian shibboleth, the "fact."

In Nott's view, Prichard was forced into his various reversals by the "facts." Yet Nott attacked Prichard's use of information from travel writers as uncritical and sloppy. Prichard "has quoted almost every book of travels, of any note, in all languages. . . . But we have reason to

know than many of the supposed facts on which his strongest arguments are based, are not to be relied on, and these can be no doubt that many others are equally inaccurate."[196]

Prichard's work was top heavy with information, but "facts" did not function for him they way they did for Nott. The American was fond of discharging discrete "facts" to trouble his monogenist foes, a rhetorical technique of popular apologetics. Isolated facts played a small role in Prichard's work: its epistemological foundation lay in the security of inferences drawn from a mass of detail. Nott fired off facts like bullets. Prichard treated them like particles of water in a growing wave. This gave Nott the advantage in public discourse. He took individual details from Prichard's work and turned them against his foe without explaining the role they played in Prichard's argument. Thus he expropriated Prichard's great public authority as the master of ethnological data while questioning Prichard's inferences. His readers could not know from Nott's writing how the Englishman ethnologist actually drew his inferences from these "facts."

Nott and the Defenders of the Faith

Nott had not planned to publish his *Two Lectures on the Natural History of the Caucasian and Negro Races*, but felt constrained to defend himself from misrepresentation by "those who those who mistake their own intellects for a measure of wisdom, and their own passions and prejudices for the will of heaven . . . and hold up Christ as their model, while they are pouring out phials of wrath."[197] Complaining about clerical opposition was a cottage industry for Nott. He never wrote off Prichard as a mere Christian apologist, but others were not so fortunate. As we shall see, Nott's harsh and contemptuous treatment of orthodoxy and its

clergy played a critical role in shaping the debate, especially in the south. His attitude and edge were not the only qualities calculated to infuriate men of the cloth. Nott also directly engaged the religious aspects of his work. Ironically, the Quaker-born Prichard was reticent to involve scripture and scriptural interpretation in his ethnology. Nott could not resist the temptation.

In his Mobile lectures he introduced a means of accommodating plural human origins with the biblical narrative. "*The plurality of species in the human race does no more violence to the Bible, than do the admitted facts of Astronomy and Geology*," he announced after a dissertation on the progress of science in the face of religious bigotry and the martyrdom of honest scientists in search of truth.[198] The solution was preadamism. Nott did not mention Peyr□re, but a critical reading of the primeval prologue and certainly any attention to standard commentaries would alert a reader to the problem of characters whose familial relationship to Adam and Eve is unclear. Armed with contempt and a biblical interpretation long considered heresy, Nott would not have to wait long for a voice from the pulpit.

The first religious voice, however, came from the lectern. The Rev. Moses Ashely Curtis was an Episcopal priest from Massachusetts and a botanist living in the South. He had moved to North Carolina to teach rather than preach, and chose to deal with Nott's scientific arguments more as a botanist than a preacher—even though he felt that Nott had "done needless violence to the faith of those who have implicit confidence in the veracity of the Scriptures."[199] Nott was delighted that a priest had challenged him publicly, though he was nervous enough to ask Morton for help.[200] In fact, Curtis did Nott the unintentional favor of providing an important platform by publishing his views in a one of the South's most important journals, the *Southern Quarterly Review*, which published two articles by Nott in reply.

Curtis's article was almost twice as long as the published form of Nott's lectures. Curtis criticized Nott's lectures detail by detail, matching evidence to evidence, but he also complained about Nott's tone and the inconsistencies and sloppiness of Nott's argument. Curtis was unhappy that such views had become public. He had been advised by none other than Harvard botanist Asa Gray to leave Nott alone, but felt driven to address what he considered puerile populist bilge.

Curtis advocated a conventional environmentalism based largely on the work of Catholic Cardinal Nicholas Wiseman's 1835 lectures on religion and science, which he also reviewed in the article attacking Nott. [201] The strength of that article lay more in Curtis's criticisms of Nott's arguments than his own positive claims, but like Nott, his writing was perhaps too hastily assembled to avoid that same kind of criticisms from Nott. Both men accused the other of logical failures and credulous acceptance of questionable information. Perhaps most offensive to Nott was Curtis's conclusion that "the writer was a young man, too eager for taking rank among savans to wait for a due digestion of his varied reading, too impatient for the slow toil of laying deep and sure the foundations of an impregnable reputation."[202] Nott replied that Curtis showed all the signs of dotage and the accompanying mental lapses.[203]

These articles exemplify Nott's use of Prichard. Again and again he chided Curtis for a slavish depended on Wiseman—without ever explaining why Wiseman was an inferior source—and celebrated Curtis's admission that he did not have access to Prichard's work. Nott had the second edition of Prichard when he wrote his lectures, but had at least two volumes of the third edition by the time he wrote these articles. He touted Prichard's more agnostic views of the applicability of the Genesis narratives to ethnology and especially his abandonment of the

biblical chronology. The irony is that Prichard's philological emphasis was perfectly in keeping with Curtis's use of Wiseman. The Cardinal, like the erstwhile Quaker, felt that philology had all but proven human unity, but one would not know that from Nott's telling.

Nott's fight with Curtis was the earliest sustained debate on the unity issue in the American periodical press. The religious weeklies had not picked up on the dispute yet. That would wait for Nott's next set of lectures and for Harvard naturalist Louis Agassiz, the most famous man of science in the United States, to weigh in. But certainly more lay readers first met the question of human specific and original unity here than anywhere else at the time. What impressions would they have had? Unfortunately both writers supplied their opponents with inconsistencies and logical *faux pas* to exploit. Many would find the tone of the debate disappointing. Curtis wrote out of alarm, and Nott's customary puerile rhetoric was amusing but pathetic. Nott's articles were actually letters to the editor, not articles solicited by the editor. The editor was absent when Nott's first article was published, and he did not endorse the action of his stand-in to publish Nott's letter as an article.[204] That mistake was not made in the second piece. Clearly, the editor wanted to distance himself from the dispute. The substitute editor who unfortunately formatted Nott's first letter as an article also added a comment, noting that passion and personal invective was not appropriate to scientific discourse.[205] Would readers be any more comfortable with the rhetorical excesses?

Both Curtis and Nott scored some points against each other. Nott admitted privately that Curtis gave him "a hell of a rasping."[206] Both embarrassed themselves on some points. Both felt they had won. Perhaps Nott had the upper hand overall, especially to those who could overlook, or perhaps enjoy, Nott's puerilities. After all, no one had unambiguous evidence of human

transformation from one race to another. All such arguments were inferential, and most were implausible. Thus, those who attempted an open mind at this point likely experienced more confusion than instruction. Prichard was out of reach to most, even to those who had access to his work in progress, and no one had addressed the public on the topic with compelling clarity. But this was not the last word. Nott was about to publish another two lectures, and these would not be ignored.

Chapter Three

Polygenism Goes Public

The question of the unity of the human race burst onto the headlines of the American religious press at the mid-point of the nineteenth century. Two specific events triggered the sudden and intense attention from the religious press: the publication of Josiah Nott's *Two Lectures on the Connection between the Biblical and Physical History of Man* in late 1849, and Louis Agassiz's endorsement of polygenism at the Charleston meeting of the AAAS and in the *Christian Examiner*, both in March of 1850.[207] Nott and Agassiz were very different men in their qualifications, reputation, and influence. Agassiz, the greatest European naturalist to move to the United States, had charmed Americans with his deeply religious understanding of nature. Nott, by contrast, was viewed more as the village infidel writ large. But they shared an approach to the issue that made them jointly responsible, in the eyes of most religious writers, for initiating a new infidel attack on orthodox religion and attempting to reconcile human polygenism with the Bible through a preadamist interpretation of the relevant texts.

Nott and Agassiz's attempt to baptize human polygenism, exegetically and theologically, triggered the most intense controversy over the relationship between science and religion before the offensive launched by Thomas H. Huxley and John Tyndall in the 1870s, surpassing the

better known debates over organic evolution. Human polygenism was not a new idea to Americans in 1849. They knew of its seventeenth-century European roots, and the southern physician Charles Caldwell had pressed the issue on American soil as early as 1830.[208] Although the American School's work would not reach the apex of its development until the publication of *Types of Mankind* in 1854, its proponents had been building their case since the mid-1840s. Nott had established a reputation as an ethnologist in 1844 with a set of polygenist lectures, and Agassiz had discussed the unity of the human race with the Charleston Literary Club two years later.[209] As early as 1847, it was rumored in the North that Agassiz perhaps did "not believe that the Negro & Malay races descended from the sons of Noah but had a distinct origin." So disturbing were these rumors that botanist John Torrey, seeking assurance that the Swiss naturalist was not "hostile to religion," felt compelled to write to his protégé, Harvard botanist Asa Gray, while he was arranging some public lectures by Agassiz in New York city.[210]

Whatever the depth of their suspicions in the 1840s, the religious press took no notice until the end of the decade. Occasionally, newspaper articles mentioned the topic prior to 1849, but usually in passing while discussing larger topics and invariably declaring with confidence that science affirmed unity of the human races. In a series on natural history beginning late in 1839 in the *Christian Secretary*, a Baptist paper published in New York, "Amicus" spent two of his seventeen installments arguing a single human origin on the evidence of the infertility of hybrids, the cosmopolitan character of humans, and the, to him, clear fact that "the red man of America, and the inhabitants of the eastern continent, had one common origin, evincing thus far the scripture account as given by Moses to be correct."[211] The context of these articles in a long series on natural history, the settled tone of the argument, and the lack of specific adversaries

indicate a didactic, rather than polemic, intent. Amicus was simply reporting the state of the discipline of natural history, which, as a matter of course, included the issue of human origins. Religious writers had nothing to fear in polygenism. After all they had the considerable authority of James Cowles Prichard, William Lawrence, and Nicholas Wiseman to rest upon.[212] The theory of plural human origins was no immediate threat, only an abstract concern.

Nott's and Agassiz's attempts to construct a specifically Christian (or at least theistic) polygenism drew the work of the American School into the public eye of religious Americans. It presented a new threat of infidelity, one with a new character in which religiously corrosive ideas came disguised as orthodoxy. Religious newspapers may have overlooked American School polygenism during the 1840s. But in late 1849 and 1850, the new ethnology, wrapped in the new infidelity, presented a menace that could no longer be ignored.

Charleston and the Public Controversy

By the mid-summer of 1850, the unity debate had become a public and national concern for the weekly religious press. Their reaction was almost universal. From New Orleans to Boston and Cincinnati, Presbyterian, Baptist, Methodist, Congregationalist, Lutheran, Universalist, and Unitarian papers published on the "Unity of the Human Race." That summer the discussion became especially intense. The frequency and polemical tone of these newspaper articles clearly registered religious writers' and editors' new interest in the unity of the human race. More than an "interest," this was, in fact, a pastoral emergency. Having identified Agassiz's and Nott's preadamist polygenism as a threat to the faithful, the religious press met its

duty to warn of the unorthodoxy of the ideas, educate on the truth about human racial origins, and provide comfort to the faithful that, however dangerous these infidels may seen, God's truth is greater and will be vindicated.

Often editors reached for what was at hand to address the issue, running articles borrowed from books or quarterly journals. A piece on the "Different Color of the Jews," from a recent issue of the *British Quarterly Review*, one titled "Genealogy of Adam," extracted from an article in the *Southern Presbyterian Review*, and another on the "Races of Man," taken from Alexander von Humboldt's *Kosmos*, each appeared in more than one weekly.[213] These borrowed pieces addressed the unity issue without naming the threat, though they bore the authority of great men or authoritative trans-Atlantic sources. But more indicative of the threat was the flood of original articles that specifically attacked the new preadamist polygenism and its proponents.

The most concentrated response and the largest volume of original pieces attacking Nott's and Agassiz's work came from centers of scientific activity, especially Boston and Charleston, with the important addition of Baltimore's *Lutheran Observer*, which topped them all with twelve articles in 1850. Most of the *Observer's* articles that dealt directly with the unity issue celebrated the contribution of Lutheran minister and naturalist the Rev. John Bachman, and they clearly enjoyed having a prestigious naturalist as a coreligionist. The interest of its editors in science was not exceptional, but their interest in the premiere American Lutheran scientist was.[214] With few exceptions these newspapers identified Nott and Agassiz's preadamist polygenism as religiously defective and infidel in nature. Thus, religious writers and editors most connected with science, both socially and intellectually, led the attack. This was no

backwoods, knee-jerk, response. America's most intense mid-century dispute involving religion and science belonged to the most cultured and informed of its religious leadership.

Charleston was the flash point, producing the earliest and most aggressive response. Many religious weeklies had ignored Nott's efforts, especially the northern papers, which entered the debate only when Agassiz declared himself a polygenist in March of 1850.[215] But readers of the Charleston papers were deluged with criticisms and refutations of Nott's lectures from the moment they were published in late 1849. This busy "city of churches" was also a center of religious publishing and of natural-history research in the South: for at least two years human unity had been an active topic of discussion by the savants of its Literary and Philosophical Society and, later, the Elliot Society of Science and Arts. It began when Agassiz visited Charleston in 1847 and enjoyed he hospitality of its members and especially the opportunity to observe the African slaves at work on a plantation belonging to zoologist John Edwards Holbrook. Agassiz presented his developing polygenist ideas to the Literary and Philosophical Society, whose members continued to discuss the topic, especially during annual visits from the Harvard professor. Two of its members, the Rev. John Bachman and his Presbyterian colleague the Rev. Thomas Smyth, were poised to become the polygenists' leading opponents.[216]

For several years before the unity debate became a public concern it had been a topic of interest to Charleston naturalists and their friends in the Literary and Philosophical Society, and both Bachman and Smyth were working on books on the topic in late 1849. It must have been a lonely crusade for these two clergymen, because their colleagues among the Charleston intelligentsia largely sided with Agassiz.[217] The publicity that the meeting of the AAAS in

Charleston in March of 1850 gave to the unity debate only made national a discussion that was years old to the Charleston naturalists. The location of three major southern religious weeklies there allowed the Literary Society's anti-polygenist minority, Bachman and Smyth, an accessible entrance into the public debate, months before their books could make it off the press. In the early stages at least, the discussion of human unity in the nation's religious press was a Charleston production.

The Methodists' *Southern Christian Advocate* illustrates the depth of concern of the Charleston clergy. Instead of a single summary review of the Nott's lectures, as would be expected for an infidel publication, assuming the editors even deemed such a work worthy of notice, the *Advocate* published a review in October, followed in the next two months by a four-part frontal attack by "Omicron." In between appeared a piece entitled "The Unity of the Human Race," copied from the *Southern Presbyterian,* also of Charleston. The October piece was long for a book review, but Omicron's series was extraordinary: almost eight full columns over four weeks.[218]

That was only the beginning. Two weeks after Omicron's last piece, the *Advocate* and five other southern weeklies, one Baptist and the rest Presbyterian—the Methodist, the Baptist and one of the Presbyterians' were also published in Charleston—began an unprecedented twenty-three part series by Smyth.[219] It was, of course, the bulk of the book he had been preparing since Agassiz first raised the issue of plural human origins before the Charleston Literary and Philosophical Society in 1847. Likely the sudden publicity of the topic impelled him to release his work first as a newspaper series, and it ranked as the most sustained and detailed attack on polygenism ever mounted in the American religious press. Still the *Advocate*

was not done. Reviews and advertisements for Bachman's book, *The Doctrine of the Unity of the Human Race,* began in March and ran weekly until May, and articles on human unity appeared through 1852. From October 1849 through May of 1850 only three issues of the *Southern Christian Advocate* came off the press lacking some article or advertisement for a book regarding the unity debate. The other papers that ran Smyth's series were not far behind. Some southern papers did not go so far: the Baptist *Religious Herald* and *Biblical Recorder* ran only three and four articles respectively in 1850. Still, the quantity and tone of these articles stand in stark contrast to the blissful neglect of the issue in the previous decade.[220]

Once Agassiz entered the fray, his own backyard of Boston also became a center of anti-polygenist newspaper stories. That city's *Puritan Record,* a Congregationalist paper, ran ten articles, and the Baptist *Christian Watchman and Christian Reflector* ran six. Both these papers had a vast influence beyond New England as editors across the country routinely read and habitually borrowed from them. The *Puritan Recorder* played a critical role for several reasons. As one of the earliest papers to respond to Agassiz's conversion and as "perhaps the most copied religious journal of its day," its influence was unmatched.[221] The *Puritan Recorder* served as a conduit for the already established southern response initiated by Thomas Smyth, John Bachman, and their colleagues. Although writers in the *Recorder* made common cause with their southern brethren, they were motivated by a local concern. For them, and other northern newspaper writers, Agassiz was the target. The Harvard professor, darling of the American public, friend of transcendentalists, free thinkers, and Unitarians, was an exceptionally influential man who kept questionable religious company. To orthodox Bostonian Congregationalists, already bleeding members and whole churches to Unitarianism, Agassiz's influence had to be kept in its place.

They must have been torn between appreciation for his scientific achievements, his pious natural theology, his charisma and gentlemanly character, and the menacing possibility of his endorsement of heterodox religion.

By the end of 1850, religious Americans in general had been put on alert, and the unity issue became a national concern. For the southern papers, especially those in Charleston, Nott's aggressiveness, condescending tone, and promotion of liberal Protestantism shaped the debate. Smyth's series served as the model of an orthodox reply, and many of his arguments, original or not, would be repeated for more than a decade to come. In Boston, Agassiz's version of a Christian polygenism incited a colossal reaction in the orthodox press, while Nott's name rarely appeared. Whichever man was the target, these ethnologists' attempts to baptize the theory of plural human origins generated a torrent of newspaper articles to meet this pastoral crisis. Surprisingly for this era of incessant inter-denominational sniping, the response in the religious was nearly uniform across church traditions. Agassiz's fellow Unitarians resisted expressing outrage, but neither did they spring to his defense.

Josiah Nott's Crusade

Polygenism had no greater evangelist in America than Josiah Clark Nott, M.D. The scientific authority of Morton and Agassiz may have gained the new ethnology an entrance on to the stage of elite cultural discourse, but Nott's personality shaped the public debate, especially in the southern religious press. Morton and Agassiz professed to have no quarrel with American religious leaders and preferred that the new ethnology be pursued without engaging religion,

though Agassiz's claims regarding the religious orthodoxy of polygenism certainly undermined that position. Ephraim George Squier, co-author of *Ancient Monuments of the Mississippi Valley*, leaned toward polygenist views, but had no taste for parson-bashing, possibly out of respect for his clergyman father.[222] In the late 1840s, George R. Gliddon fed his family by delivering public lectures on Egyptian antiquities, a vocation requiring at least a veneer of respectability since offending the clergy could reduce ticket sales to polite society.[223] Nott had no such constraints. Secure in a lucrative medical practice, he was free to speak his mind and did so often with a blend of impatience and impertinence. Polygenism was a scientific and political passion for him, an ever-growing mission as the slavery debate intensified. But his public statements on the subject also had a religious sub-text, one that grew out of his own version of Christianity and his life experiences.

Although his father was from a prominent New England family that bred a number of abolitionists, Nott believed deeply in southern rights and institutions.[224] Since the North had repeatedly rejected the South's constitutional right to the institution of slavery, Nott argued before the Southern Rights Association in 1850, ethnology would perhaps persuade them of the foolishness of rapid emancipation.[225] In America's heated and divisive political climate, science was to provide a common and objective basis for agreement on policy. Nott did not seem interested in the question of the morality of slavery; willing to admit that it was doubtful, he was more concerned with the practical consequences and the fact, as he believed, that Africans were happier as slaves than living a degraded life in the jungle.[226] He held the puzzling view that slavery could be both a moral wrong and a positive good. He was on stronger ground citing the failure of massive emancipations, persistently pointing to the calamity of Haiti and insisting that

economic and social disaster—indeed, outright warfare—would follow if such policy were instituted in the American South.[227]

Settling moral issues by the application of science was dicey business. Southerners had more than one defense of the peculiar institution; Nott drew on economics and ethnology for his. He seemed unconcerned that white southern clergy and many white lay Christians justified slavery in religious terms, as ordained by God and even part of a worldview that gave European Americans a soteriological role in the destiny of black Africans.[228] Slavery was both a divine curse and the occasion of redemption for their slaves. In one way, Nott's views on slavery were behind the times. In the post-revolutionary celebration of the "rights of man," southern whites routinely admitted that slavery was an inherited evil and justified its continuation in practical terms, as Nott did. But the political climate had shifted by mid-century, and his contemporaries, including the clergy, were more likely to present slavery as a positive good than a regrettable inheritance.[229] As sectional tensions grew and critics of slavery evacuated the South, the moral high ground of the redemptive role of slavery became increasingly entrenched in southern thinking. It was more than merely a reflection of the abolitionists' moral bullying. For many Southerners this was not the time for fighting religious arguments with science. Slavery was above all a moral issue for most concerned Americans. Abolitionists attacked it as a sin, and southern clergy defended it as a divine institution for the blessing of both blacks and whites. An understanding of race relations based on a religiously suspect science and, worse, a heretical understanding of religion, would be a tough sell.

Nott was well aware that polygenism would be a stumbling block to the orthodox, and it is remarkable that, given the importance of the religious defense of slavery to southern culture in

general, he had so little respect for the argument. But then he had little respect for American religion or its leaders. At a young age Nott developed a deep contempt for the intellectual abilities and honesty of American clergy. Partly this attitude came from the influence of the controversial Thomas Cooper, who was president of South Carolina College in the early 1820s, when Nott studied there. Cooper played the role of enlightened skeptic, regularly ridiculing the clergy and teaching his students to doubt the veracity of the Pentateuch. Years later Nott would remember Cooper declaring that, "No man can be a good reasoner who is marked by clerical prejudices."[230] In addition to Cooper's anticlericalism, the future ethnologist adopted his teacher's passionate defense of slavery, a good dose of philosophical materialism, and a deep conviction that scientific activity should be wholly free of religious interference. Few southern clergy opposed slavery and many were happy to give science considerable liberty, but materialism and anticlericalism guaranteed that Cooper and his followers would not be free of religious scrutiny.

Nott's bitterness toward orthodox clergy was fueled by controversies that touched Cooper and Nott's own family members. Although South Carolinians had exercised considerable tolerance for Cooper's radical views, eventually he found himself in political trouble, and he retired from the presidency of South Carolina College in 1833. The next year, Nott's brother, Henry, a faculty member at the college and full partner in his brother's disdain for orthodox religion, drew clerical criticism over an irreverent and sensualist character in a novel he had written. Even before this public controversy, Henry had cultivated a reputation for irreverence. James Pettigru wrote of Henry that he "is exceedingly odious to the religious public, and he bravely declares he would rather quit the College than degrade his freedom by going to church so

much as once a day on Sunday." The Notts' father, Abraham, a leading lawyer and judge in the state, held less antipathy towards conventional religion and maintained a formal connection to the Presbyterian Church; yet some years earlier he had suffered clerical reproach over a supposedly irreverent use of a biblical phrase. Irreverence seemed to be a family tradition, and these experiences, coupled with Cooper's tutelage, deeply impressed Nott, whose life-long contempt for orthodox clergy was thinly veiled, when at all.[231] In his mind orthodox Protestantism was synonymous with bigotry, ignorance, and un-gentlemanly behavior.[232]

Nott began his public career as an ethnologist in the early 1840s, publishing polygenist views and attracting criticism for his blithe dismissal of ethnological information derived from the Bible.[233] He established a reputation as an ethnologist with the publication of *Two Lectures, on the Natural History of the Caucasian and Negro Races.* This work, which contained his usual arguments for the separation of religion and science, attracted attention in both American and Europe, but also led to some public controversy in the southern quarterly press; however, he had to wait for the full attention of the religious press until 1849, and the publication of his *Two Lectures on the Connection between the Biblical and Physical History of Man.*[234] Those lectures had been delivered at the University of the Louisiana, late in 1848, at the invitation of James De Bow, who occupied the chair of political economy. De Bow also published the popular commercial review that informally went by his name and made that review a platform for the American School ethnology for many years.[235] With the help of fellow ethnologist George Ephraim Squier and John R. Bartlett, a New York bookseller and corresponding secretary for the American Ethnological Society, and a promise to subsidize the printing out of his own pocket, Nott secured a New York publisher for his lectures.[236]

As the title suggests, Nott dealt with the religious aspects of polygenism in full, revealing his own views on the Bible and Christianity. He approached his topic with missionary zeal because he believed a race conflict was immanent if European Americans did not acknowledge "true character stamped upon the Negro by the Almighty."[237] The abolitionists were the primary offenders against nature here, but the larger and, to Nott, more annoying contingent were Christians intent on evangelizing all races. Could they not see that by their "warring against the immutable laws of Nature, by [their] endeavoring to elevate the intellectual condition of the dark, to that of the fair races," their missionary efforts were guaranteed to fail?[238] Since the notion of common descend from Adam and Eve was deeply entrenched in Christian thinking, Nott stepped boldly into the domain of the religious professionals—biblical scholars, theologians, and regular clergy—to tutor them on how to read the Bible.

Nott's first strategy was to disqualify the Bible as an authoritative source of ethnological data. He deployed two arguments that, in his eyes, more than adequately accomplished the task. Following a host of European biblical critics, Nott declared that divine inspiration in scriptures extended only to moral insights, not to scientific information, ethnological or otherwise. The biblical writers' knowledge of other ethnic groups was limited to their acquaintance with their immediate neighbors. Therefore, large claims, such as the descent of all humans from Adam and Eve, only spoke to the local world of the writers and did not constitute revelation from God concerning the earth's entire population. Nott took it as established that the Pentateuch was a collection of documents that had suffered considerable corruption at the hands of uninspired copyists through the centuries. Consequently, what ethnological information it contained was

fragmented and inconsistent. “A critical examination, then, of the book of Genesis,” he declared, “shows conclusively that there is no harmony in its ethnographical details.”[239]

Regardless of having rendered the Bible irrelevant to the science of ethnology, Nott went ahead and extracted ethnological data from it by means of a preadamist interpretation of the creation narratives, an inconsistency his opponents would forcefully exploit. He repeated the by-now stereotyped arguments regarding the marginal characters in Genesis, those who inhabit the edges of the narrative thread. Who was Cain afraid of when he was exiled from his family after killing Abel? Whom did he marry? Who inhabited the city he built? Who were the inhabitants of Nod? Who were the “sons of God” and “the daughters of man” mentioned Genesis 6? If these stories had any historical content, which Nott rather doubted, then they pointed to the existence of people not descended from Adam and Eve. These other human creations were not recorded in scripture, according to Nott, because they were not germane to the purpose of the narrative, the history and religious instruction of the Caucasian race.

These are vague and rather inferential arguments, but Nott had more specific exegetical bones to pick. Following his friend and associate George R. Gliddon, Nott declared that “Adam” means red man or blusher, and, since only fair-skinned people can blush, “Adam” must represent the Caucasian race. Here Nott stepped squarely on the toes of those southern Christians who read the curse on Noah’s son Ham as a justification of race slavery. Their argument had three elements: the curse was perpetual, had divine authority, and identified at least one of Ham’s descendents, listed in Genesis 10, as sub-Sahara Africans. The exact identification could vary, but Ham’s son Cush was the traditional suspect. Stephen R. Haynes, a student of race and religion, has noted the southerners who used this curse as a justification for slavery ignored that

the text has the curse pronounced on Canaan rather than his father Ham, and read the text more broadly as a condemnation of Ham's whole family. Haynes cites this as evidence that southerners did not read the Bible as literally as historians often suggest. [240]

This whole argument ran counter to Nott's preadamist accommodation of polygenism, which could tolerate no non-Caucasian descendants of Adam; he argued instead that Cushites are Arabs, the darkest branch of the Caucasian race. In the end, according to Nott, the only passage in the Bible that could reasonably be cited in support of monogenism is Acts 17:26: "And [God] hath made of one blood all nations of men for to dwell on all the face of the earth." But that, he declared, is an example of the common oriental literary device of using a universal term in a more limited meaning, such as using "all" for "very many." Therefore, the "one blood" of Paul's sermon only included the nations the apostle knew.[241]

Nott's attempts to "cut loose" ethnology from the Bible are well known, but historians have been preoccupied by his irreverence and his criticisms of orthodoxy.[242] It is tempting to read Nott's disregard for the clergy as a rejection of religion in general, but then why did he engage in technical exegetical arguments? Do we take as disingenuous lines such as "Almighty in his wisdom has peopled our vast planet from many distant centres?"[243] Though religion was not his first priority, Nott was serious about it. After all, nineteenth-century polygenism was a form of creationism—in the modern sense of the word.[244] The orthodox even criticized it for invoking too many creations. More than an attempt to "cut loose" ethnology from the Bible, Nott's lectures on the *Biblical and Physical History of Man* advocated, in sketchy outline, a liberal form of Protestantism. Reading past Nott's abrasive comments, it is evident that Nott saw himself in a positive light, as a reformer bringing to America a modern, enlightened version of

Christianity. His irritation with orthodox Christians grew primarily from their views on race, but also from their understanding of the nature of Christianity. In religion, he carried on the free-thinking radicalism of his college professor, Thomas Cooper.

From one perspective Nott's exegetical arguments simply applied the time-tested and universally accepted notion of accommodation—God has spoken to the apostles and prophets in terms they could understand in their provincial world of the Eastern Mediterranean—to the ethnological information in the Bible, albeit in greater degree than most of the orthodox. But Nott went further and adopted the anti-supernaturalism of the German biblical critics, such as Johann Eichhorn and Heinrich Paulus, who viewed the "miraculous in sacred history as a drapery which needs only to be drawn aside to disclose the pure historic form."[245] Like that of his trans-Atlantic authorities, Nott's Christianity consisted of moral teachings intended to elevate and domesticate the human race; it was "a system of moral excellence . . . an engine which has worked powerfully towards humanizing and civilizing the world."[246] Evangelical concerns with sin and salvation were noticeably lacking, and with them went any theological necessity for the unity of the human race. To most American Christians, this was far too radical.

One theme echoes throughout all of Nott's work: traditional Christianity, as it was practiced by most Americans, was degenerate. Ignorance and bigotry held back true religion out of fear cultivated by clerical self-interest. Warring "not against genuine revelation, but against false texts and false interpretations," Nott spoke down to the rank and file of America's clergy as one who had visited European fountains of knowledge and returned with a more enlightened Christianity. [247] To make matters worse, Nott spoke condescendingly of how American Christians may finally be ready for enlightenment. After a history of suppressing new scientific

truths, now was perhaps the time for Americans to embrace the advances of modern scholarship and a commensurately enlightened version of Christianity, one that did not uncritically accept the word of religious authorities.[248] Nott saw himself standing at the verge of a new day in which the forces holding back truth in both science and religion teetered on the brink of ruin. Ethnology and slavery belonged at the forefront of Nott's crusade, but beneath rode a view of religion that he hoped would rise to prominence among his countrymen. Josiah Nott did not see an infidel in the mirror, but a reformer bringing light to American's backward Christians.

The new ethnology played a key part in his religious crusade. It presented the orthodox with an opportunity finally to abandon their obstinacy:

> Astronomy and geology, so long kept down by bigotry and ignorance, have triumphed, and the day is at hand when the natural history of man will burst the trammels which have so long held it captive. The unity of the races can only be deduced from forced constructions of the Old and New Testaments, and persistence in this error is calculated to subvert and not to uphold our religion.[249]

Nott came as reformer to educate Americans, especially their clergy, in ethnological truth, biblical interpretation, and, ultimately, the nature of Christianity. His mission and role were conditioned by a historical narrative on the relationship between religion and science contrary to that enshrined in evangelical anti-infidel rhetoric. His was a story of perpetual conflict while theirs was about infantile speculation disciplined in the course of maturation. Nott would not even engage other readings of history. Profoundly confident that all thinking men must agree with him, Nott could only understand his religious opposition in terms of bigotry and intellectual dishonesty.

The Mobile physician was extraordinarily naïve in his expectation of persuading many Protestant Americans. The European biblical critics he cited as authorities were suspect to most

religious Americans. When American evangelicals looked across the Atlantic for guidance, it was usually to men such as Thomas Chalmers and Hugh Miller of the Scottish Free Church—who preached the gentle harmony of science and evangelical religion—not to rationalist professors at French and German universities. Nott's unorthodox religious views confirmed for many the infidel nature of polygenism. The southern religious press condemned his ethnology and biblical interpretation, and northern Methodism's flagship weekly would come to call him "bestial."[250]

Charleston's Religious Weeklies

Nott was, for the most part, ignored in the North until the publication of *Types of Mankind* in 1854. His significance on the national level at this point lies in the reaction he provoked in the South, a reaction that would influence northern Christians a few months later and, indeed, for years to come. Charleston, South Carolina, was the epicenter for the first wave of the unity controversy, which ignited in late 1849, as a result of Nott's University of Louisiana lectures. That city was the leading center of southern science. Its intellectual elite, who gathered in the Literary and Philosophical Society, included a significant number of accomplished naturalists, including John Bachman, Edmund Ravenel, John Edward Holbrook, Lewis Reeve Gibbes, Frances Simmons Holmes, and John McCrady.[251] It also served as a major home for religious periodical publishing. Methodists, Presbyterians, and Baptists all published weeklies there, and the *Southern Presbyterian Review* called Charleston home.[252]

Nott's goal was to make the world safe for the new ethnology, but his meddling in religion did more to provoke the Charleston clergy than his science. A reviewer in the *Southern Christian Advocate* noted that "these lectures have been considered by some a triumphant refutation of the claims of the Bible, and an unanswerable defense of the diversity of the human species," but spent more of his ink on Nott's irreverent tone and aberrant view of Christianity than on his ethnology. Nott's work was identified as thinly veiled infidelity, but not the holistic rejection of the faith preached by Voltaire and Paine; it was, in other words, a specimen of the new infidelity that attempted to transform Christianity into a new species rather than plot its extinction. With a half-dozen quotations from Nott's lectures, the anonymous reviewer labored to illustrate Nott's claim to the "patronage of the Bible" for his polygenism and expressed more outrage at Nott's borrowings from the German biblical critics than at Nott's science. Rather than deploy the rhetoric of science "falsely-so-called" versus true religion, the reviewer identified the contestants as the anti-supernaturalism of the Continental critics and the Apostle Paul's belief in miracles. "For example, all you have to do to disclose the pure historical form of the resurrection of Christ, is to draw aside the drapery—throw away all the miracle and you have—just as much Christianity as the author of the Two Lectures."[253] The Charleston Presbyterian press also raised the alarm, charging not only Nott, but also Samuel Morton, George Gliddon, the *London Ethnological Journal*, and "some medical men in Charleston" with making infidel war on the scriptures.[254]

Because they did not perceive his work as a new scientific theory needing to be refuted or accommodated, writers for the Charleston religious papers were not shaken by Nott's science. Indeed, to them, polygenism was an old and well-answered error. They identified his work as a

recycled infidel attack on orthodoxy, one that was particularly insidious because Nott masked it under a pretended friendliness to Christianity. They categorized his work as a partisan attack on orthodoxy, concerned with corrupting faith rather than seeking truth. His rhetoric, arrogance, inconsistencies, selective use of authorities, and distortion of information had to be exposed, especially since it had achieved public attention. As the pseudonymous "Omicron" fumed, "One is struck with the parade of great names . . . not one is found among those reputed orthodox in the Church; nor indeed, of the names here mentioned do we recollect a single one who has argued in favour of the plurality of the races."[255]

Nott had to be exposed not because his work was so compelling, but because it was "being broad-cast over the land in cheap printing for the benefit of the rising age," lighting a fire not easy to put out. It had happened before, noted Omicron: "The infidelity of Hume has left deep traces on the Scottish mind which ages have not removed. The effects of the writings and example of Dr. Cooper, of the South Carolina College, are still seen and felt by many of his former students." The reference to Cooper here is revealing. The *Southern Presbyterian* also raised the specter of "Cooper's disciples." [256] The Charleston clergy had met infidelity in their city before; they were not eager for its revival. Although Nott lived far off in Mobile, critics clearly associated him with his Charleston roots. If the religious dispute was personal for him, it was also personal for the Charleston clergy.

Polygenism was not as new as the religious dress Nott applied to it. Confident that Prichard and the English surgeon William Lawrence had safely established the unity of the human race on scientific terms, many of these writers spent little effort on the technical debate. Monogenetic arguments abounded in the religious press, but these had an "off-the-rack" quality

about them, with editors often recycling stock arguments. The novelty belonged to its publicity, not the information itself. Competing views of Christianity and how the Bible functions as revelation fueled the controversy more than the science. Ethnology simply got caught in the cross fire, with the result that thousands of religious Americans read more about ethnology than they would have otherwise. Nott created a sensation that perhaps did little to advance the science of ethnology, but much to educate the American public.[257]

There was, nevertheless, a key point at which the ethnology mattered: namely, its implications for the church's mission. The vast majority of religious writers who responded to the new ethnology and its preadamist wrappings believed that Christian salvation was available only to blood descendents of Adam and Eve. By denying Adamic descent to non-Caucasians, Nott restricted the gospel's application to whites. It is hard to imagine anything that could have incensed evangelical Protestants more. As we shall see, not all took physical descent as a necessary dogmatic point, but most did. And for those who did, preadamism disqualified most of the world's population from the Kingdom of God, or, at least, from the fellowship of those redeemed by the blood of Christ. Charleston's Methodist and Presbyterian papers' first reaction to Nott's attempted baptism of polygenism focused on exactly that point. Omicron summarized the magnitude of the issue:

> [Nott] contends that all our efforts at civilizing and Christianizing the other races except the Caucasian, have signally failed; and that the religion of Christ can never be comprehended and adopted by African races. Hence all our missions to Africa, to China, to India, and to the American Indians, so far from producing good fruits to the dark races, in the main do more harm than good . . . . Then our domestics of the pure African race to whom we have taught our religion and who have in consequence abandoned idolatry, have been wrongly instructed; and we should encourage them to go back to their idols, their dark and superstitious rites, and their ways of cruelty and blood.[258]

Charleston's *Southern Presbyterian,* which at this point dealt with the science more explicitly that its Methodist counterpart, reversed the argument. Since the religious sensibility is a specific characteristic of humans, Africans' religiosity is evidence of their kinship with Caucasians:

> The moral sense is man's grand peculiarity among sublunary creatures, and it is universal attribute of all the varieties. Man is a religious animal. . . . Men of all nations can and do apprend and receive the truths of Christianity. Not only so, but it has been often proved that they can all rejected Christianity, and that the most barbarous of them can make the attempt to justify their rejection of it with arguments as subtle and keen as any which Dr. Cooper, or Dr. Cooper's disciples ever brought forward. Neither Christianity nor infidelity is peculiar to the Caucasian race.259

No state was more dependent on slave labor than South Carolina and no group of clergy in the South had greater need to sustain a moral justification for the peculiar institution than those in Charleston. For evangelical Protestants, no greater benefit accrued to humankind than salvation. The curse on Ham provided divine mandate for the social institution, but it did not satisfy the moral mandate of loving one's neighbor. If Africans were not children of the first Adam and beneficiaries of the sacrifice of Christ, slavery held no advantage for them and had dubious justification to the Christian. Also, a rejection of the universality of the gospel undermined the burgeoning missionary industry of nineteen-century evangelicalism, a movement that not only saved sinners and extended the church, but also served to justify western imperial domination of an enormous part of the world. More than presenting a new science of race, Nott was undermining the entire evangelical enterprise.

Charleston clergy had another reason for treating Nott's liberal Protestant baptism of polygenism as particularly threatening to their constituency. Their city had had a population of polygenists in its Literary Club at least since Agassiz's first visit in 1846.[260] One member, the

Rev. John Bachman, would emerge as the most determined and talented of polygenism's scientific opponents, but virtually none of his scientific colleagues in Charleston supported him. In fact, the editors of the *Charleston Medical Journal* informed Morton in July of 1850 that "most if not nearly all of the medical men [are] leaning toward the side occupied by Mr. Agassiz and yourself," a group that included the editors themselves.[261] Even worse from the orthodox point of view was the growing interest in polygenism among average citizens of the city. And Charlestonians were not the only ones concerned with the spread of polygenism. Indeed, by the end of 1850 "Virgil," writing in a North Carolina Baptist paper, worried that "the theory of the plurality of the human species, has of late began to be adopted by some professing Christians, and others begin to nibble at the bait."[262] What should have been confined within the doors of a philosophical society was leaking out into the general population, including lay Christians, precisely through publications such as Nott's. As a threat to their justification of slavery, an assault on their understanding of Christianity, and, when they got around to it, as bad science, the Charleston clergy had to turn the power of the press against Nott's ethnology.

Because this was a particular concern of the Charleston clergy and because of their location in the South's leading center of scientific activity, it is not surprising that the most accomplished and sustained assault on the new ethnology came from two of their own. In the mid-nineteen century, citizens of Charleston had much to boast about in two of their city's clergymen. The Rev. John Bachman and the Rev. Thomas Smyth both served their congregations, their denominations, and the intellectual community with great distinction and longevity. Bachman occupied the pulpit of St. John's Lutheran church for over sixty years, while Smyth spent four decades at Second Presbyterian. In 1850, these two Charlestonian

clergymen published the only book-length defenses of monogenism to appear at this point in the controversy. Their works became the backbone of southern resistance to the new ethnology.

Both these preachers stood at the top of Charleston's intellectual elite. Both were members of the Charleston Literary and Philosophical Society and the AAAS. Both were leaders of their denominations and engaged in a life-time of publishing. But the similarities end there. Smyth served in the intellectual vanguard of the southern Presbyterian Church but possessed no explicit scientific credentials. Well read on many topics, he related to science in a manner typical of many mid-nineteenth-century gentlemen. He was a consumer rather than a producer of scientific knowledge, and, as such, his involvement with science was one aspect of his general role as a clergyman, the evaluation and interpretation of culture through Christian eyes.

Bachman was a man of science. He enjoyed an international reputation as a zoologist, and was a close friend and collaborator of J. J. Audubon, a relationship cemented by the marriages of two of Bachman's daughters to two of Audubon's sons. As one of America's most accomplished zoologists with an international reputation and membership in a host of scientific societies, both foreign and domestic, he spoke with genuine authority. Although Nott and Gliddon abused him, claiming his religion had crippled his cognition, Bachman's opposition to the new ethnology grew out of years of study, first-hand observation, and original experimentation. His book contained a small amount of religious content, mostly restricted to aspects of natural theology, a topic not yet excluded from typical scientific discourse. Unlike Smyth, the Lutheran scientist's book did not originate as a newspaper series, but grew out of a long and detailed academic debate with Samuel Morton over the fertility of hybrids. As if they

had negotiated the division of labor, Bachman wrote science while Smyth, leaning heavily on that science, addressed the myriad of extra-scientific issues that ethnology, and Nott's version in particular, generated. This allowed Bachman to lay his clerical collar aside and speak only as a scientist, thus eschewing sectarian interests.

Smyth's Series

By Smyth's own account, he began working on the unity issue in 1846 after Agassiz's first meeting with the Charleston Literary Club. Like a shotgun blast, Smyth covered the full range of public media. Three "discourses" delivered in Charleston in November of 1849 became a twenty-three part newspaper series published in six different religious weeklies in late 1849 into 1850, and then in the same year these became his book, *The Unity of the Human Races Proved to be the Doctrine of Scripture, Reason, and Science.* Still he was not done. The following year he published a revised version of his book in Edinburgh for the international market. The Edinburgh edition includes considerable new material from European scholars and especially from the English ethnologist G. R. Latham, who had provided Smyth with an early copy of his *Varieties of Mankind*.[263] Smyth's work stands as the epitome of the evangelical response.

Smyth's long newspaper series, which bore the same title as the book that followed, made the evangelical Protestant case against the upstart ethnologists to thousands of southern Christians and circulated widely in the North.[264] A polemical piece of this length on science was unprecedented. Like Omicron, Smyth was driven to publish by Nott's University of Louisiana

lectures. Unlike Omicron and the other respondents, Smyth had long been planning to argue publicly the case for monogenism, and he was just the man to do it.

Irish born, Smyth's education had begun in Belfast, continued in London, and, after his family crossed the Atlantic, was completed at the College of New Jersey in Princeton. In 1832 he was planning to enter the mission field in Florida, when the Princeton faculty recommended him to the Second Presbyterian Church of Charleston. Within six months the church called him as its permanent pastor. This was his first and last call. For almost four decades Smyth served this church and southern Presbyterianism, choosing pastoral duties over repeated offers of college professorships. His reputation extended far north, and he even turned down an invitation to edit one of the New York Presbyterian papers.[265] Throughout his career, he traveled in educated circles, exchanging ideas with the likes of the prominent theologians James Thornwell and James McCosh. He wrote as a matter of course, publishing thirty books and countless sermons and discourses. He co-edited and wrote for the *Southern Presbyterian Review*, that denomination's most accomplished journal in the South. His collected works run to ten thick volumes. An extraordinary bibliophile by any standard, Smyth owned twenty thousand volumes. Eleven thousand volumes were donated to Columbia Seminary at his death.[266]

Like his colleagues, this clergyman considered Nott's views on the Bible and Christianity infidel, to say the least, and Smyth wasted no time expressing his frustration with his opponent. He described Nott's lectures as confused, unscientific, illogical in arrangement, self-contradictory, rash and ignorant, arrogant and dictatorial in spirit, and "cowardly in its venomous hostility to the Bible." Like his colleagues, Smyth was concerned that "Dr. Nott has the astounding hardihood to affirm that the Bible contains much more against the unity of the human

races than in favor of it."[267] Refuting Nott's abuse of science had to wait: his preadamism presented a more urgent target, and Smyth's began by arguing that the whole tenor of the Bible declares for the unity of humankind. Any level-headed reading of the Bible could only conclude that it teaches the unity of humankind. On this and many other points, other southern papers echoed Smyth's words.[268]

Still, he had to deal with the details of Nott's attempt to make polygenism biblical. In answer to Nott's disqualification of the "one blood" text in Acts 17 as a case of a universal term used with a limited meaning, Smyth cited the cultural context of the passage. It came from a sermon the Apostle Paul preached on Mars Hill in Athens. Greeks believed that they were an autochthonous people, uniquely a part of their land and unrelated to the barbarous nations around them; therefore, "adam" must be a true universal term since Paul's object was to draw the Athenians into salvation history.[269]

Turning to the Bible, Smyth presented a broadside of passages that assume, if not outrightly declare, the unity of the race, emphasizing especially the monogenetic interpretation given to the Genesis narratives by New Testament writers. The theological context of references to Adam and Eve in both the Hebrew and Greek scriptures indicates that "*adam*" is a generic word for the human race and does not indicate a racial peculiarity of the Edenic couple. That "Adam" refers to humankind in general is clear from its application to Eve in the books of Genesis and Numbers and its generic use in the New Testament. Smyth also cited ancient versions that translated "adam" as a generic term for humankind and classical Greek and Latin texts in which "blood" represents descent. He insisted that the unity of humankind was part and parcel of salvation history. The very logic of the great commission to evangelize the entire

world required it: "This teaching of the New Testament on the subject of the unity of all the races of men, which is implied also in the entire scheme of redemption—including man's fall and recovery—coincides with the whole tenor of the Old Testament Scriptures."[270] All fell with the first Adam; salvation is available to all in the second, that is Jesus Christ.

Smyth agreed with Nott that the Bible does not concern itself with a comprehensive survey of all peoples, but only with certain of Adam's children. However, he turned this argument against polygenism. Cain's wife and the other characters at the edges of the biblical narrative were not offspring of other creations, but the unreported offspring of the Adam and Eve, unreported because of the narrative focus on the line leading to Israel. With many critics of polygenism, Smyth suggested that the extreme longevity of the antediluvians, coupled with the likelihood of a higher fertility, had been sufficient to fill out Earth's population. He cited eastern traditions that Adam and Eve had 33 sons and 27 daughters. But even with normal population growth, a large population is plausible, a point Smyth reinforced with an anecdote from Wiseman of an island populated by a few shipwreck survivors which "is said to have been peopled after eighty years by 12,000 souls, all the descendents of four mothers." Smyth estimated that as many as 200,000 souls had inhabited the earth by the time of Cain's banishment.[271]

Nothing conclusive could refute Nott's claim that "blood," in Acts 17:26, is an example of a universal term with a limited referent. That is a matter of opinion, an opinion involving larger theories of how inspiration works through specific people, languages, and cultures. It is a question about what level the notion of accommodation need be applied. How does one determine what is truth in scripture and what is mere accommodation to the hearer? Most

interpreters agreed that God accommodates revelation to understanding of the hearer; that is how Copernican heliocentrism became orthodox. But no abstract principle taught Nott, Smyth, or anyone else how to discern accommodation from unmediated truth, or a mixture of the two. Their understanding of what God revealed and how revelation speaks to particular issues determined the issue.

In contrast to Nott, Smyth's exegesis of key scriptures focused on a synthetic biblical theology in which the entire flow of salvation history demonstrates the unity of the race. Nott, in contrast, treated key passages as individual units to be either disposed of or recruited for polygenism; at no point did he fully engage the evangelical understanding of the message of the Bible. Smyth's irritation at Nott's shallow approach to the Bible and neglect of an integrated biblical theology was shared by a host of he colleagues. For them, debating Nott was like arguing with a critic who simply did not answer most of their questions.

Complaining about Nott's infidelity and fraudulent attempt to present a Christian polygenism was not enough, especially in a weekly newspaper series that ran for almost half a year. Smyth had to provide his own account of human racial diversification, a scriptural ethnology that was compatible with his exegesis, his soteriology, his racism, and science. Like many southern clergy in the decades before the war, the Presbyterian preacher had the thorny task of both defending and reforming slavery.[272] His understanding of Christianity both supported slavery and demanded that its victims be treated as objects of God's grace. Southern clergy were well aware that the practices of many masters fell well below this moral standard.

As problematic as his views on race made his life and ministry, they belonged to a well-integrated ethnology that came first from his religious commitments, but which he supported with other scholarship. As potential Christians, all races possessed full humanity, but some races had become degraded from their original equality, producing a temporary racial hierarchy. For Nott, inferior races could not change. For Smyth, the gospel and western civilization worked hand in hand to elevate all peoples toward a future equality. Human history followed two fixed laws. First, any race left to its own development, "unaided by the influence of pure religion," would decline into corruption and depravity. This Smyth called the "Law of downward progress." According to his second law, once so degraded, a race could not raise itself up without external help.[273] As defined by these Presbyterian notions of human depravity and the role of religion in civilization, slavery thus filled a useful role in the salvation history of Africans as a historically conditioned instrument of their conversion and elevation.

History and scripture supported the story of original civilization, degradation, and potential restoration. Smyth argued that Africans were once civilized and that the ancient Egyptians were African. Citing evidence of African features on ancient depictions of deities, such as the Sphinx and certain Buddhas and Japanese gods, he worked with the same kinds of sources used by the American school ethnologists. He even raided Morton's craniological work for evidence of high-status Africans in ancient Egypt. Confidently, Smyth concluded that "there was a time when the black race of men were the pioneers, or at least, the equals of any other races in all the arts and acquirements of man's primitive civilization . . . a time when learning, commerce, arts, manufactures, &c., were all associated with a form and character of the human race now regarded as the evidence only of degradation and barbarous ignorance."[274]

Smyth's views on ethnology and preadamism flowed out of a worldview in which the biblical narrative, ancient history, political philosophy, and science were integrated into one, self-reinforcing whole. Here the divisions between disciplines were ill-defined and porous. Many clergy shared this approach, including a number who were, like him, well read in contemporary science. Part of the threat represented by Nott—and soon Agassiz—involved a similar holistic view of religion and science, even while both polygenists preached the freedom of science from religious interference. But their view contradicted the very tenets of the evangelical faith that Smyth and his countless co-religionists held up as the salvation of the human race.

The work of Smyth and Nott illustrates the kinds of arguments and counter-arguments put before the religious public concerning preadamism. Their debate took place amid the growing religious tensions over modern biblical scholarship as well as the growing tensions over race relations and slavery. American evangelical Protestant leaders worried about European radical scholarship and hoped it would keep to its side of the Atlantic. Nott tried to import it as part of his "enlightened Christianity." Religion, not racism, divided the minister and the physician. Both were pro-slavery apologists and, latter, loyal citizens of the Confederacy. But the moral imperative to defend their social institutions added to the friction between them. Smyth was defending his flock and his profession from attack by an "infidel" who regarded clergy with contempt. He was also attacking a science that undermined what was, for him, the divine sanction of southern social institutions, a sanction communicated through the book of revelation. The application to slavery was secondary. In fact, Smyth never mentioned it in his newspaper series nor in the Edinburgh edition of his book. Ironically, Nott also preached the

divine sanction of slavery, but for him that sanction was expressed through the scientific nature of human racial characteristics. Nott warned that missions to non-white races warred "against the immutable laws of Nature, by endeavoring to elevate the intellectual condition of the dark, to that of the fair races," arguing that abolitionists need to know "true character stamped upon the Negro by the Almighty."[275] His was a natural theology; Smyth's, a biblical theology.

Smyth attempted to present a synthetic worldview harmonizing his evangelical faith, southern social hierarchy, and a respect for science. At the center lay one great non-negotiable doctrine: that salvation was available to all the lineal descendents of Adam. "The gospel must stand or fall with the doctrine of the unity of the human race." Other aspects of the Genesis narrative were open to reinterpretation. Smyth could allow that Noah's flood was limited in extent to areas of human inhabitation. He could accept a polygenetic repopulation of plants and animals after the flood. But the human population of the world, both pre- and post-deluvial, had to be strictly monogenetic.[276]

He also labored to protect the unique spiritual character of human beings from encroachment by Nott's materialism. Against Nott's blushing Adam, Smyth argued that "*adam*" comes from "*dam*," which means "likeness," indicating the likeness of humans to God in having a spiritual dimension to their nature. Thus, human spiritual character is denoted in the very name Adam. This uniqueness makes it as "unphilosophical, as it is degrading to our nature, to limit the criteria of MAN'S species, to his material constitution, in forgetfulness of his spiritual." Spiritual and moral commonalities among the human races would become a standard argument for the orthodox. But more than a refutation of polygenism, this was a boundary claim.

Scientists could theorize about the rest of creation and expect at least limited deference from clergymen of Smyth's ilk, but the human creature belonged to the faith.

Surprisingly, Smyth drew on Louis Agassiz's work on this point, quoting at great length from his *Principles of Zoology*. This was a calculated risk. When Agassiz wrote that book, he believed that the cosmopolitan character of the human race made it an exception to the polygenism of his theory of zoological provinces. More important for Smyth's argument, Agassiz also argued that naturalists needed to comprehend both the material and immaterial in natural history or risk succumbing to either gross materialism or pantheism.[277] Smyth knew that Agassiz had revised his opinions on the issue after coming to America, but, citing Agassiz's endorsement of Arnold Guyot's latest book as evidence, he hoped that the Swiss naturalist's flirtation with plural human origins was over. Smyth's hopes were in vain.[278]

Enter Agassiz

That Smyth chose to publish on the unity issue is not surprising: he was a clergyman-scholar and a participant in Charleston's vigorous intellectual society. He wrote as a matter of habit. But the pace and range of publication formats in which his developing text appeared suggests that this was an emergency. Whatever Smyth said in his Charleston discourses, his published work, the newspaper series, and the two editions of his book were versions of the same text. The differences among these publications illustrate the intensity of the moment and the varied threats and goals that shaped Smyth's work.

Seventeen installments of his newspaper series had already appeared when an extraordinary event took place at the third meeting of the fledgling American Association for the Advancement of Science, which elevated the emergency to a new level. It was March of 1850, and the city of Charleston played host to the esteemed assembly of scientists, a testimony to the significance of that city's scientific community. Both Bachman and Smyth attended, and Bachman served on the local committee.[279] This should have been a glorious occasion for American science and for those southerners eager to be a part of what was largely a northern activity. But for Smyth and Bachman, a single session marred the occasion.

Unable to leave his medical practice long enough to attend, Josiah Nott submitted a paper arguing, as usual, for a plurality of human origins. It was read on March 15 at a session chaired by Bachman and attended by Smyth. Louis Agassiz was also present, his personality and reputation dominating these early meetings to an extent hardly conceivable. One can imagine all eyes turned to the great naturalist for his extemporaneous comments at the end of each presentation, and on this occasion he did not disappoint them. But he did shock. The great Swiss naturalist announced that he fully endorsed the polygenists' position. When Nott heard the news, he was beside himself with delight.

The two clergymen were not. Bachman had hoped that issue would not be discussed in such a public event "before a promiscuous audience" and referred to his recently published book for his refutation of polygenism. Smyth also expressed his disapproval, declaring before this august scientific assembly that a rejection of monogenism "would tend to overthrow the authority and defeat the objects of Divine Revelation."[280] But they had far greater concern than the influence of Agassiz on members of the AAAS. These meetings did not function as

cloistered scientific conventions. One of the goals of the AAAS was the public promotion of science, and, accordingly, its leadership actively courted the press. Sensations sell newspapers, and the press pounced on any controversial aspect of the meetings. The *Charleston Courier* dutifully reported on the meetings, but the only session described in detail was this one.[281]

For months Smyth had been exhorting southern Christians about the dangers of Nott's preadamist polygenism, and now another and far more potent antagonist had appeared. Abruptly, Smyth shifted the angle of his attack to this new and urgent target. He responded to the AAAS revelation in three installments of his newspaper series, entitled "Latest views of Professor Agassiz, and His Theory Tested," published the following April and May. These would become the final chapter of his book, but in the newspaper series they interrupt a series of installments with parallel titles: "The Unity of the Races Proved from . . ."[282] Clearly Smyth interrupted the original plan of his series to deal with the new and imposing threat of Agassiz's announcement. In other words, the book reflects the original plan of the series, with the addition of the Agassiz section at the end, while the location of this material midstream of the newspaper series, and shortly after the AAAS meeting, suggests an *ad hoc* insertion.

He had every reason to make an emergency alteration to his plan. In the 1840s the public face of polygenism lacked established scientific authority. Morton veiled his commitment to plural origins from public eyes, and Nott's rhetoric and radical religious ideas undermined the authority of his considerable knowledge and education in the eyes of the southern orthodox. Agassiz was a different species. When he came to American in 1846, he arrived with an established reputation as one of Europe's premier men of science. Hailed as the successor to Georges Cuvier, he not only represented the best of his fields of research but personified science

itself in its philosophical and cultural meaning. In the press, the word "Agassiz" needed no further identification.[283] Although his orthodoxy was questionable from an evangelical point of view, the pious rhetoric of natural theology abundant in his work was welcomed. After all, scientists were expected to declare the wisdom and benevolence of God in nature, not preach the gospel. American Protestants understood that science could, on occasion, require a reinterpretation of specific biblical texts, such as the seven days of creation, but not before authoritative and religiously acceptable scientists agreed it was necessary. Agassiz possessed the first quality in abundance and enough of the second to provoke consternation.

The Harvard naturalist's comments at the AAAS were hardly spontaneous. He had been preparing to put his views in print, and in that same month the first of three articles he wrote on human polygenism appeared in the popular *Christian Examiner*, a Unitarian magazine published in Boston.[284] That March article presented the case for animal polygenesis, only alluding to humans. Next July came his full and explicit argument for plural human origins. Like Nott, he did not limit his remarks to science, but attempted to reconcile human polygenesis with Christianity through a preadamist interpretation of the Bible.

Agassiz spent most of his ink rehearsing the evidence from natural history against monogenism. He only briefly alluded to the Mosaic record, and then merely to dismiss the traditional monogenetic, single-pair interpretation as a human construction not required by the text. Without mentioning La Peyrère or any other antecedent predamists, Agassiz, like Nott, declared that Genesis recounts the origin and history of the white race only and that the animals and plants in the creation narratives refer only to those species proximate and familiar to the Adam and Eve. The primeval prologue is local history in this view, similar to the reduction by

many geologists of the extent of Noah's flood to only those regions known to ancient Hebrews. Almost in passing he mentions the usual objections to a monogenetic interpretation of Genesis, such as Cain's family and other people on the margins of the early Genesis narratives.[285] Like Nott, Agassiz assumed that scriptural writers' knowledge of natural history and ethnology was not revealed. They only knew what anyone could know under their circumstances.[286]

Unlike Nott, the Harvard professor did not absolutely reject the notion of human unity. Rather Agassiz claimed that a plurality of origins did not undermine the spiritual commonality of all people. Physical descent is irrelevant. "We maintain therefore, that the unity of mankind does not imply a community of origin for men; we believe, on the contrary, that a higher view of this unity of mankind can be taken than that which is derived from a mere sensual connection,—that we need not search for the highest bond of humanity in a mere animal function, whereby we are most closely related to the brutes." Instead, Agassiz looked for unity in those

> more dignifying distinctions . . . those intellectual and moral qualities which are so eminently developed in civilized society, but which equally exist in the natural dispositions of all human races, constituting the higher unity among men, making them all equal before God, because all of them have been created in his image, inasmuch as they have a spark of the divine light which elevates man above the present, and enables him to look forward in the future towards eternity, to remember the past, to record his destinies, and to be taught how to improve himself, and to be led in these improvements by motives of a higher, of a purely moral character.[287]

Perhaps here Agassiz accommodated his views to his friends in Boston's anti-slavery upper-crust, but his argument was quite consistent with his general views on science. The European-educated naturalist had blended the hard-headed empiricism of Cuvier with the idealism of Lorenz Oken's *Naturphilosphie*.[288] His empirical rigor as a taxonomist was proverbial, but his categories came from above. Genera and species were, for Agassiz, ideas in the mind of God, a god who created all humans as one species but in several distinct and geographical separate acts of creation. One species but as many creations as races—this was Agassiz's philosophical anthropology. Here he departed from the hard-headed racism of Nott, who believed that the various human races, in there primordial origins, were indeed distinct species.[289] Therefore, to Agassiz's mind, human polygenism presented no threat to Christianity and could be safely delegated to the domain of science.

In his *Christian Examiner* articles, Agassiz stepped well outside of his scientific persona and presented arguments designed to protect God's dignity and immediate activity in nature. Theologically, Agassiz wanted to ensure that the laws of nature did not intrude into God's domain. In his attacks on environmentalism he complained that ascribing organic changes to the influence of physical causes is to ascribe the wisdom of God to impersonal natural law. Species, both in their natures and geographical distribution, are direct expressions of the intelligence and will of God, not the results of laws of adaptation. Again and again Agassiz pointed to the specific natures of creatures to show that they are too dependent on their environments to have survived migration from any other location than the one they presently occupied. This fine tuning of the environment, which would help lead others to evolution, could only, in Agassiz's view, be the product of an intelligent will. Certainly, he argued, the creation of species in large numbers, in

precise ecological balance with all other species of their environment, by an immediate act of God's will and power is a higher view of God than to delegate such a function to impersonal laws of nature. Agassiz believed that nature is largely the result of God's immediate, free creative activity.[290] This view, entrenched in his criticisms of an environmentalist version of monogenism, endured in his later crusade against organic evolution. Environmentalism and evolution were insults to the wisdom and will of God. Perhaps the Swiss blood flowing in his veins carried vestiges of an ancestral Calvinism.

Although Agassiz did not unpack his theological opinions in detail, the fact that he returned to his preference for the direct activity of God in creation of species over the a mediation through the agency of laws of nature at several critical moments in his argument suggests the importance of this theological position for him. It is plausible that these statements were *ad hoc* attempts to win his audience on their own terms, but the whole tenor of Agassiz's natural religion supports the view that he believed what he wrote. If so, then the relationship between his science and his religion was not unidirectional. Natural theology cast the deciding vote between two exegetical hypotheses, but his understanding of the dignity of God pushed him toward special creation, which in turn shaped his understanding of the evidence of nature.

Here was a dilemma for those engaged in refuting Nott's preadamism. Smyth spoke for many when he identified Agassiz's new views as infidel, and of a more shocking sort than Nott's: "It is indeed a sorrowful spectacle when true science was seen descending from her lofty heights, and, clothing herself in the weapons which had been forged in the armory of infidelity by Voltaire, Peyrère, Rousseau, Paine, and such workmen."[291] Agassiz's preadamism was only a

reflection of Nott's, with the important exception that the former separated unity of species from unity of origin. Smyth's reply to Agassiz's preadamism slipped into another attack on Nott.

The significance of Agassiz's preadamism was not the argument, but its effect. Nott cheerfully declared that "with Agassiz in the war the battle is ours—this was an immense accession for we shall not only have *his* name, but the timid will come out from their hiding places."[292] Whether or not he was right about his timid friends, it was certainly true for his enemies. With Agassiz gone public the northern religious press launched into the conflict.

The Debate Goes National

After a decade of blithely denouncing anonymous infidels over obsolete issues, the religious press suddenly had a genuine challenge. Here was what they had been warning about all along: science deployed in an infidel attack on the Bible. Boston's *Puritan Recorder* announced that "some philosophers" had "re-animated the doctrine of the Voltaire school!"[293] The *Southern Christian Advocate* put Nott in the company of a canon of infidels: the skeptic David Hume, the irreligious political philosopher Lord Bolingbroke, the deist Matthew Tindall, historian Edward Gibbon, and especially Tom Paine, "the latter, in a spirit of irreverence and in language worthy of Infidelity."[294] Religious writers deployed an anti-infidel rhetoric that had become standardized and stereotyped against the polygenists. Theirs was truly "science falsely-so-called." Genuine science would overcome it, given time. But two aspects of the new challenge demanded adjustments to their standard rhetoric. Their opponents' preadamism did

not belong with Voltaire's flippant dismissal of revelation, and what were they to make of Agassiz? They could not say that the polygenists had no true men of science.

While southern papers, especially those published in Charleston, had begun the good fight in late 1849 in response to Nott, the northern weeklies had paid no attention to the new ethnology until Agassiz entered the fray. Thereafter, they concerned themselves almost exclusively with Agassiz and ignored Nott's work until the publication of *Types of Mankind* in 1854. For them, the great naturalist was a proximate threat. Agassiz had connections in the South, including scientific friends in Charleston and, of course, had made his declaration for polygenism in Charleston. For northerners, that session of the AAAS was the beginning of the crisis. Agassiz's presence in the debate startled and generated anxiety, especially among the Boston religious writers. As it had for their southern brethren, preadamism triggered the crisis more than polygenism. Boston's *Puritan Record*, one of the most influential papers in the country, warned that biblical polygenism "changes entirely the ground of argument." The idea of plural human origins has its scientific problems, but with this "the mode of argument is changing. The resort now is to *the word and the testimony*."[295]

Northern religious editors took Agassiz's conversion as a pastoral emergency, in much the same way that their southern colleagues had reacted to both Nott's and Agassiz's preadamist polygenism. A reviewer of Agassiz's book on Lake Superior in the Baptist *Christian Watchman and Christian Reflector* took half the article to denounce human polygenism, a topic entirely irrelevant to the book itself but germane to the AAAS shocker of the previous month.[296] The Baptist and Congregationalist papers in Boston agreed on the need to educate Sabbath School teachers on human polygenism, to "guard the tender young minds of those committed to their

care against the evil effects of false views." As late as August, a review of Smyth's book in the *Christian Watchman and Christian Reflector* recited Smyth's account of how he came to write on the topic but none of the content of his book.[297] More than a literary event, the book was news.

The northern orthodox response to the advent of Agassiz's preadamist polygenism largely mirrored that of their southern brethren, well represented by Smyth. The Boston's orthodox papers were closely aligned with the Charleston clergy's' work. Clearly the Bible teaches monogenism, they argued, pointing out that even most polygenists know that. It is absurd to claim otherwise. Indeed, "the unity of the human race is one of those grand facts that can never be frittered away by the boldest applications of what are assumed to be scientific truths," declared the *Christian Watchman and Christian Reflector*.[298] Consequently, this had to be considered another infidel attack on the Bible; like Smyth, the northern orthodox believed that the theological implications weighed heavier than the threat to the veracity of the scriptures. The *Puritan Recorder*, which led the attack in Boston, declared that "Religion rests wholly on this doctrine of a First and Second Adam; and to deny the original unity of human race is to demolish, so far words can do it, the whole revealed doctrine of the fall and mortality, and the redemption and resurrection of man, which constitutes nearly the *all* of Christianity beyond the teachings of mere natural theism." The *Christian Watchman and Christian Reflector* agreed: "For if any question is a question of religion and revelation, this is one. It involves not only the history of the fall, but the plan for the redemption of the race; or in other works, both the relation to Adam and the relation to Christ. Both are on the same footing. Both stand and fall together. And it is needless to say that these constitute the very marrow of the Scriptures."[299]

Orthodox northerners affirmed Smyth's viewpoint. "This universal brotherhood obligates us to universal philanthropy. . . . The different races of men would be under no higher law as respects their treatment of each other, than that which regulates their treatment of inferior races of animals." Agassiz's attempt to maintain a spiritual and moral unity along with a plurality of origins was "absurd."[300] In a report that polygenism had being "eagerly seized put forth by Captain [Isaiah] Rynders [a notorious Tammany Hall organizer] and the Empire Club," a Congregationalist writer lamented that the social implication of polygenism would be the breaking all ties among men, ties that are foundation of morality and benevolence. "And the Captain doubtless felt that he had good vouchers when he undertook to silence the Abolitionists, by the plea that a negro was a monkey. . . [but] sad would be the day for our world, when this doctrine of the plurality of races, should become the common sense of men." Borrowing a piece of sarcasm from the *Princeton Review*, New York's *Christian Intelligencer* objected to Agassiz's attempt to "degrade a portion of the race to a level with the brute, and to set aside the Bible, freighted with the happiness and hopes of the race . . . because, forsooth, the heel (*os calics*) of the African happens to average a line or two more in length than that of the Caucasian." Aside from misrepresenting Agassiz's clearer separation of species from origin, this writer clearly feared the social consequences of polygenism.[301]

The uniformity of the orthodox response obscures, however, the local variations. Charleston's unique situation has been discussed. Boston's orthodox response was conditioned by proximity of Agassiz to their community, which shaped its rhetorical strategy. Since Agassiz's reputation as a naturalist could not be impeached, Boston's orthodox religious writers attempted instead to fence it in. The *Recorder's* first notice of the crisis informed its readers that

"great errors are characteristic of great men," and, though esteeming Agassiz as a scientist, "if his science is as much at fault in this theory as is his knowledge of the Scriptures, he promises to be no very formidable opponent of Christian truth. . . . His error, in this, might be proved to him by one-half of our Sunday school children."[302] The next month "Y. C." asked, "Is it possible that a distinguished naturalist may be a miserable or ignorant theologian. Extensive knowledge of fishes and of lower orders of animals may coincide with very imperfect views of Scripture argument."[303] By August the rhetoric was growing harsher: "So long as the learned gentleman stuck to fishes, slippery as they are, he did well, and deserved well. . . . But when, on the score of analogy, he begins to talk of men, as if they were fishes too, and to set at nought the teachings of the God of Moses, and of Paul, we laugh at the absurdity, and place it among 'the follies of the wise.'"[304] The *Recorder's* Baptist counterpart drew the line in no uncertain terms: "And as the savans have warned theologians not to tread on their ground, while they are settling questions of pure science; so now we are entitled to warn them to respect ours, in questions of religion. For if any question is a question of religion and revelation, this is one."[305] As long as Agassiz stuck to fish, he had authority; but he had crossed a line, and Boston's Congregationalist and Baptist writers declared him out of bounds.[306]

This sort of professional boundary patrol is noticeably absent in papers from other regions. Even New York papers largely ignored the issue of Agassiz's status as an exegete, with the exception of the *New York Evangelist*, which reminded the professor that "he is more esteemed as a naturalist than as a Biblical scholar."[307] Likewise, southern papers did not draw on professional boundaries to disarm Nott and Agassiz's preadamism, though Virginia Baptists were reminded of the spiritual principle that "the mysteries of nature are deep, and poor erring

men are often led astray into wild theories in their attempts of investigation, and the natural man cannot discern the spiritual things of the Bible therefore more liable to err therein."[308] The boundary here was between the spiritually enlightened and those still in darkness, not between professional exegetes and professionals scientists. It could be used to disqualify all Agassiz's ideas, not just his religious ones.

The alarm raised by rumor and overly concise reports of Agassiz's Charleston comments diminished for some as his *Christian Examiner* articles came out. A notice in the "Literary Notices" column of the *Christian Watchman*, commented that "whatever may be thought of the conclusion, the reasoning is that of one who evidently feels that he is strongly fortified by Biblical history as well as merely scientific facts." Admiring the "clearness, beauty, and force" of Agassiz prose, the writer felt fine about recommending a careful reading of Agassiz's argument along with Smyth's book. These two works, in the reviewer's opinion, presented the fullness of the debate and were worth the attention.[309] Congregationalist writers were less sanguine. A diatribe in the *Puritan Record* declared that the most original aspect of Agassiz's argument was "feebly backed up with a few detached and misinterpreted scientific facts, which have long since been fully and fairly disposed of by the friends of revealed religion." As for the Unitarian *Christian Examiner*, it "for long years has been the regular channel for all semi-infidel speculations tending to deprave the authority of the Bible."[310]

The tone of the Baptist remarks on Agassiz's most explicit presentation of the argument for plural human origins cannot be taken as representative of Boston Baptists in general or of the editor of the *Watchman*. The comments consisted of only a few lines in a regular review column. But the fact that a qualified recommendation appeared in a paper that had stridently

denounced the Harvard professor's views on the subject the month before suggests the effectiveness of Agassiz's powers of persuasion.

Boston was home to more than the ubiquitous evangelicals. Universalists and Unitarians also published papers there, and they proved less hostile to Agassiz's pronouncement. It is not surprising that Agassiz received some support in his adopted home town and less so that it came from the Unitarianism of his in-laws. The *Unitarian Register* reported on Agassiz's statements in Charleston less than a month after the event and found much to recommend in his separation of spiritual from physical unity. The writer was not himself a convert, but was open to both polygenism and preadamism. Invoking the usual rhetoric of the religious narrowness and human interpositions in orthodox beliefs, he declared that "It is the Primer, not Moses, that says dogmatically that Adam was *the* first man."[311] Later that summer, the *Unitarian Register* reported on a sermon delivered by the Rev. John Weiss to Harvard's senior class in which he amalgamated a progressive view of human history with polygenism. Theologically, this was very useful to his rejection of orthodoxy. As he put it, "The diversity of origin of human varieties destroys the position that either sin or death come by the lapse of Adam."[312] As with the evangelicals, the litmus test was theological compatibility: polygenism undermined the evangelicals' soteriology but reinforced that of the Unitarians. The Universalists' *Trumpet and Universalist* sided with the orthodox, but carried on the debate second hand, borrowing the three articles it published in the summer of 1850 from other sources.[313]

New York City's religious papers also covered the sudden rise in polygenism's scientific status, and like the Boston papers, focused on Agassiz rather than Nott. The reaction was far less intense than in Boston. Northern Methodism's great *Christian Advocate and Journal* barely

registered the debate, publishing only an often-copied piece from Humboldt and a review of Smyth's book. The reviewer knew Agassiz personally and held him in great respect, but was confident that, though "Dr. Smith's [*sic*] book may not convince him . . . it will cripple his theory, in spite of his immense reputation."[314] Perhaps Smyth's book appeared conclusive enough to sideline the issue in 1850. Over the years this Methodist giant would make up for its slow entry into the debate.

More surprising is that *New York Evangelist* withheld judgment on human polygenism throughout 1850. This New School Presbyterian paper had provided a platform for abolitionism and had every reason to turn polygenism into a bludgeon to beat southern slavers. Instead, noting that a "vague report is in circulation" about Agassiz's conversion, the magazine preferred to leave this one to science, expecting that true scientific conclusions would always be compatible with the Bible and reminding readers that science can correct one's reading of the Bible.[315] Six months later, when Agassiz's views were clear, the *Evangelist* continued its jury-is-out attitude. After all, it noted, "it will be time to exclaim against the man of science when his discoveries are found to be irreconcilable with Revelation."[316]

Controversies imply categories. Time was when a burst of religious hostility from religious writers against men of science would have been evidence of a conflict between science and religion. The inadequacy of these categories has long been known. Sociological categories such as professional versus amateur or scientist versus clergy also fail to adequately describe the unity debate, as Nott's and Agassiz's recommendation of preadamist biblical exegesis makes clear. Bachman's role also complicates matters, although the clergyman-scientist was careful to address the unity debate wearing only one of those hats. Smyth's contribution confounds such

categories further. Though he dealt with both the religious and scientific aspects of the debate, he did so as a gentleman scholar rather than a scientific practitioner. Even so, given the promotion and serialization of his book in the religious press, Smyth likely had a greater influence in educating Americans on the unity debate and ethnology in general than the scientific community.

Where these analytical categories fail, the actor's own words succeed. The rhetoric of religious writers' war on infidelity clearly expressed a need to identify an enemy, an "other," who presented a discrete threat. Even so, the literary context of this war in the religious weeklies does not allow us to describe the movements of opponents on the battlefield. The audience of the articles on human racial origins in paper intended for family consumption by the faithful was not the enemy. Thus, these articles belonged more the genre of pastoral epistles—clerical exhortations addressed to their the flock—than to apologetic engagements with the infidels. The religious newspaper articles warned of errant ideas while they comforted the faithful that this too would pass.

Chapter Four

The Antebellum Unity Debate

Nott's lectures on the biblical and physical history of man and Agassiz's *Christian Examiner* articles compose less than two hundred fifty pages of text. Neither was a systematic treatise: indeed, they were both little more than pamphlets. Yet they provoked a vigorous and voluminous response. Admittedly, Bachman's and Smyth's books had long been in the making, yet both were published because of this fresh assault on traditional monogenism.[317] The deluge of articles in many of the weekly religious papers, not to mention the serialization of Smyth's book, amply indicates the importance of these two publishing events. Although the irascible southern doctor and the cultured Harvard naturalist represented very different personalities and approaches, their united advocacy of a preadamist polygenism and their posture of instructing Americans, particularly American clergy, in how to accommodate plural human origins to Christianity turned an obscure and, as yet, undeveloped menace to orthodoxy into the *cause célèbre* of the moment. Agassiz's authority and Nott's audacity succeeded in enlisting polygenism in the canon of infidel science—"falsely-so-called"—and, as such, became a frequent topic of admonition in the religious press.

After the initial burst of outrage, the level of attention to the human racial origins question in the religious press declined. As with any news event, the intensity of the reporting declined after the initial episode, but the virtual absence of ethnology in the religious press of the 1840s was over. Although not addressed in every issue, by 1851 no regular reader would be surprised at the mention of the unity issue. Ethnology had now entered the company of those sciences—such as geology and astronomy—that the religious weeklies routinely addressed. Yet this science was different. The earth and the heavens remained scientific topics to celebrate as confirming the integrity of scripture and the truth of Christianity, with only minor quibbles about the age of the earth or the nebular hypothesis; they were sciences well domesticated to the house of God. Religious writers were less sure about phrenology. Declarations that it was incompatible with the faith and complaints about particular individuals using it for infidel purposes occasionally arose, though the approach was often mockery rather than alarm. At the same time, some religious writers remained neutral, while others even gave it cautious endorsement. The religious press never targeted the science of head bumps for a full anti-infidel assault.[318] Ethnology had the distinct status of being the only active "infidel science." As we will see, the rhetorical differences between newspaper articles on ethnology and those on other sciences clearly indicate that polygenism was a threat to be parried.

For the next decade and a half the unity debate continued, increasing in vigor whenever new publications on the topic appeared and as the country's internal political and social tensions pressed the country towards war. It was in this period that the American polygenists published their most comprehensive works—*Types of Mankind* in 1854 and *Indigenous Races of the Earth* in 1857—presenting their case in voluminous detail and with impressive scientific credentials.

Through it all, the orthodox religious weeklies rejected plural human origins unwaveringly and did so with complete confidence that science was on their side, in spite of the fact that the Rev. John Bachman was the only qualified man of science saying anything against polygenism. A simple account could end with these concrete polarities, but that would obscure the finer texture of the story. It was more than a matter of ideas; personalities, political and social convictions, and rhetorical conventions shaped the debate, while the growing political pressure over slavery kept this nexus of race, religion, and science squarely before the public eye. Religious writers' attacks on polygenism were united in effect but manifest variations in approach that reflect varieties of contexts. These contextual influences remind us that the weeklies were pastoral tools serving a variety of ends, of which warning against infidel science was only one. It was a complicated time; the science of race became a religious threat at precisely the moment when race became the leading social and political issue, and religious writers argued with one another about moral status of slavery while together they defended the faith against infidel incursion.

Types of Mankind

After the outbreak of unity debate in the religious press, Josiah Nott sparred some with opponents through the media of *Debow's Review* and the *Southern Quarterly Review.* Aside from that the polygenists made little noise for several years, and their silence seduced some critics into placing plural human origins on the list of defeated infidel scientific ideas. Several weeklies reported Rev. Dr. Cumming's assessment—perhaps the controversial Rev. Dr. John Cumming—in a speech before the London Missionary Society that recent scientific

developments had vindicated the Bible and that, happily, "science has been lately coming to its right mind."[319] He included plural human origins in a list of scientific ideas being abandoned in this return to sanity. He spoke too soon.

Tragically, Morton died in 1851, in the midst of his debate with Bachman in Charleston's *Medical and Surgical Review*, and Bachman abruptly retired from the field out of respect for his esteemed colleague. Morton was done but not silenced; his widow entrusted his unpublished manuscripts to Nott and the George R. Gliddon, who accepted the task of bringing Morton's last work into the light of day. It is not known why none of Morton's disciples in Philadelphia were so honored, but this was one of those pregnant choices that would shape the events to come.

To this point, Gliddon had played a mainly supporting role. Morton and Nott dropped his name often enough that no one could have been surprised at his siding with them in print, but before *Types of Mankind* he had kept his views on race out of the public eye. An Englishman who spent much of his youth in Egypt, where his father had mercantile and insurance businesses, the young George grew up in a period of intensive archaeological activities by prominent western scholars. As an adult, he shared an appointment with his father as the American consul in Egypt and toured America as an agent for Mohammed Ali, Viceroy of Egypt. He met Morton during that tour, and the craniologist recruited Gliddon to supply North African specimens for his skull collection. It was Gliddon who furnished the physical and archaeological material for *Crania Aegyptiaca*, and the heavy use of Egyptian monuments by both Morton and Nott reflects Gliddon's influence. In the 1840s, he toured America again, this time as an itinerant lecturer introducing American audiences to the wonders of ancient Egypt. These lectures were multi-media events, accompanied as they were by large painted panoramas and authentic artifacts.

Occasionally, he brought a genuine mummy to display. Showman and educator, he ended each lecture in these series by pealing off a section of the wrappings until, at the dramatic climax on the final day, the last would fall, and the audience beheld an actual ancient Egyptian.[320]

Nott had been enthusiastically using ideas and information imported by Gliddon even before they met during one of these lecture tours. They become fast friends, sharing two interests: polygenism and contempt for orthodox clergy. Gliddon had kept both sets of opinions out of the public eye because he could not risk alienating clergy whose influence on public opinion could threaten attendance at his lectures. He did this well. In 1843 he had had the honor to deliver Boston's Lowell Lectures, and that city's *Christian Watchman* reported that Gliddon supported biblical authority and gave no "umbrage to any one." As late as 1850, the *Christian Advocate and Journal* could heartily endorse Gliddon's shows, suggesting that every child should see them. "Twenty five cents was a small price to pay," he noted, to listen "to the voice most informed and eloquent on the whole subject of Egyptian antiquities of any in this whole land."[321]

Unfortunately for this itinerant British Egyptologist, one of his shows went awry. In the spring of 1850, just as the unity debate was hitting the papers, he treated Boston's elite to series that included a mummy unwrapping. According to Gliddon's decoding of the hieroglyphics on the sarcophagus, the occupant was a woman, whose status the local press inflated to that of a priestess. Each night, a portion of the wrappings was removed, building the suspense until that final lecture. Gliddon invited the cream of Boston's intelligentsia—including Louis Agassiz—on to the platform poised to inspect the body the moment it was revealed. There truly was a revelation: the mummy was male. Aside from the discomfort that a family-oriented crowd

brimming with Victorian sensibilities would feel at the unveiling of male genitilia, the greater embarrassment belonged to Gliddon.[322] The *Unitarian Register* was merely amused. More orthodox papers found cause to doubt Gliddon's authority. In an 1852 article on the unity debate a writer in the *Christian Watchman and Reflector* pointed to Gliddon's error while suggesting that advocates of as complex and difficult science as ethnology should avoid hasty judgments given the social weight of the question.[323]

When he and Nott had the opportunity to honor Morton as his literary executors, Gliddon dropped all pretense and actively joined Nott in the polygenist crusade. Two years of intense labor produced *Types of Mankind*, the crowning achievement of the American School of ethnology.

In many ways, *Types of Mankind* posed a greater threat than Nott and Agassiz's earlier publications. It was a large, heavily illustrated volume, published by the prestigious Lippincott Press of Philadelphia. Its 738 pages contained Nott's and Gliddon's reworking of Morton's unpublished writings, Nott's own work on ethnology, Gliddon's extensive criticisms of the Bible, and an assortment of articles by other friends of Morton's. Most important, Agassiz contributed a piece applying his notion of zoological provinces to the topic, complete with a map of the earth displaying each province in a different color and a fold-out tableau illustrating the human and animal species that inhabit each zone. Published in the spring of 1854, *Types of Mankind* became an immediate success. The subscription list numbered almost one thousand, and the book quickly went through at least nine printings, quite an achievement for an expensive book on science.[324]

One religious weekly paper aptly described the book as a "conglomerate work, to use a geological phrase."[325] The collection of essays centered on the topic of plural race origins but reflected the wide diversity of disciplines that spoke to the issue: archaeology, craniometry, chronology, natural history, anatomy, physiology, philology, and biblical studies. Many of these disciplines were closely related and all were relevant to the polygenists' agenda, yet the manner of their assemblage justified the "conglomerate" designation. The work began with a biography of Morton by his colleague Henry Patterson, a fellow member of the Academy of Natural Sciences in Philadelphia. At his death, Morton was the dominate figure at the academy, and its transactions regularly included Morton's craniometric work. Patterson labored to exalt the status of his colleague, and, along the way, made Morton's commitment to plural human origins more public than perhaps Morton would have preferred. He also painted Morton as a scientific martyr who suffered at the hands of bigoted clergy, especially the Rev. John Bachman, but who heroically held to his convictions in the hope that truth would be vindicated.[326]

Agassiz's piece followed. This was a general sketch of his zoological provinces and his argument that the distribution of the human races, before modern migrations, matched the large patterns of animal distribution. In other words, each zoological province had an associated indigenous human race as well as its characteristic non-human species. The sketch was short and programmatic rather than detailed, but what it lacked in development it make up in authority, bearing Agassiz's name.

These two pieces were tacked on to the front end of the book and numbered as part of the introduction. The main text began with Nott's work on Morton's manuscripts, dealing with all aspects of the case for polygenesis. Morton had covered a lot of scientific territory, ranging from

physiology and hybridity to technical definitions of “species” and “genera” and devoting several chapters to descriptions and histories of each of the human types. Nott insured that one particular source of information and the argument gleaned from it were never far from the reader throughout. *Types of Mankind* was littered with reproductions of images from Egyptian monuments that the skilled hand of Gliddon’s wife had copied from authoritative volumes on Egyptology.

Nott clearly relished these images of human “types,” as he read them, which suggested—demonstrated in Nott’s view—that each human type was primordial and had remained unchanged through the thousands of years since creation. The monument images did a lot of work for Nott. They were visually stimulating, and, by drawing on the works by renowned scholars such as Ippolito Rosellini, Richard Lepsius, Friedrich von Adelung, and Christian Bunsen, Nott could hitchhike on their reputations, giving the impression that their work fully supported polygenism.

Nott also dwelt on the chronological studies of the Egyptologists, which undermined the standard interpretations of biblical chronology. If the experts gave these monuments dates older than, for example, Archbishop James Ussher’s chronology allowed, then not only are the human types shown to be unchanging through long spans of time, but those parsons who stubbornly hold to an Ussherite chronology are shown to be ignorant and backward. Although the difference in these chronologies was only a few thousand years—nothing compared to the enormous spans Darwin would later claim for human evolution—it was crucial to the issue of reconciling biblical chronology with evidence from other ancient civilizations. None of those involved in the unity debate at this point believed in eons of human development before recorded

civilization appeared. The monumental evidence proved that racial types identical to those of Nott's own day existed so long ago that it is unreasonable to argue that these types had developed from a unified stock through adaptation to environment over time. The Egyptian monuments showed that forms had remained stable over time.

The theme of chronology continued in the next chapter, authored by another Mobile physician, Dr. William Usher, who followed up on Morton's speculations regarding human antiquity. Usher reviewed the contemporary discussions of human antiquity, a lively matter in the geological community at that time, beginning with a rehearsal of Agassiz's progressive catastrophism, in which the earth had gone through a series of life-ending, geological events, to be repopulated after each event but by species somewhat more developed than their counterparts of the pervious epoch. Then, Usher discussed the evidence of human remains concurrent with extinct mammals, including the discovery of human remains at the New Orleans gas works construction site, which Usher placed at 57,600 years old, pronouncing the evidence conclusive.[327] In 1863, Charles Lyell's *The Geological Evidence of the Antiquity of the Man* announced the new consensus of the geological community that human beings were, indeed, at least as old as the great mammals of the penultimate geological age. In 1854, however, that consensus did not exist, at least not publicly. Nonetheless, Usher's confidence in his claims matched the tone of the rest of the book.

After the Usher's interlude, Nott returned to another vexed topic: interfertility as a test of species. The polygenists had to discredit the notion that only creatures of the same species can produce fertile offspring since mulatto fertility seemed to be painful fact. Drawing on his theory that degrees of fertility in offspring depend on the proximity of the parent's species, an argument

that he had been using since 1842, Nott engaged in species splitting, subdividing groups of animals usually considered one species into groups of proximate species. Species displaying a wide range of variation, such as dogs, challenged the rigid notion of fixity of species so important to the polygenists; so Nott and others argued that many canine breeds were hybrids of distinct species rather than descendents of common ancestors. Again he invoked Egyptian monuments to prove that existing varieties of dogs existed so far back in time that it was unreasonable to suggest that they all developed from one common ancestor, the point being that "prolificacy between two races of animals is no test of specific affiliation: and it therefore follows, as a corollary, that prolificacy among the different races of men carries with it no evidence of common origin." "*Permanence of type*," he concluded, "must therefore be regarded as an infallible test of specific character."[328]

Anatomical differences among the human races came next. Evidence for a racial hierarchy and digs against egalitarianism and the "false philanthropy" that tried to raise lower races higher than their constitution allows were salted throughout the chapter, but, at the end, Nott made his specific goal clear: "to place before the reader such material as might enable him to judge whether there is any proof, in this geographical direction [east to west] of migrations from the Old to the New World, that could account for its primitive manner of population." Picking one possible migration route, Nott declared that though Oceanic and American types are different in culture and language, "in no two types of man do we find cranial characters more widely different."[329] As always with the American School of Ethnology, physical differences trumped cultural similarities.

The topic of Gliddon's efforts in the second and third parts of the book likely surprised some of its readers. For over one hundred pages he labored to reconcile polygenism with the early chapters of Genesis, including an extended exegesis of the table of nations in Genesis chapter ten. The third part of the book continued Gliddon's focus on scripture in three essays applying archeology, the history of writing, and yet another treatment of chronology to the matter. All together Gliddon's treatises on Genesis and related portions of the Bible filled close to a third of this thick book. Thus *Types of Mankind* was more than a work of scientific ethnology. Like Nott's University of Louisiana lectures and Agassiz's articles in the *Christian Examiner*, which had initiated the controversy, this book proposed a means by which religious thinkers could accommodate polygenism to the Bible.

"Types of Infidelity"

Religious writers did not appreciate the favor. As they had just a few years before, these writers classified the work of the American polygenists as infidel science and quickly moved to expose *Types of Mankind* as an assault on orthodoxy disguised as science. Whatever the intellectual content of Nott and Gliddon's work, their rhetoric guaranteed that religious writers would label it "infidel." The entire volume bore a condescending tone, portraying religious thinkers as backward, obscurantist, and intentionally uniformed. It was a battle of the books, in Nott and Gliddon's eyes: the latest scholarship versus Bible-bound literalism, a contest between "dispassionate science on the one hand, and the captious garrulity displayed by dogmatism on the other," between these self-proclaimed illuminati and "the biblical dunces in the United

States," pitting "religious ignorance against scientific knowledge,"[330] As one religious critic quipped, "it should have been not 'Types of mankind,' but 'Types of infidelity.'"[331] Issues in religion and science have long been analyzed philosophically and sociologically, but rarely rhetorically.[332] It is necessary, however, to explore the rhetorical nature of responses to *Types of Mankind* and other American polygenist publications. Nott and Gliddon spoke the language of infidels, and religious writers deployed a stereotyped rhetoric regarding infidel use of science.

It is hard to overemphasize the importance of how they expressed their views of orthodox Christianity, the language and tone as well as the content, as a deciding factor in the religious response. Given the implications of polygenism for nineteenth-century American Protestants, in particular, it is unlikely that plural human origins could ever achieve the acceptability that, for example, old-earth geology had. But the rhetorical structure of Nott and Gliddon's work, and that of the other contributors to *Types of Mankind*, ruled out any consideration by the orthodox. Rhetorically, *Types of Mankind* was packaged as an assault on the church, and churchmen took it as such.

In the polygenists' view, Christians had been kicking against the goads for centuries. Gliddon declared that competent biblical interpretation died at the end of the patristic era when, with the decline of Hellenic culture, the structure of Christian thinking rigidified: "the strenuousness of orthodoxy, in any creed, increasing always in the ratio that mental culture declines." He credited the influence of Cosmas Indicopleustes, an early Eastern Orthodox scholar, with "petrify[ing] theological stolidity in Europe, for 800 years"[333] Only recently had western civilization emerged from this theological stupor—"we live now under a more enlightened dispensation," chimed Usher—and those who had not kept up with nineteenth-

century scholarship were beneath contempt. All that the orthodox valued in their history was suspect, even the venerable King James Version of the Bible. Its translators "could not construe a simple line of the Hebrew Text," Gliddon alleged. Nott rejected it altogether, demanding that those who would discuss questions pertaining to the Hebrew Scriptures be familiar with French Hebraist Samuel Cahen's translation.[334] Ideas that the contributors to *Types of Mankind* deemed obsolete they dismissed with contempt. Patterson charge that "The men who, in the middle of the nineteenth century, can still find the ancestors of Mongolians and American among the sons of Japhet [sic], or who talk about the curse of Canaan in connexion with Negroes, are plainly without the pale of controversy, as they are beyond the reach of criticism."[335]

Gliddon's over-the-top rhetoric stood out. Not only was he arrogant, his writing was convoluted, pompous, and well seasoned with insults to the clergy: "No clap-trap pretensions to acquaintance with hieroglyphical arcana recently made by theologers who speak not any continental tongue through which alone these subjects are accessible—no 'ad captandum' figments of the possession of Oriental knowledge when men cannot spell a monosyllable written in the Hebrew alphabet--detract from the Memphite exhumations conducted at French ministerial expense by a Mariette."[336] To doubters of the Chinese chronology he wrote: "What is the objection to believing that China was populated, by her Mongolian autochthones, chiliads of years previously? Reader! 'one blushes' redder than St. Jerome to mention, that, now-a-days, the acceptance of this fact is questioned by the Rev. Dr. This, or the Rev. Mr. That: neither of whom, perhaps, has ever studied Sinology--never opened a Sinological work!"[337]

Whether or not individual religious writers could overlook this invective, and some attempted to rise above such pettiness, the fact that it was associated with an ambitious

reinterpretation of portions of Genesis raised the stakes. Gliddon's contribution to the ethnological work attempted to demonstrate that the biblical genealogy of the nations, centered on Genesis chapter ten, is properly a patronymic chart of white races only. In fact, his efforts subsumed an impressive volume of material in a variety of languages and a profound sweep of history, and perhaps many an American cleric could have become acquainted with new scholarship through it. But whatever positive contribution Gliddon may have made to American biblical scholarship was squandered by the object and the attitude of his work. Although the reader could get lost in the verbiage and digressions, plural human origins remained the focus: "Thus, through a few cuts of an archaeological scalpel, vanishes the last illusion that any but *white* 'Types of Mankind' are to be found in the first *three chapters* of the book called 'Genesis.'" "Such is our conclusion," he announced. "Science and reason confirm it. Xth Genesis proves it. Nevertheless, few persons beyond the circle of education exempt from ecclesiastical prejudice, will, for some time to come, accept this result! Why?"[338]

The rhetorical "Why?" assumed that the answer involved a disparagement of the intellectual capacities of the average American clergyman. But the issue was not whether that stereotyped cleric could or would comprehend all that Gliddon had to tell him. Rather, at the center of it all was the question of the nature of the Bible. Here both ideas and rhetoric guaranteed opposition. "Viewed as a literary work of ancient humanity's loftiest conception of Creative Power, it is sublime beyond all cosmogonies known in the world's history," declared Gliddon, referring to the biblical narrative of creation. "Viewed as a narrative inspired by the Most High, its conceits would be pitiful and its revelations false; because telescopic astronomy has ruined its celestial structure, physics have negatived its cosmic organism, and geology has

stultified the fabulous terrestrial mechanism upon which its assumptions are based. How, then, are its crude and juvenile hypotheses about Human Creation to be received?"[339] Clearly evangelicals would choke on any portion of the Bible being called "crude and juvenile," but Gliddon made even more shocking declarations. Advances in science would continue to make obsolete established interpretations and translations, but only for those lesser creatures in need of revelation because "the development of science will have rendered any new translation altogether supererogatory among the educated who are creating new religions for themselves."[340]

New religions! Gliddon and Nott deployed a Comptean philosophy of history in which revelation—read "superstition"—was being replaced by reason. Whatever slight chance the preadamist polygenism hawked by Nott and Agassiz a few years before had to be accepted by American Christians as an adequate accommodation of the new ethnology to scripture was lost once Gliddon had announced this "new religion." How could the American School scholars claim to be harmonizers of scripture and science once they had proclaimed the abolition of biblical religion?

"*Types*" in the Weekly Religious Press

The orthodox clearly perceived aggression. "Hatred to the Bible and to the clergy as a class, is plainly their animating motive, and facts in science are only sought for as means to unsettle the faith of believers in Revelation," declared the *Lutheran Observer* describing the authors of *Types of Mankind*. Dismissing Nott as merely an apologist for slavery, the writer turned to Gliddon: "Mr. Gliddon, as far as he is known, is noted for his vanity and egotism, his presumptuous dogmatism on subjects of which he is evidently profoundly ignorant, and his

second-hand, superficial criticism of the Bible."[341] This Lutheran writer contrasted the polygenists' demeanor with that of Bachman, and for years contributors to the debate would be similarly assessed. The *Christian Advocate and Journal* later described anti-polygenist books as "unpretentious [and] dignified," in obvious contrast to *Types of Mankind.*[342] Like a lightening rod drawing its bolt, the tone, mode, and attitude on *Types of Mankind* unleashed the standard anti-infidel rhetorical tools that had been in danger of rusting in the religious writers' literary shed.

The reaction to *Types of Mankind* in the religious quarterlies was equally outraged and acidic, often focusing more on Gliddon's efforts than the rest of the book. According to a reviewer in the *American Church Review*, Nott and Gliddon "have entered upon a crusade, not only against the Mosaic account of the unity of the human race and the commonly received chronology, but against all reverence and respect for the Bible as the Word of God."[343] In this Episcopal serial, as in others, Gliddon's way with words drew derision even as his ideas provoked ire: "truly, one knows not which most to admire, his Logic or his Rhetoric. They both 'resile to our view' with about equal force."[344] The *Southern Presbyterian Review*, which had had its guns trained on Nott and his friends from the beginning, gave this terse assessment of *Types of Mankind*: "To us, the book establishes nothing, except the self-complacent skepticism of its authors."[345] A reviewer in the *Biblical Repertory and Princeton Review* was so startled by the book's appearance that he gave more space to it than the book he was actually reviewing, Sir David Brewster's *More Worlds than One*. He weakly connected the two works by exclaiming that there are top men of science who are orthodox, like Brewster, in this age of "charlatans [such as Nott and Gliddon] . . . who have no standing among men of science."[346] Even the

Unitarian *Christian Examiner*, which had published Agassiz's articles in 1849 and 1850, declared Gliddon's biblical exegesis in *Types of Mankind* incoherent: it "has no claim to be regarded as a literary work."[347]

It is remarkable that this work, with its long and prestigious subscription list and respectable publisher, could be attacked as bogus science, but its authors and editors brought it on themselves. Because of the anti-religious rhetoric in *Types of Mankind*, scientific ideas played only a supporting role as religious writers parried the American polygenists' renewed onslaught. These writers explicitly identified *Types of Mankind* as an infidel work aimed at undermining Christianity as much as promoting a particular scientific theory. Quoting Bachman, the *Southern Christian Advocate* exposed Nott and Gliddon's transgression: "As long as true naturalists write on science, and do not meddle with the Scriptures, no one will be dissatisfied with them; but when they wish to establish a false theory in science, that can only be supported by an attempt to destroy the veracity of the Scriptures, they cannot calculate on the patronage and support of the Christian community."[348] It was the particular danger of the authority of science being attached to an assault on the authority of scripture that motivated many religious writers. As a southern Methodist put it, "it is the infidelity of men of pretended learning—those who are attempting to array Science against Revelation, that calls for serious consideration."[349]

Thus *Types of Mankind* confirmed for the religious press that the rise of American polygenism was an episode in the "War of Infidelity" and not part of the ongoing progress of science. The rhetorical tone of Nott and Gliddon, in particular, meant that their work was an abuse of scientific authority. To be clear, religious writers did not fear science, nor did they reject the authority of men of science to generate knowledge of nature, though, as we will see,

these religious writers had definite ideas on the limits of scientific authority; rather, they feared a disingenuous claim that science supports, even demands, the rejection of scripture authority as the religious writers presented it.

The distinction here is important. Whether heart-felt or not, these critics claimed to be willing to give the science a chance. Their complaint targeted the packaging of the science more than the science itself. The source of controversy was not just the question of the plural origins of the human races but that the American School writers had provoked another battle in the war on orthodoxy. Nott, Gliddon, and company placed the discussion in that rhetorical domain by their persistent anti-clerical jibes, their attempt to instruct the faithful in how to reconcile polygenism with the Bible, and their arrogant announcement that the traditional religions were on the verge of being displaced by a new and more enlightened faith.

Nott and Gliddon's rhetoric made their opponent's job easy. While the "new infidelity" insidiously infiltrated church institutions and publications, the American polygenists spoke like the old-school infidels, Voltaire and Tom Paine.[350] Their unfaltering lack of subtly and bold claims for a new religion meant that religious writers had only to reach for the standard anti-infidel rhetoric, and so they did.

First, they rejected the scientific authority of this infidel work by identifying its authors as dilettantes rather than true men of science. Nott is "a writer reckless of truth, and . . . utterly ignorant of the Scriptures."[351] Gliddon was little more than an intellectual charlatan.[352] His work "smacks too strongly of the quack to inspire us with much confidence in any of his statements not supported by evidence."[353] Their work bears "more positiveness than power."[354]

It is "it is the infidelity of men of pretended learning."[355] This "pretended learning," then, served a disingenuous cause. True men of science seek truth honestly, while infidel "scientists" use science for ulterior motives, usually for infidelity itself; undermining Christianity and biblical authority was the goal. But the social and political relevance of the unity debate also entered into these criticisms. Some northern papers identified Nott's objective as the perpetuation of slavery.[356] Southern papers charged that he and Gliddon wanted to dehumanize the slaves.[357] Unqualified, disingenuous, and politically treacherous, Nott and Gliddon were declared "unscrupulous writers."[358]

Infidel science was also condemned as overly speculative and empirically weak. Whatever the views of practicing men of science, religious newspapers cultivated the identification of true science with Baconian inductivism, which emphasized severe restraint in theory.[359] A writer in the *Christian Intelligencer* remarked snidely, "We shall have to revise our nomenclature, if the devotees of natural science continue to make such heavy drafts upon human faith as they now do."[360] A southern Methodist conceded the high scientific authority of some of the polygenists, but countered that the argument for plural human origins is "more indebted to vagaries of the imagination for its conception, than to any fair inference from reason."[361] Readers learned that the theory of plural human origins had little empirical support; indeed, it required a "leap of faith."

All this came packaged in a reassuring interpretation of history. According to a number of religious writers, infidels found young sciences the most useful for their ends because these are top-heavy with theory. As particular sciences develop and the empirical base grows, the theoretical content matures and eventually displays greater harmony with Christianity. The

successful accommodation of new geological and astronomical knowledge confirmed, to these writers, that any body of scientific knowledge used by infidels to undermine orthodox religion would follow this pattern. This strategy had the rhetorical advantage of comforting readers during the worst of the storm without having to refute the polygenists detail by detail. Its plausibility was bolstered by widespread belief that old-earth geology had become one of the strongest apologetic planks of modern Christianity. That is why many religious newspapers so strongly supported the work of the Christian geologists Hugh Miller, Edward Hitchcock, and James Dwight Dana, even against detractors from their own constituency.

It was a matter of course, then, for them to declare that ethnology "can as yet hardly claim the dignity of a science" or doubt that it is "as yet sufficiently understood to be classed with the established sciences."[362] This strategy could even be deployed against specific elements of the polygenists' work such as Gliddon's "science of hieroglyphics."[363] Because the work of the American School had important implications for social and political issues, their critics held them to a higher standard of epistemological maturity. Consequently, a Baptist writer warned that religious and social implications were too severe for such a young theory to bear.[364]

Perhaps the religious writers' most persuasive rhetorical tactic was to marginalize the polygenist views as a minority opinion within the scientific community, claiming that most men of science upheld the unity of the human race. Some writers paraded a host of names in proof. A writer in New York's *Observer* threw out the challenge: "Let those who vaunt authority, produce names more authoritative than these," citing Richard Owen, Hugh Miller, Joseph Henry, and Alexander Dallas Bache in the title of the article. A year later another contributor to the *Observer* added Alexander von Humboldt, Max Mueller, James Dwight Dana, Edward

Hitchcock, Dr. William Carpenter, and Bachman to the list.[365] They could well have mentioned America's premier botanists John Torrey and Asa Gray as well. Josiah Nott's arch enemy in Mobile, the Rev. Dr. W. T. Hamilton, reported during a visit abroad that all the German luminaries hold to the unity of human species.[366] "The authors of this ambitious volume seem likely to share the fate of [the biblical character] Haman and be hanged on their own gibbet," declared a Baptist writer.[367]

Nothing could have been easier than painting Nott and Gliddon as infidels. Given their rhetoric and the well-worn conventions of the religious newspapers anti-infidel rhetoric, the polygenists had handed the brush, dripping with paint, to their religious adversaries. Nott's University of Louisiana lectures had played the same role a few years earlier, but not to the degree that *Types of Mankind* did. This book defined the character, agenda, and platform of the American School polygenists, so much so that a second effort three years later was largely overlooked by the religious weeklies. *Indigenous Races of the Earth* served primarily as a money-making enterprise for George Gliddon, whose notoriety seldom translated into adequate revenues.[368] Although this book was as ambitious and large as *Types of Mankind*, the religious press virtually ignored it.

Fighting Science with Science

Religious writers' labeling and posturing served the important pastoral task of assuring their "flock" that this infidel ethnology had no real power and presented no effective threat to their faith. Many of Nott's and Gliddon's critics went little beyond the anti-infidel rhetoric, but

the content of that rhetoric logically required that the science be addressed at some point. In the stereotyped rhetoric of the religious writers, infidel science was product of anti-religious dilettantes who built highly speculative theories on the weak empirical basis of an immature science and exaggerated their epistemological value. Nott's and Gliddon's abuse of the clergy and talk of a "new religion" were adequate to insure condemnation from the faithful, but that alone did not serve the interests of writers in the religious weeklies. The rhetoric of infidel science as defective science also served to assure religious readers that nature can only, in the end, testify to its maker. In time the book of nature would vindicate the book of revelation. As the cultural authority of science escalated in the course of the nineteenth century, this claim grew more vital to the faithful.

Small-format religious newspapers had no room for detailed dissections of scientific treatises, but they nevertheless addressed certain points of controversy. If the polygenists' arguments were a "conglomerate," the scientific responses in the religious weeklies were an aggregate, as newspaper writers would focus on one aspect typifying, in their view, the flawed character of the polygenists' work. Those religious writers who presented a broad spectrum of arguments could do little more than list them. Articulating a single flaw, even if not a fatal one, in the theory of plural human origins, while implying that other criticisms were ready on the sidelines, removed polygenism from the category of a compelling threat. Rhetorically, this served the pastoral function of assuring readers that their faith was not endangered rather than the intellectual function of refuting a system of thought. So, each article fired one or two shots or a salvo of brief, undeveloped, arguments, enough to signal that the defenses of the faith were active and anticipating success.

Environmentalist monogenism remained the most common account of human racial diversity proffered in the religious weeklies. If fact, they rarely invoked explanations derived from scriptural events, such as the confusion of tongues at Babel. "No fact can have clearer demonstration than this, namely light, air, cleanliness, education, morality, good food, exercise, or their opposites, will produce in the course of centuries all conceivable grades and varieties of men," declared the *Christian Advocate and Journal* in 1863.[369] The uniformity of this position across denominational boundaries and in both northern and southern papers is striking, demonstrating that this essentially naturalistic account of human diversity dominated in the popular religious press. A few preached a miracle, but, as we will see, that could have its own context and function.

As with polygenism, environmentalist monogenism drew evidence from a broad range of disciplines, from anatomy and physiology to philology. One oft-repeated argument took on the very notion of distinct racial types. In the polygenists' view, each type was a discrete unit, easily identifiable even in mixed race populations. Indeed, Nott and Agassiz believed they could identify almost any one's racial background at a glance. Many of their opponents emphasized that such discreteness does not exist. Rather, the races shade into one another by insensible degrees. Such gradation between types makes it impossible to know where one race ends and another begins. In fact, they argued, variation among animals of one species can be greater than that observed among humans.[370]

The greatest weakness in environmentalism was the lack of clear evidence that external factors could induce variations in human organisms as diverse as the racial types. In typical fashion, white religious writers designated Europeans and Africans as the extremes of that range

of variation, and environmentalists had to work against the revulsion many European Americas felt at the notion of kinship with Africans. Samuel Stanhope Smith had claimed American slaves, especially domestics who lived and worked under the direct influence of their masters' culture, were whitening and thus had hope for improvement. To Smith improvement meant becoming like whites in form as well as abilities. But by mid-century, stories of blanching Africans held little credibility. Therefore, two other examples of human variation were often cited: Jews and displaced Irish folk. Both these examples illustrate the influence of borrowed texts and the vicissitudes of their circulation.

An article on the "Attractions of Ireland," published in the *Dublin University Magazine* in 1836 included a description of unfortunate people displaced from their original lands by the English into more inhospitable regions during the seventeenth century. Exposed "to the worst effect of hunger and ignorance, the two great brutalizers of the human race," their physical form degraded. Two centuries of want produced a people possessed of "open projecting mouths with . . . prominent teeth and exposed gums . . . high cheekbones, and depressed noses [that] bear barbarism on their very front . . . Five feet two inches upon average, pot-bellied, bow-legged, and abortively featured . . . these spectres of a people that once were well grown, able-bodied, and comely [are now] apparitions of Irish ugliness and Irish want."[371] They even acquired prognathous skulls in a short time as a direct result of their new hardships. This piece appeared in a number of other publications, from the *British Quarterly Review* to the Rev. Thomas Smyth's book on unity, as well as anti-polygenist articles in American religious journals and newspapers.[372]

Stories of Jews were, however, were more popular than those of the unfortunate Irish. One of the most widely disseminated articles on human variability came from a *British Quarterly Review* report on the British Association for the Advancement of Science meeting in 1847. This was a landmark meeting for British ethnologists, the first with a section devoted to their discipline.[373] Here some of their greatest pitched their science—James Cowles Prichard, Robert Gordon Latham, and the Chevalier Bunsen—and, to a man, they advocated human unity. Philology dominated their method, but not exclusively, and American papers extracted from the BAAS report a segment they entitled "Different Color of the Jews." This claimed that Jewish physiognomy persists throughout the Diaspora, while skin color changes to match the local gentile population in response to environmental influences. The clincher involved a comparison of two Jewish colonies in Malabar, one considerable darker than the other. The lighter skinned community had emigrated only recently, thereby illustrating the effects of environment over time. "Marvelously does [the Jew] illustrate the consistency of the original unity of man with the most extensive diversity."[374] This piece had necessary virtues of a good newspaper article on a controversial topic. It was compact, compelling, appealed to the visual imagination, and drew on an established belief of the audience's, the uniformity of Jewish appearance.

As authoritative as Morton's craniometry was, religious writers had no qualms in rejecting it out of hand. Borrowing an argument from the geologist Edward Hitchcock, a Presbyterian paper declared that those who use craniometry to demonstrate different human species claim that lowest human is little above the animal. "But when the intellect of the lowest man is compared with that of the highest of the brutes, the difference in the sizes of skulls, in facial angles and pelves, sinks into insignificance."[375] Another writer cited the work of the

German anatomist Friedrich Tiedemann, who had conducted craniometric research similar to Morton's, but unlike Morton found no correlation between brain size or form and race.[376]

Morton's claims that natives of both western continents were, with the exception of the Eskimo, a unique people unrelated to groups on any other continent touched the persistent interest of European Americans in the origins of American natives. Evidence of kinship with other peoples or of migration across either ocean, then, served as a direct attack on plural origins. There was little agreement, however, on the geographical origin of these migrants. Suggestions ranged from Jews, Mongols, and Tartars to other people groups.[377]

The infertility of hybrid offspring remained, in spite of Nott's and Morton's labors, stubbornly entrenched in religious writers' anti-polygenesis armory.[378] It rarely was absent in monogenic writings and was the central concern of Bachman's work, but it also had the immediate appeal of many Americans' experience. The exceptions cited by Morton and his allies regularly came from distant and exotic lands, a point Bachman stressed.[379]

Taken in all its forms, one of the most often repeated religious, anti-polygenist arguments claimed that the universality of human nature demanded the unity and, therefore, the common origin of all humans. Here evangelical Protestant writers were on familiar ground since the universal necessity and appeal of the gospel required a common human nature. Religious and scientific claims mingled here, with writers invoking the potential of uncivilized human groups to improve and the success of missionaries to those groups in almost the same breath. Language, cultural traditions, history, moral and emotional characteristics, and religious propensities were all cited as evidence that all humans, regardless of color or form, were one in nature. Even a

Hottentot could be educated to something admirable—when subjected to long exposure to civilization through successive generations.[380] In this context one writer addressed Agassiz's idea of plural origins of one human nature with a relatively rare incursion of an abstract theological idea: "but when there is no physical occasion for this diverse creation, when it would be a waste of power and, as we believe, a contradiction of God's own word, we say that though God might have created men essentially alike in diverse centers, in fact, he did not."[381]

Philological arguments were especially popular, which points again to American dependence on British ethnology. While the American School polygenists were insisting that physiological, anatomical, and archaeological evidence cinched their case, with some British and Continental polygenists cheering them on, the British ethnologists mentioned above, and a host of others, were busy analyzing affinities among languages and establishing groupings that increasingly demonstrated connections between seemingly disparate languages. The discovery of the Indo-Germanic or Indo-European language group inspired many with the hope that, one day, all human languages would be traced back to a common source. Religious writers made much of philology's benefits for monogenism.[382]

Agassiz had claimed that similarities in languages belonging to different human types had resulted from similarities in structure of the organs of speech, much like how birds of different species can sound the same because of their anatomical similarities. In general, Agassiz's ad hoc argument received little attention; still, H. M. Johnson countered in the *Christian Advocate and Journal* that since philology shows that languages tend to diversify, arguments based on similar organization fail.[383] Philology was a booming enterprise, especially on the other side of the Atlantic, and religious writers could point enthusiastically to its successes and recite a long list of

impressive British and European philologists who held to human unity: Bunsen, Mueller, Prichard, Latham, both the Humboldts—Alexander and linguist brother Wilhelm—and Egyptologist Karl Richard Lepsius. Nott and Gliddon had salted the same names throughout their writings—without mentioning these scholars' monogenist conclusions.

Strangely, Usher's chapter on human antiquity received a disproportional amount of attention in the weeklies, especially since it played a minor role in the polygenists' theories. Usher's reckoning that the discovery of human remains during excavation for the New Orleans gas works were at least 57,000 years old—they were found beneath four layers of ancient cypress forests, each layer representing approximate 14,400 years, he reckoned—received specific attention.[384] A writer in the *Christian Intelligencer* saw this as an absurdly tenuous claim, one that by implication characterized the rest of the polygenists' reasoning: "Yet these gentlemen would doubtless ridicule the simple believers in the Word which is pure as silver seven times tried in a furnace of earth. They themselves are not lacking in faith, but it is faith in the most extravagant assertions. If they persevere, it will become proverbial to say, as credulous as—a scientific man."[385] Such charges of credulity were a standard anti-infidel rhetorical device, turning infidels' criticism of religious faith on itself by charging that some of their tenets also required a leap of faith. This short article about Usher was effective enough to be copied by at least two other weeklies.[386]

These fragmentary refutations of the polygenists' ideas were neither systematic nor comprehensive. No one expected them to be. Again, their value was mostly rhetorical, providing readers with assurance that whatever the content of the new threat—and few readers of the weeklies would have waded through *Types of Mankind*—they had little to fear. All was well

because champions of the faith had defeated the enemy, a defeat echoed in sparse detail in these newspaper articles. However, this piecemeal monogenist apologetics was not all that science delivered; there was also the authority of its practitioners.

The Right Scientist

Oddly for a scientific debate, this one took place more in the public than in the technical literature. The popular *Scientific American* expressed disappointment with *Types of Mankind* while the more technical *Silliman's Journal* ignored it.[387] By far the majority of writers who took on the polygenists were not established men of science, and religious writers must have been disappointed not to find a host of scientific practitioners stepping forward to speak against the American polygenists. They had long been used to drawing on impressive lists of authoritative names to bolster claims of harmony between scripture and other sciences. Naming important names had rhetorical value as readers would expect that the correct view on a scientific issue would be supported by such voices from within the scientific community. Since Nott and Gliddon were inveterate name droppers, the dearth of support for monogenism from luminaries had to wear hard on their critics. Occasionally, religious writers cited specific scholars, but for years Bachman remained their lone champion.

Finally, in 1856 other authoritative voices began to be heard. At the AAAS meeting that year Daniel Wilson and James Dwight Dana took on the American polygenists, with the distinguished geologists John W. Dawson and Edward Hitchcock cheering them on. Wilson, a Scot who had taken a post at the University College in Toronto, presented craniometrical

research on Indian skulls from tribes in Upper Canada that questioned Morton's findings, and Dana, America's leading geologist, presented a paper on species that attempted to undermine both developmentalism and multiple origins in one effort. As significant as these papers were, coming from important men of science and at an important meeting, they were barely noticed in the religious press.[388]

Strangely, the Rev. John Bachman remained the one significant authority. But at least the Lutheran champion delivered something fresh. Patterson had so demeaned Bachman in his memoir of Morton in *Types of Mankind* that the Lutheran cleric felt compelled to respond. Uncomfortable with airing scholarly issues in popular venues, he nevertheless did so in two articles in the *Charleston Medical Journal and Review*, the journal in which he and Morton had carried on their debate. Both articles were then published as pamphlets and widely circulated, cited, and extracted.[389] Bachman had always been frustrated by the polygenists' arguments. In his exchanges with Morton over fertile hybrids, he expressed puzzlement over what he considered Morton's naïve confidence in the sources he drew on for examples of fertile hybrids, especially the English traveler and naturalist Col. Charles Hamilton Smith.[390] Still, Bachman had labored patiently to address a fellow naturalist as a gentleman and respectfully ceased publishing at Morton's death. *Types of Mankind*, on the other hand, exhausted his patience. Now he was angry:

> We have seen this book of "Types," which reviles the common version of the scriptures, which we read in our family devotions, in the possession of some of its subscribers, and heard several of them complain that through the cunning devises of Nott and Gliddon who led them to suppose that they were to receive a scientific work on the doctrine of the diversity of the human races, supported by the mature views of Morton, Agassiz and others, they had been completed trapped and deceived.[391]

More than infidels, Nott and Gliddon were scientific frauds who published "under false colours," charged Bachman. The names of eminent scientific men had been paraded before the public as pledges that a reliable scientific work would be given, and as an inducement to patronize it.[392]

Like many other critics, Bachman first attacked Gliddon's writings as a bare-faced assault on the Bible, quoting some of the Englishman's most outrageous and pompous lines. Like the *Presbyterian Magazine*, he suggested the title 'Types of Infidelity,' but attached it to Usher's chapter on human antiquity in particular. Nott he considered a model dilettante. "We doubt whether he can distinguish a wolf from a hyena. The moment he leaves the leading strings of Morton and Agassiz he involves himself in inextricable difficulties," Bachman sneered. "His writings . . . savour too much of the wrangler, and too little of the close research of the naturalist and the calm and dignified temper of the philosopher."[393]

Bachman devoted much of his first pamphlet to defending his honor against Patterson's accusations of ungentlemanly conduct toward Morton and accused Patterson, Nott, and Gliddon of distorting Morton's work to make him more of a polygenist that he was. Bachman felt that these radical polygenists were attempting to suborn Morton's name to their repulsive agenda. As always, he maintained respect for Morton but also made it clear that Morton's work was in error, emphasizing the Philadelphian's limitations, especially in mammalian and avian taxonomy. Although it brought little new scientific content, the second pamphlet contained less complaint and more substance. It focused almost entirely on Agassiz's piece in *Types of Mankind*, and, though Bachman recognized Agassiz's stature, he accused the Swiss naturalist of selecting his data to support his hypothesis. Taking Agassiz's arctic province as point of attack, Bachman

listed species after species of animals whose range did not map neatly onto that region. He also alleged selectivity in the representative images of the human race associated with each province—the Eskimo's, in particular, was uncharacteristically ugly and chosen to distance it from the Mongolian.[394]

Many southern religious weeklies rejoiced at Bachman's new volley, especially the *Lutheran Observer*, which called it masterly and conclusive, more than a match for Gliddon and Nott's "unmanly" efforts to "invalidate the truth of God." The *Southern Christian Advocate* declared Bachman's views "sound and seasonable," while its Nashville sibling gushed that he "utterly demolishes the theory of Morton and Agassiz."[395]

A few years later, Dr. James Lawrence Cabell, professor of anatomy, physiology, and surgery at the University of Virginia, eclipsed Bachman's popularity as the foremost defender of unity. Although, Cabell enjoyed great prestige, he published very little during his career, but the threat of polygenism drove him to take up his pen, and *The Testimony of Modern Science to the Unity of Mankind*, first published in *The Protestant Episcopalian and Church Register*, appeared in 1858. He wrote at the request of an "honored prelate" who feared the "bold assumptions and confident assertions" of *Types of Mankind* might mislead readers, especially the younger ones.[396]

Cabell's book was very well received, with the religious press treating it as the last word on the topic. They called it "the completest possible summary of the scientific testimony in favor of the common origin of all the varieties of man" and "a conclusive argument on this subject," declaring that it "deserves a circulation which shall be wide enough to reach the spread of notice

of another class which have been put forth of late years, with more positiveness than power."[397] Few papers ignored it, and few said much more than "job well done."[398]

As successful as Cabell's work was, it contributed nothing new. Intentionally derivative, the Virginian's work leaned heavily on Bachman and others before him. Why then did the religious press overlook the unique contributions of Dana and Wilson while giving its imprimatur to Cabell's digest? The popular character of the weeklies and their generic readership meant that technical or obtuse scientific literature had little use. Dana's piece was both obtuse and abstract, and Wilson's was burdensomely empirical. Readers needed an engaging and synthetic presentation such as Cabell's, not the cutting-edge scientific work itself. But, more than just accessibility, the work of Bachman and Cabell had an attractive piety that made its science more palatable and trustworthy.

Religious writers struggled more and more with such tensions as the century wore on. As scientific literature grew increasingly technical and focused internally on the scientific community, its popular appeal—indeed, its accessibility—receded. For example, in 1850 the editor of the *Western Christian Advocate* lamented, while listing the contents of the latest issue of *Silliman's Journal*, that many of these articles were too technical for the general reader, and a report in the *New York Evangelist* on the 1857 Montreal meeting of the AAAS noted that the increase in technical terminology of the sciences prevented "ordinary mind" from keep up.[399] Religious writers wanted science to answer science and sought authoritative scientific texts to extract, describe, and recommend. The texts they enjoyed in the first half of the century, such as the work of the Scottish geologist and free churchman Hugh Miller, combined science with piety and natural theology in a way ideal for the needs of the religious press. These were scientific

texts with pastoral function; they pointed to God as they examined God's creation. By mid-century these sorts of texts were becoming rare in the work of men of science. They did not cease to exist; instead, they moved to the growing domain of popular science.

While works by professional scientists grew increasingly inaccessible to the general reader, the growing demand for science for mass audiences was met by a new class of science writer: the popularizer. Men and women who took up that role, such as British writers the Rev. J. G. Wood, Richard Proctor, and Mary Ward, did not simply pass on abbreviated and simplified versions of the elite's work. They engaged science both in content and function. While professional scientific publications systematically shunned religious language and anything that smacked of natural theology, evidences, or apologetics, many popularizers packaged science as religiously useful. These two types of literature developed in parallel resulting in, as Bernard Lightman puts it, "two important zones of mutual influence."[400] The popularity of Cabell's work in the American religious press and the relative neglect of Dana's and Wilson's reflect the bifurcation of science writing into these two domains. Newspaper writers and editors needed to alert their readers to literature that was both accessible in content and useful in objective.

Not all religious responses to *Types of Mankind* lacked detail and intellectual sophistication. Princeton's indomitable theologian Charles Hodge published sophisticated critiques of the work of the American polygenists in the highly influential *Biblical Repository and Princeton Review*, which Hodge himself edited. So incisive are his criticisms that they foreshadowed Harvard paleontologist Stephen Jay Gould's demolition of the American School's work published in 1960. Both attacked Morton's findings as based on too small a group of skulls to be statistically significant, rejected the assumption that brain size correlated with intelligence,

and criticized Morton's failure to distinguish between male and female skulls. Hodge also cited linguistic evidence for the Asian origins of American Indians, compiled by scholars who studied ethnology by exploring the relationships between languages rather than between physical characteristics. But Hodge did not have to borrow from outside his discipline to expose the American school's shortcomings. His theological method involved careful attention to the precise meanings of words and their logical interactions. On this basis he scrutinized Agassiz's logic, focusing particular attention on his sloppy use of the word "species." His conclusion: "Agassiz is a genius, but he is no logician."[401]

Hodge's was a withering attack that did an end run around the mass of contentious empirical information in order to assail the polygenists' assumptions, methods, and reasoning. Though a theologian, Hodge did not simply trump scientific authority with biblical. He, too, believed that scientific claims required scientific answers. Yet, as widely read as was the *Princeton Review*, the Presbyterian professor's work was not picked up by the religious weeklies to any extent, not even by the Presbyterian ones. Certainly his articles influenced the clergy and educated laity who read his journal, but newspaper editors seemed to prefer authors with scientific credentials, such as Bachman and Cabell, while also shunning the more technical work of Dana and Wilson. All five of these opponents of polygenism were likely motivated as much by a religious revulsion for plural origins as by their scientific and philosophical problems with it, and yet all five engaged the polygenists' work on scientific or at least philosophical grounds. Bible-thumping was noticeably absent.

What Bachman and Cabell had over their scientific and theological cobelligerents was a closer match with the image of a traditional apologist for the harmony of science and revelation.

Hugh Miller embodied that image better than anyone. His name so frequently appeared in American religious weeklies and penetrated the American religious scene that even Jewish papers drew on his work.[402] To American editors, Miller had the ideal balance of scientific authority and religious agenda. He also wrote popular works that packaged genuine science with piety and orthodox natural theology. Though very learned and knowledgeable, Hodge could not claim expertise in science, and Dana and Wilson, as respectable as they were religiously, did not package their science like Miller. Bachman and Cabell did, or at least more so than the others.

Geographical variations

The nearly uniform rejection of preadamist polygenism in America's religions press in the mid-1850s testifies to a broad consensus among Protestants that human unity in descent from a historical Adam and Eve was a theological necessity. However, editors did not act in a lockstep, and important variations reporting on the issue provide a window into how writers in the popular religious press experienced and expressed this interaction of science and religion. Variations reflected geographical and denominational differences, but also local contexts in which concerns emanating from their immediate social environment played a role.[403]

Geographically the debate concentrated in areas with a high density of literary and scientific activity. The content of papers in or near these centers revealed greater engagement with the scientific community, and the most informed discussions came from papers in the Northeast and in South Carolina. Even in the Northeast, though, the controversy had declined enough that some papers could neglect the issue until the polygenist spoke again in 1854.[404] The notice of *Types of Mankind* in California Methodists' *Christian Advocate* provided an extreme

negative example of this geographical effect. Published in far-off San Francisco, this was the only paper surveyed for this study not to notice Nott and Gliddon's infidelity: "Our attention is also drawn to the *Types of Mankind* . . . a work of profound research, based upon the ancient monuments, paintings, sculptures, and crania of races. This book has attracted considerable attention at the East, having passed through several editions, and is well worthy the attention of those interested in Anthropological studies."[405] Given the invective that appeared in this paper's eastern siblings, such a dispassionate comment and endorsement has a strange ring to it.

At the other extreme, the *New York Observer* was almost unique in noticing James Dwight Dana's contribution to the unity debate. Dana was something of a hero to the religious press. One of America's foremost men of science, co-editor of *Silliman's Journal*, and a devout evangelical Christian, his name was often dropped when writers wanted to assure their readers that true scientists could, or usually were, among the faithful. As mention above, Dana's talk, "Thoughts on Species," presented at the American Association for the Advancement of Science meetings in 1857, attacked both polygenism and human evolution. Clearly he wanted wide circulation for his ideas, publishing them in both *Silliman's Journal* and the Congregationalist quarterly *Bibliotheca Sacra* in addition to the AAAS proceedings. Yet the religious weeklies largely overlooked it. The exception was the *New York Observer*, which lacked room for an adequate treatment but fully endorsed Dana's views declaring that his "remarks on hybridity and on the unity of our race would bear extracting entire as a separate article, but his arguments, in one form or another, must soon find their way into the library of every scientific man." Founded and operated by Sidney and Richard Morse, brothers of Samuel Morse of telegraph fame, this Presbyterian weekly came by its interest in science honestly.[406]

Denominational affiliations played a limited role, more in quantity than content. The *Lutheran Observer* displayed a deep interest in science and led the way in volume of ink devoted to the unity debate, likely because of Bachman's preeminence in the debate and within American Lutheranism. A number of this *Observer's* articles were little more than quotations from Bachman's book and pamphlets, proudly amplifying the voice of their own clergyman-naturalist.[407] Other variations are more difficult to explain. Boston's influential *Puritan Recorder* was a leader on the unity issue at the outbreak, yet overlooked the publication of *Types of Mankind* despite an impressive increase in the number of articles on slavery in 1854. In 1855, its editors heartily endorsed Agassiz's projected monumental work on the natural history of North America, adding only a mild caveat: "It is greatly to be desired that the distinguished Professor—who, notwithstanding the questionable nature of some of his views in regard to the origin of the race, is yet a most noble spirited, enthusiastic, and successful naturalist—may find sufficient encouragement to enable him to proceed in this Herculean task." The *Recorder* did join with its siblings in the near universal acclaim for Cabell's *Testimony of Modern Science to the Unity of Mankind*.[408]

Two *Christian Advocates* published in the South, the *Southern Christian Advocate* in Charleston and the *Nashville Christian Advocate*, serve as a study in differences arising from local contexts. Both rejected *Types of Mankind* and touted Bachman's work as a convincing refutation.[409] The Charleston paper not only gave Nott and Gliddon's work about twice the attention as the Nashville paper, but also addressed tensions between religious monogenists and political polygenists in the South. It published an extract from one of Bachman's pamphlets in which he complained that:

> Politicians who resorted to *DeBow's* and the *Southern Quarterly Reviews* for arguments in defense of slavery, such as have been instilled into their minds by Dr. Nott an others have been taught to believe that the best argument that could be urged in favor of slavery was to prove the negro of a different species. Hence, those who have supported the doctrine of the Unity, have sometimes been stigmatized as abolitionists and the enemies of the south.

Joining voices with other southern clergy, Bachman declared that Christianity supplies the best defense of slavery and that true southern loyalty opposed the infidelity of both the abolitionists and the polygenists. Calling Agassiz a transcendentalist—a defective version of religion peculiar to the North from a southerner's point of view—Bachman distanced the Harvard opponent and his opponent's science from the southern cause.[410]

Although the question of how to defend slavery concerned virtually all European-American southerners, the polygenists' attack on Bachman was especially a Charleston concern. That city was home to other talented naturalists, some of whom clearly leaned toward plural origins, and Agassiz had a special influence in that circle. Bachman and his Presbyterian colleague, the Rev. Thomas Smyth, had debated the topic with Agassiz's supporters there before the issue became public. Clearly Charleston Christians of all denominations were proud of this Lutheran naturalist and lent support to what had become, for him, a very personal battle.

Nashville's *Christian Advocate* gave no more attention to Bachman than most other papers, but soon became a venue for an ethnological writer of their own. In 1856 its editors threw their support behind the Rev. Samuel Baldwin's theory of the miraculous origin of human racial differences. They published a serialized form of his book *Dominion: Unity and Trinity of the Human Race; with the Divine Political Constitution of the World*, which appeared in 1858.[411] A scriptural ethnology and political philosophy rolled into one, it was almost a theory of

everything, ranging from ethnology, geology, and physics to natural history and political science. In it, Baldwin preached a rigid racial hierarchy based on his idiosyncratic reading of the Bible; he claimed, for example, that the enslavement of Africans was required by the commandment to keep the Sabbath. This work belongs to that genre of exegesis that extends the authority of revelation to all things social and political and scientific. Baldwin believed that God ordained racial separation and that biblical history was driven by the issue of race mixing. Segregation was divine law, and trespasses brought divine judgment; indeed, it was racial amalgamation by Noah's contemporaries that brought the flood and other calamities. He wrote in the manner of a crusader warring to save America from the disaster he believed was immanent if slavery were abolished and racial egalitarianism carried the day. This southern Methodist conjoined political redemption and spiritual redemption, soaking both in explicit biblical authority. This was the popular justification of slavery based on the curse of Canaan, only inflated into a comprehensive biblical theology.

Baldwin was a monogenist, believing that all humans had descended from the Edenic couple; he appealed to the judgment at Babel—though he could not locate the miracle itself in the text—to explain the physical division of the human species into a trinity of races, and then each race into subdivisions. Baldwin targeted the American polygenists, whose work endangered biblical authority: "An idea suggested, and even held with some pertinacity, by some late infidel ethnologists, is unworthy of more than cursory view . . . they leap to their conclusion at a bound of unscientific inference. The differences they find are all easily accounted for on the ground that a trinity of races was ordered, and that this trinity was subdivided into differing heads."[412] Polygenism endangered biblical authority. Baldwin's biblicist ethnology supported a

social hierarchy and slavery as well as Nott's, perhaps better since he claimed authority from both revelations: nature and scripture.

Aside from publishing the Baldwin series, the *Nashville Christian Advocate* also published a review of his book from the *Nashville Banner*, praising it as a great intellectual accomplishment. "It is an exceedingly able treatise, exhibiting a vast amount of learning, weighty with deep and original thought, and written in a clear, chaste, and forcible style." Northern Methodist papers thought otherwise. The review for New York's *Christian Advocate and Journal* worried that to use "so frightful a civil enormity, and so ugly a social excrescence" as a defense of biblical authority—Baldwin believed that European dominance of other races was a fulfillment of prophecy and confirmation of biblical authority—would in reality drive people from the Bible. All this was insanity --or at least "incipient insanity"--according to the *Western Christian Advocate.* The reviewer in that magazine shared his New York colleague's revulsion: "To cap the climax of absurdity, these monstrous abortions of distempered brains are put forth 'as a work on the evidences of Christianity *absolutely* conclusive!'"[413] In defense of the Nashville Methodists, a second notice, just a few issues later, contained a much more restrained review. However, the next year Tennessee's *Advocate* printed a favorable account of a YMCA lecture that explicitly rejected environmentalism in favor of the miraculous origin of three distinct races. The reporter endorsed it with a favorable comparison to Baldwin's work.[414]

Nashville's *Advocate* had published environmentalist theories of human racial differentiation prior to serializing Baldwin's work.[415] But after that, environmentalism disappeared from its pages. Clearly divine authority for the subordination of Africans became a stronger motive than meeting polygenist science with science. In fact, in 1860 its editors even

expressed a firm endorsement of *DeBow's Review*, a journal devoted to the southern cause *and* a primary mouthpiece of the polygenists.[416]

Charleston Methodists' *Advocate*, meanwhile, steadfastly supported John Bachman's work as the answer to Nott, Gliddon, and Agassiz's theory, even when the Lutheran and others "who have supported the doctrine of the Unity, have sometimes been stigmatized as abolitionists and the enemies of the south." It blamed *Debow's Review* and Nott for convincing some politicians that slavery can only be defended on the grounds that Europeans and Africans are separate species.[417] Both papers defended slavery but divided over the source of the racial differentiation on which it was justified. The Charleston journal maintained the tradition of adaptation to environment as people groups migrated to new climates, reflecting the debate within that city's own flourishing scientific community, while the one in Nashville deduced explicit divine authority by means of a doggedly biblicist hermeneutic. These two Methodist papers illustrate that the southern Christian response to polygenism was unified in rejection, but not necessarily in approach.

Science, Religion, and Slavery

In his classic work on the American School ethnologists, William Stanton raised the question of why the South did not adopt polygenism as its standard defense for slavery. He concluded that in the choice between scientific and biblical justifications for slavery, Southerners chose the biblical.[418] Though correct, the reasons are more complex than the ones he suggested. What has often been overlooked in discussions of the reception of polygenism are the efforts of

Nott, Agassiz, and Gliddon to promote polygenism as reconcilable with the biblical narrative, even required by it. In their minds, it was not a choice between scripture and science, but rather between an enlightened reading of scripture, which required plural human origins and a racial hierarchy, and an ignorant, bigoted, traditionalist reading. Their attitude towards American clergy, especially the hoards of evangelical Protestants, cannot be described as either collegial or conciliatory. Nott and Gliddon, in particular, had little respect for them, yet the overwhelming rejection of preadamist polygenism by American Protestant writers in both the North and the South, particularly in light of the volume of material presented in *Types of Mankind,* requires some explanation, especially since the public debate began in 1850, as the U.S. Congress worked on another compromise on the westward extension of slavery.

Some southerners did adopt plural origins as a justification for their peculiar institution, but religious writers uniformly rejected it, with passion. The divide rested on the crucial issue of moral authority. John Bachman stated the case in categorical terms:

> what, we ask, has produced that unexampled unanimity of sentiment that now exists in the whole South on the subject of slavery? Our table is crowded with pamphlets and sermons, with speeches in Congress and dissertations by clergymen and laymen, on the subject of slavery. The teachings of the Bible are the most effective weapons that are used. . . . Moreover, it should be added, that the doctrine of the diversity of species can never be maintained. It is as contrary to science as it is to the Scriptures. The suspicion of interested motives will be excited against the South in supporting a false theory by a denial of the Holy Scriptures. We can effectually defend our institutions from the Word of God. When we abandon that strong tower of defense, we are left without weapons, exposed to the effort made by Nott and Gliddon, to establish their theory by a denial of the veracity of the historical Scriptures, as more dangerous to our institutions than all the ravings of the abolitionists.[419]

In a similar vein, a writer in New York's *Christian Advocate and Journal* tied the unity debate, slavery, and colonization together. He rejected abolition and pressed an environmentalist theory of racial differentiation into a political program of emancipation and civilization. Providence, he argued, brought Africans to America to be evangelized so that they may return to Africa and minister where Europeans and European Americans cannot. But only free Africans can do this. Given that project, he declared the notion of the "curse of Ham" as worse than polygenism, though he rejected both.[420]

Such explicit connections between the unity debate and the slavery debate are surprisingly rare in the literature of the time; yet the connection had greater function than the infrequency would suggest. Writers on both sides of the issue had a proclivity to treat scientific topics in isolation from political and religious controversies on the assumption that knowledge generated from nature stood apart from political disputes, whether national or ecclesiastical. Such knowledge could then be deployed with the rhetorical benefit of "objectivity," and thereby stand above questionable partisan arguments. Although Nott and Gliddon could not always resist pointing out the applicability of their views to social and political issues regarding race, they clearly saw themselves a propagating truth derived directly from nature. Even Agassiz commented on the "mock-philanthropy" of those who believed that all races "are entitled to the same position in human society," but he firmly believed that they acted against all evidence from nature.[421] Likewise, many Christian opponents were happy to fight science with science on the assumption that a victory on those terms would transcend controversies over religious ideas.

Thus the unity debate often had the appearance of a detached, if impassioned, scientific debate, unconnected to the growing tensions over the institution of slavery. It would be a

mistake, however, to confuse the epistemological authority of science with moral authority. The intensity of the scientific debate over plural human origins reflects the agreement over the epistemological authority of science by both sides, but the reluctance of southern Christians to give truck to polygenism, regardless of any potential to accommodate it to their faith, reflects the great divergence of opinion on the source of moral authority. Southern apologetics had changed since the early republic. Since the 1840s it had abandoned a moral critique of slavery for the fully developed religious sanction of the southern practice of slavery, which ended in the ferocity of the Civil War.

The mid-century religious defense of slavery had more than one form, but all included the notion that African slaves benefited from their exposure to their masters' Christianity. For many prominent southern clergy, such as Bachman and Smyth, this was all that was needed. The infamous "curse of Ham" functioned for most religious southerners as the central biblical justification of slavery, but even that approach had to be augmented with the claim that the slaves fared better spiritually under slavery than in the jungles of Africa.[422] If slavery were to be justified as a productive aspect of Christian evangelical missions, then, ironically, slaves had to be potential recipients of the gospel's blessings as fully as Europeans. Granted, Agassiz's polygenism maintained spiritual unity even if specific unity was questioned, but his liberal leanings on this issue could not override the nearly universal conviction that plural origins meant a plurality of human species. For religious writers, however, quibbles over species had little value. Lineal descent from Adam and Noah was a necessary condition for salvation to all who took "one blood" in the historical sense. Slavery, then, had no redeeming religious function for the children of "other" Adams, regardless of their specific identities.

If this could be inferred from scientific polygenism, it was explicit in the preadamist form that the American polygenists hawked. If Adam and Eve are parents of only a portion of the human race, and Africans are a separate creation, then they are unconnected to Christ and those for whom he died. Nott and Gliddon cautioned that Africans do not stand on equal terms with Europeans before God, and that treating them as such was, in fact, detrimental. "No philanthropy, no legislation, no missionary labors, can change this law [of Caucasian superiority]: it is written in man's nature by the hand of his Creator."[423] Therefore, the choice for southern religious leaders, such as Bachman and Smyth, was to reject polygenism and maintain a moral defense of slavery as spiritually beneficial or to accept polygenism and reject the mission to the slaves. But casting Africans beyond the pale of the gospel offered no compelling justification for slavery other than the rights of the superior over the inferior. In other words, preadamist polygenism offered only the morality of the "right of might" in the place of the goal of the evangelization of the world that so defined the nineteenth-century evangelical movement.

Chapter Five

The New Infidelity

O Science, reaching backward through the distance,
  Most earnest child of God,
Exposing all the secrets of existence
  With thy divining rod,
I bid thee speed up the heights supernal,
  Clear thinker ne'er sufficed;
Go, seek and find the laws and truth eternal,
  But leave me Christ.

- Anonymous, "A Plea to Science,"
Christian Advocate and Journal, 15 February 1877

From its outbreak in 1849-1850, the unity debate had been the only truly contentious scientific issue for American religious writers in their weekly newspapers. Occasionally concerns about old-earth geology surfaced, and, even more rarely, comments on the nebular hypothesis, organic evolution, or phrenology. In the war on infidelity, Josiah Nott, George Gliddon, and Louis Agassiz were the primary, if not the only, scientific targets, though the trajectory of Agassiz's public reputation varied widely from those of his fellow polygenists. During the 1860s and 1870s all that changed, and by 1880 the public unity debate had become little more than a memory.

Those two decades are among the most dramatic and tumultuous in American history, and a variety of events contributed to the diminishment of the unity debate. The Civil War distracted many Americans from scientific issues and, then, the collapse of slavery and

subsequent debates over African-American suffrage wholly transformed the social and political context. Although the Civil War ended, the war on infidelity did not. It did change, however, as both the scientific and religious contexts transformed.

In science, the appearance of Charles Darwin's *The Origin of Species* in 1859 and four years later Charles Lyell's *The Geological Evidence of the Antiquity of Man* and Thomas H. Huxley's *Mans Place in Nature* provided new challenges for religious writers, and, ironically, for the polygenists. Neither Darwin's nor Lyell's book directly addressed the issue of human origins or even the genesis of human racial diversity, yet both potentially lent aid to the monogenists' cause. Huxley did apply evolutionary theory to human origins, but, as we shall see, religious writers later identified him as an aggressive infidel. As important as Darwin's, Lyell's, and Huxley's work was to the unity debate from a history-of-ideas standpoint, other events more directly focused on religion would overshadow their impact on the religious press.

Fresh infidel threats appeared in two forms: the very public assault on religious authorities mounted by Huxley and John Tyndall in the name of naturalistic science and the infiltration of Continental higher biblical criticism into the Anglophone world. *Essays and Reviews,* a collection of modernist essays by prominent British clerics and then Bishop John William Colenso's startlingly liberal publications heightened concerns over infidelity.[424] American religious newspapers had occasionally reported on publications by religiously liberal European scholars—David Friedrich Strauss and Joseph Ernest Renan in particular—but the revelation that heterodox ideas existed within the Church of England and that the Anglican hierarchy had failed fully to discipline these "heretics" shocked American Christians and put the religious press on alert.

Then, in the early 1870s, Huxley and Tyndall launched a crusade to purge British science of church patronage and control. Philosophically they preached naturalism in the practice of science, positivism in its epistemology, and a near materialism in its content.[425] All of these elements threatened the happy alliance of science and religion that most religious writers assumed and defended. Yet Tyndall's and Huxley's ideas alone did not qualify them as infidels. As the term was used in the American religious press, it required more than errant thinking; infidelity involved hostility, the purposeful attempt to undermine the faith of others. Therefore, more important for our purposes is the startlingly offensive rhetorical packaging of their ideas. For them, scientific progress had suffered repeated martyrdom at the hands of ignorant and bigoted churchmen. The rise of this new infidel offensive rapidly displaced the American School polygenists as the most proximate threat in the American religious press.

Even before these new infidels emerged, the old infidels were fading from view. Nott and Gliddon's *Indigenous Races of the Earth,* published in 1857, stands as an inauspicious end to the American School polygenists' formal work. Although some rate it as a superior production to *Types of Mankind,* it failed to further the polygenists influence or to stabilize George Gliddon's precarious financial situation. In the spring of that year, Gliddon traveled to Central America as an agent of the Honduras Inter-Oceanic railroad project, a job arranged by diplomat and fellow ethnologist George Ephraim Squier. There Gliddon contracted a tropical fever and died of an overdose of opium.[426] Josiah Nott's zeal waned after the publication of *Types of Mankind*. He seems to have tired of the battle or perhaps of the demands that ethnological writing added to his busy medical practice. Personal tragedy may also have taken its toll. He

had lost four children to yellow fever in 1853 and then two sons in the Civil War. Finally, for this passionate southerner the demise of Old South came as the end to all that was good.[427]

Agassiz remained to his death in 1873 a polygenist but did little to promote the theory after the 1850s. It occasionally cropped up in his writings and public lectures, but no significant work came from his pen after his contributions to *Types of Mankind* and *Indigenous Races of the Earth.* He would, however, continue as a prominent figure in American culture until his death—but in a new way, as a champion of anti-Darwinism. Still, the religious press never completely forgot his heresy. The polygenists had generated a profound challenge to orthodoxy that had been met and remained part of the complex of ideas and issues that religious writers felt obliged to address in their weeklies. Articles mentioning multiple human origins continued into 1870s, but they were rare. Indeed, in late 1872, a report on "The Relation and Duty of the Church to the Colored People," published in the *Southwest Presbyterian* at the request of the Presbytery of Central Mississippi, regarded polygenism as a has-been theory. The debate had become a monologue, even a eulogy. [428]

By the mid-1870s even that monologue was dwindling; yet preadamist polygenism did not simply perish, the victim of monogenist evolutionary theory or the demise of the Old South, as some have suggested.[429] Elements of it were, rather, subsumed by new agendas, and key ideas were conjoined with seemingly contrary ones to serve these new agendas. As has been argued above, the intense response to Agassiz's and Nott's work in the religious weeklies in 1850 was driven, in part, by these ethnologists' attempt to reconcile plural human origins with scripture through a pre-adamist reading of the biblical creation narratives. Preadamism and polygenism seemed made for each other from the American-School perspective, but the orthodox doubted

preadamism's exegetical validity and rejected its theological implications while they took offense at being lectured on their trade by two outsiders. As the context in which these ideas functioned changed, so, too, did their use and, eventually, even their relationship. Several important Christian thinkers detached preadamism from its polygenetic context and affixed it to the notion of human evolution in an attempt to harmonize descent from a long line of pre-human ancestors with descent from a historical Adam and Eve. Preadamism also survived as part of an anti-egalitarian effort to stave off African-American rights, especially suffrage, now by biblicists who borrowed ideas from the American School but anchored their authority more in scripture than nature. Today, preadamist polygenism remains the tool of rancorous white supremacists, while preadamism, shorn of its scientific twin, still serves a minority of orthodox Christians seeking to come to terms with human evolution.[430] Accordingly, the public "unity of mankind" debate did not come to a decisive end. It was gradually displaced and dismembered, with elements of it being reorganized in order to serve the new scientific and social contexts of the fourth quarter of the nineteenth century. Understanding these developments and realignments is the task of this chapter.

New Scientific Contexts

Charles Darwin's work on evolution and Charles Lyell's on human antiquity had important intellectual consequences for the unity debate. Darwin refrained from speculating on human evolution in *Origin of Species*, but his arguments for species transformation undermined the ideas of fixity of type and the special creation of each species, human or otherwise, central planks in the polygenists' theory. If one species could evolve from another, certainly humans

could develop into a variety of racial types over time, especially over the immense period of human existence now posited. Lyell's *The Geological Evidence of the Antiquity of Man,* helped supply the time for slow, natural human variations to take place, undermining the American School's key chronological argument. Intellectually, these scientific developments ought to have spelled the end of the influence of polygenism in American thought. As we have seen, though, the debate in the religious weekly press did not, however, develop along such neat logical lines.

Darwin made arguments for human evolution explicit in his *Descent of Man* in 1871, but in 1859 the closest he came was a cautious speculation:

> I believe that animals have descended from at most only four or five progenitors, and plants from an equal or lesser number.
>
> Analogy would lead me one step further, namely, to the belief that all animals and plants have descended from some one prototype. But analogy may be a deceitful guide. Nevertheless all living things have much in common . . . Therefore I should infer from analogy that probably all the organic beings which have ever lived on this earth have descended from some one primordial form into which life was first breathed.

To which he added the teasing speculation that, in the future, "Light will be thrown on the origin of man and his history."[431] He realized that statements likely to offend religious sensibilities would inhibit a serious reception for his ideas. He even deployed a rhetoric of awe and wonder that could be at home in works on natural theology.[432] *The Origin of Species* was read in many ways, and many advocates of organic evolution after 1859 diverged significantly from Darwin's theory; in fact, various forms of so-called neo-Lamarckianism prevailed into the twentieth century.[433] Some British polygenists even claimed that Darwin's work supported their views—they seized on natural selection as a scientific and, implicitly, a moral and inevitable cause of race conflict—and expressed puzzlement when Darwin and his closest allies supported

the other side.[434] Still, evolutionary theory, Darwinian or otherwise, was far more compatible with monogenism than polygenism.

Like Darwin, Lyell avoided dogmatic claims about the date of the first humans but clearly placed their appearance much further back than those on either side of the unity debate had anticipated. Some geologists, most notably Jacques Boucher de Perthes, had been claiming for decades that they had evidence of human remains contemporary with extinct animals. The religious press could ignore such claims because most prestigious men of science, such as John Phillips, Gideon Mantell, and Lyell, had criticized that work. These geologists did not reject the notion of high human antiquity on principle, however, but because it lacked clear empirical evidence. The excavations at Brixton Cave in 1858 helped remedy that situation and led British geologists to reevaluate the issue with the result that, quite rapidly, they came to accept the idea as empirically sound. Lyell's authoritative *Antiquity of Man* announced this to the English-speaking public.[435]

Both sides of the unity debate had assumed a short human chronology. Religious writers divided over the age of the earth and disagreed about the exact age of the human race, but all worked with a human chronology of a few thousands of years. Nott and Gliddon ridiculed Bishop Ussher's chronology and dated the Egyptian images of the various human races as far back as they could in order to demonstrate the fixity of human types over the bulk of human history. They did not, however, push the date of human creation—or creations, as they argued—much further back than the estimates from traditional interpretations of biblical chronology. Thus they shrank the period between the creation of the human race and full racial differentiation into one too brief for the effect to have been produced by natural causes. Placing the date of

human creation much further back in time undermined that argument, so they were reluctant to add more than a few thousand years to human history. Monogenists questioned their opponents' dates for the Egyptian monuments, but mostly they argued that racial differentiation may have proceeded rapidly in the past. The new geological estimates of the age of the human race, inflating the duration of human existence from some thousands of years to hundreds of thousands years and more, cut a crucial thread in the American polygenists' argument. Theoretically, then, high human antiquity damaged the polygenists' case by opening up eons of time for the process of racial differentiation by natural causes.

A few writers in the religious weeklies noticed the potential for monogenist allies in Lyell and Darwin. As early as 1850, before Darwin's evolutionary ideas were known, "Virgil," writing in the *Biblical Recorder*, had already registered Darwin as a monogenist.[436] After the publication of *The Origin of Species*, a number of Virgil's fellow religious writers happily proclaimed that Darwin had dealt a blow to the theory of plural origins. Appropriately, one was a writer for the African Methodist Episcopal newspaper, *Christian Recorder*: "One question of much dispute seems to be settled by Mr. Darwin; thus the Caucasian, the Malay, and the Negro, according to his facts, are varieties of species, and may all have descended from a single pair, as set forth in the scripture."[437] The Baptist *Watchman and Reflector* reported a Dr. Hovey's pronouncement, made at the New England Education Convention: "Who now, after what Darwin has done, can doubt that the negro may have had the same origin with the white man?"[438] "Augira," in the *Southwestern Presbyterian* was even more explicit: "Darwin has cut the ground from under the former deniers of the unity of the human race, by indefinitely widening the limits of variation in species."[439] A writer in the *Western Christian Advocate* agreed, and another in

the Episcopal *Churchman* asserted that Darwin's monogenism was nearer to the Bible than Gliddon's and Agassiz's polygenism.[440]

None of these statements came in articles specifically on the unity debate, and none of these writers expressed unreserved approval of Darwin's work. At best, they registered a cautious openness. Early in 1860, the *New York Evangelist* also pitted Darwin against the polygenists, but hardly endorsed evolution; rather,

> It was the latest attempt, indirectly, to undermine faith in Revelation, . . . Allowing, however, his principle to have a partial value and application, within the proper limits of varieties or species, we do not see but that the book may help a good cause. For if the ground he here stakes be true, even in a circumscribed sphere, many of the objections brought against the doctrine of the descent of all the varieties of the human race, from a common progenitor, fall to the ground.

In the same paper, three years later, a reviewer of T. H. Huxley's lecture to workingmen on evolution, declared that the extremes of Darwin's theory counterbalance those of Agassiz's polygenism: "The fact is, that the opposite theories annihilate each other, and impartial investigators, judging between them, are left to feel that the credibility of the Biblical account of the origin of man is more fully manifest."[441] Thus those religious writers who noted Darwin's monogenist leanings did not fully enlist him in their cause.

Instead they cited the polarity between evolution and plural origins as evidence of the weakness of infidel science, a stock anti-infidel rhetorical device. Making this argument in a piece with the telling title "Science Correcting Its Own Errors," the *New York Evangelist* explained that all attempts to use science in attacks on the biblical narrative end up clashing with one another:

> But uniformly it has been found that [scientific] objections were based on hasty inference, or that the conclusions drawn were refuted by more careful investigation. The very facts relied upon to sustain them, have turned out to be no facts, or to have been

> imperfectly apprehended, till the conflict has settled down to a clashing of science with itself, and the old Greek fable of the armed host that sprang from the sowing of dragon's teeth, but which fell by mutual slaughter, has been realised [sic] in the case of the scientific assailants of the Mosaic record. . . It is thus that science corrects its own errors. When men run to one extreme, the philosophical mind itself recoils from the grossest of error, and flies back to the opposite pole. . . If Darwin's book was needed to shake the theory of Agassiz, which denies the unity of our race, the learning and science of Agassiz have demolished the counter theory which would degrade man to a brute original.[442]

The *New York Observer*, a Presbyterian paper published by two of inventor Samuel Morse's brothers, ridiculed Darwin's ideas, then quipped that "Gliddon's acid speculations are neutralized by D's alkali." Let Gliddon and Darwin fight it out, the paper suggested, "while sensible men look on, alternately amused and grieved."[443] After noting Darwin's emphasis on human unity, the *Southwestern Presbyterian's* "Augira" accused him of going too far when he "denied the very existence of permanent forms, but the truth will be caught in the rebound, and the Bible will have one enemy the less."[444] The *Lutheran Observer*, reporting a paper by the German theologian Theodore Christleib read before the Evangelical Alliance, observed that Darwin's arguments tended to reduce the number of original species—which supported the biblical flood story—while "the weighty arguments of the polygenists will prevent these types from being annihilated."[445]

It may have shocked readers to see the *Lutheran Observer* credit the American polygenists' with anything approaching "weighty arguments" after its years of strident opposition. This only highlights the rhetorical value of opposing one troublesome scientific idea with another. It also illustrates the context in which these religious writers understood and evaluated scientific ideas such a polygenism, evolution, and human antiquity. Scientific developments that bore important implications for theology or exegesis could not be studied in abstraction. They belonged, first of all, in the rhetorical context of the war on infidelity. Even

the rare writer who displayed openness to any of these new ideas always packaged his views in some standard rhetorical mode that connected his views to that war of words.

Although most early reviews of *The Origin of Species* in America's religious newspapers were negative, they ascribed little importance to the work either way. The first notice of the book in the influential *Boston Recorder* consisted of a sparse two sentences. After briefly summarizing the content, the reviewer predicted that "It will make few converts."[446] The *New York Evangelist* declared it infidel, but a writer in the Baptist *Christian Watchman and Christian Reflector* allowed that, were Darwin's theory to be proven, it could be harmonized with scripture. What little theology it contained, though, he diagnosed as pantheistic.[447] "Monstrous," opined Cincinnati's *Western Christian Advocate* about Darwin's work, yet he saw value in the details of the book, while the *Christian Recorder* declared it inconsistent with the facts.[448] None of these weeklies treated the publication of *Origin of Species* as an immediate threat against their faith, as they did with Agassiz's and Nott's work in the 1849 and 1850.

Similarly, Lyell's work on human antiquity received little attention in the religious press. A small number of religious writers noted the usefulness of Lyell's work for the monogenist cause, but not when it first appeared in 1863. In late 1868, a writer in the *New York Evangelist* displayed an unusual openness to high human antiquity. Claiming that the chronologies of Ussher and of Robert Hall had been rejected years ago—he did not say by whom other than himself—Christians could be "supremely indifferent" on the issue of the age of humankind. He then made this observation: "If it should be proved that man has existed upon our earth for a longer period than has hitherto been assumed, we should accept the proof with satisfaction, as demonstrating that time enough has elapsed since the creation of man to admit of that

differentiation of races which seems at present to militate against the apparently Scriptural doctrine of the unity of our race." Yet the endorsement was not without a caveat: the topic was the antiquity of the Swiss lake-dwellers, an extinct civilization that build its homes on piers sunk in the shallows of lakes in Switzerland, and the writer observed that such dwellings were currently in use in various parts of the world, so conjectures of a high antiquity for the ancient Swiss inhabitants—as to antedate the Pharaohs, for example—were unfounded.[449]

A writer in the *Religious Herald* held Lyell's work in far less esteem—like other works on antiquity and ethnology, it raised more questions than it answered, he claimed—but agreed that Christians were not bound to a short human chronology. The traditional six thousand years "is an inference, an assumption not claimed historically by the inspired records." He appreciated that Lyell supported the biblical notion of human unity, noting that "all he requires for this doctrine is a much longer time than the common estimate assigns as the age of the human family."[450] Some writers hedged their bets. In an article on human unity that came out shortly after Lyell's book, the *Christian Advocate and Journal* complained that "these wiser-than-God savants now affirm the discovery that Adam was by no means the first man. Certain apparently human shaped flints are set to testify that human history was old, and earth by no means fresh from creative fingers when the garden of six thousand years ago was in bloom." By "human shaped flints" the writer was referring to discoveries of human artifacts in the same strata and location as now extinct animals, which extended the age of the human race to at least prior to the last major extinction. Human antiquity was not proven, this writer declared, and future developments in geology might well undermine what evidence its advocates presented. But he allowed that, if proven, human antiquity could not threatened biblical authority: "That races lived

and perished here before the garden bloomed, and Adam founded this race, is not denied by Scripture. It will probably be a long time before it is affirmed by any credible authority."[451]

Thus, a handful of religious writers noted that Darwin's evolution and Lyell's high human antiquity benefited orthodox monogenism. Initial responses to both works were mildly negative. Evolution and human antiquity continue to incite heated resistance today while few remember polygenism. That outcome would have been impossible to predict in 1859. But here lies the greatest difference in the reception of the American polygenists' work compared to that of these two British scientists. While the unity debate burst on the pages of the religious weeklies in 1850, organic evolution and human antiquity made a far less dramatic entrance. Few papers ignored polygenism while many overlooked Darwin's and Lyell's books when first published. Those that noticed them usually printed only one brief notice in the months after publications of *Origin* and *Antiquity*, while many papers dwelt on the unity issue for most of 1850, and some, like the *Lutheran Observer*, the *Puritan Recorder*, and the papers that ran the Rev. Thomas Smyth's serialized book, had made their expose of polygenism a weekly feature for months on end.

Evolution and human antiquity were hardly welcome ideas, but religious writers did not deploy the full force of their anti-infidel rhetoric against them at their first appearance. Darwin and Lyell were widely respected men of science and had unimpeachable authority in their fields; more important, their books lacked the elevated invective that Nott and Gliddon could not resist. The English scientists simply did not fit the mold of the scientifically dilettantish infidel writer. Thus, even while struggling with the implications of evolution and human antiquity for their belief-system, American religious writers were reluctant to consign scientists of Darwin's and

Lyell's stature to the enemy camp, as they always expected true science to support Christianity. Louis Agassiz could not be classified as a dilettante either, and the natural theology salted throughout his work provided a rich source of apologetic material, even though it was more philosophical than evangelical. Neither did he deploy anything like Nott's and Gliddon's religiously offensive rhetoric. He did draw criticism for attempting, like Nott, to made polygenism religiously acceptable by a preadamist reading of the Bible. Darwin and Lyell wrote purely as men of science: neither employed religious invective or attempted to interpret scripture. Even though *The Origin of Species* contains a broadside attack on the notion of special creation, the language Darwin used is far more restrained and more in the mode of scientific discourse than what Agassiz had used in 1850 or Nott and Gliddon ever used.[452] The content of the American School polygenists' scientific ideas alone was not enough to incite the religious press.

Perhaps the most striking example of a theologically startling scientific claim receiving scant attention in the American religious press is the publication of Thomas Henry Huxley's *Evidence as to Man's Place in Nature*, which came out in the same year as Lyell's book. Where Darwin had been cagey on the question of human evolution, Huxley took it head on, boldly declaring that "[w]ithout question, the mode of origin and the early stages of the development of man are identical with those of the animals immediately below him in the scale."[453] His book presented an elaborate and detailed argument for the close connection of humans to other mammals, especially the great apes, an important plank in the theory of human evolution. Since the critical religious problem with the theory of evolution was its application to human beings, the relative neglect the American religious press accorded this book seems an anomaly. Only a few papers noticed it, and fewer gave much ink to it. A Catholic reviewer counted the book

"more curious than interesting."[454] The *Western Christian Advocate* exclaimed that "The author is willing to accept Darwin's theory, or any other good theory, except that which teaches that God made man," but said little else. New York's two Presbyterian papers, the *Observer* and the *Evangelist*, did take on Huxley, and both borrowed heavily from an article by the American geologist James Dwight Dana, published in the *American Journal of Arts and Sciences* (AJAS). In fact, the *Observer* article is a longer version of the AJAS article. Still, Huxley was not well known to Americans at this point, and his book lacked the anti-religious invective of his latter public communications. The *New York Evangelist* quipped that Darwin had revived the theory of (unnamed) French atheists "that man was but a higher species of ape, with his tail worn off, and his hairy skin made soft and white by the process of wearing clothes! In this way they thought in the course of a few centuries a monkey could be polished into a Frenchman." But the tone in both papers was less alarm than mild amusement. Confident in the authority of an able and pious American man of science, these papers took the discussion surrounding Huxley's book more as an opportunity to display the harmony of science and religion than as potent infidel threat.[455]

The dissimilarity in intensity does not exhaust the contrast between the outbreak of the unity debate in the religious weeklies and their response to Darwin's and Lyell's books. The tone was also different. Nott and Agassiz provoked an uncompromisingly negative reaction, with the single exception of the Unitarians, the communion with which Agassiz was loosely associated. Some were cautiously open to Darwin's work from the first, but even the majority who rejected it did not do so with anything like the fire of the opposition to the ethnologists. Likewise, Lyell's work received little hospitality in the religious press. The *Western Christian*

Advocate complained that no one would go to court with as weak a case as Lyell presented for human antiquity—Lyell was a lawyer. In the same issue, however, this paper copied an article from the *British Quarterly* advocating a "wait and see" attitude on the topic, which reflected a fairly broad consensus in the religious press that, if theory of high human antiquity succeeded, it would not undermine revelation.[456] The polygenists would have envied such openness, however hesitant it was, had they cared what the religious press said.

Similarly, some religious writers preferred to keep the door open for Darwin's theory. In 1864, a reviewer in the *Christian Advocate and Journal* endorsed Harvard chemist Josiah Parsons Cooke Jr.'s claim in his *Religion and Chemistry* that Darwinism need not be rejected, "but atheistic inferences are denied as not legitimately deducible from it."[457] Six years later, reviewer in the same paper expressed a similar ambivalence: "While Darwinism does present grave difficulties in regard to the Adamic man—the Mosaic cosmology—it does not . . . help atheism."[458] Another in the same year believed that a theistic version of organic evolution could be constructed and more easily than one might think, though a few months later a Mrs. Thomas expressed a more negative view in verse:

> I would not trace my power of mind
> to animals of any kind.[459]

What accounts for this diversity of responses and the strategy of at least some writers to allow scientific developments to pan out before rejecting or accepting organic evolution, especially in comparison with the outbreak of the unity debate in 1850? Certainly Darwinism had the potential to undermine the biblical narrative, and *The Origin of Species* resolutely argued for the superiority of a fully naturalistic explanation of species development over special creation. Darwin's work, however, had a different tone from the publications of the polygenists.

The American polygenists addressed the religious issues directly, arguing for a preadamist understanding of the biblical creation narratives as a means of harmonizing them with a human polygenesis. Darwin patiently laid out his ideas and a mass of supporting evidence without pretending to know how to square it all with the Bible, a task left largely to the American geologist George Fredrick Wright.[460] Occasionally Darwin used pious language—for example, he speculated about a "primordial form, into which life was first breathed," echoing the creation of Adam in Gen. 2:7—which he later regretted, but he wrote as if unaware that his views had any consequences for those of religious readers.[461] In one sense, Nott and Agassiz drew fire because they took the offensive and invaded their critics' intellectual domain. Consequently, religious writers patrolled the boundaries between the disciplines of science and religion more alertly as the century wore on. Darwin largely kept to his side of the fence, and that, at least in the beginning, counts as one reason why the first appearance of his book did not provoke the onslaught the polygenists had suffered. In short, while Nott and Gliddon had chosen rhetoric that provoked a fight, Darwin packaged his ideas in a softer more irenic language.

Although the religious press expressed a range of responses to Darwin's evolution and Lyell's antiquity of humans, they were generally suspicious and negative. Still, they launched no decided attack at all comparable to the 1850 assault against Agassiz and Nott. Lyell and Darwin may have expressed ideas that threatened the faith, ideas that might be infidel in potential, but because they did not address the clergy directly and certainly not with contempt and because they did not stoop to instruct Christians on how they were to interpret scripture, they provoked no immediate offensive. Public discussion of theories of evolution and human antiquity in the early 1860s did not rise to the level of a battle in the war on infidelity. Reconnaissance there was

and watchfulness—with occasional snipping—but no campaign. Then, in the 1870s, a new infidel threat appeared.

New Infidels

In 1874, the Irish physicist John Tyndall served notice to religious authorities that scientific activity was no longer their concern. He did this in an address to British Association for the Advancement of Science meeting in Belfast that year. The occasion, his role as the BAAS outgoing president, and the public stature he enjoyed as a leading man of science established this as one of the most notorious events that made up Tyndall and Huxley's crusade to inaugurate an independent domain for scientific activity within British society. Their goal was to establish science as a self-regulating professional activity, replete with educational programs and standards, scholarly societies, official credentials, and jobs, all of which served the interests of the rising generation of scientifically trained young men anxious for careers in their fields. To do this, they believed, they needed to abolish the Anglican Oxbridge system of patronage in science. Their method was to depict the church as an obstacle to free thought and the clergy as incompetent at scientific activity: language that echoed Nott's and Gliddon's. Both Tyndall and Huxley came to this task armed with undeniable scientific authority and extraordinary rhetorical talent. That rhetoric, which was both caustic and witty, signaled to religious writers the intentions of its authors, and intentions more than ideas were what made an infidel. Accordingly, most contributors to American religious newspapers read their efforts as a blatant attack on religion in general. Deploying the rhetoric of conflict, they received like in return: "A gun of more than ordinary caliber, in one of the foremost batteries of science, has loaded and discharged

himself at the time-honored battlements of theology." So the Rev. Davis W. Clark, a prominent American Methodist, appraised Tyndall's Belfast Address, signaling a new chapter in the war on infidelity.[462]

While the rhetoric of the conflict of science and religion would reach its literary highpoint with the publication of John William Draper's *History of the Conflict between Religion and Science* in 1874 and the series of publications by Andrew Dickson White that culminated in his *History of the Warfare of Science with Theology in Christendom* in 1896, readers of the American religious press encountered it regularly in reports about Huxley and Tyndall during the 1870s. Tyndall's Belfast Address announced to the BAAS and to the press, that "All religious theories, schemes and systems, which embrace notions of cosmogony, or which otherwise reach into the domain of science, must, *in so far as they do this*, submit to the control of science, and relinquish all thought of controlling it." Huxley's even more incendiary "Extinguished theologians lie about the cradle of every science as the strangled snakes beside that of Hercules" still populates famous quotation websites today, even though it was largely ignored by American religious newspapers when it appeared in Huxley's famous review of Darwin's *Origin of Species* in the *Westminster Review* in 1860.[463] By the mid-1870s, it could no longer be ignored. Historians have located this event in the context of transformations in the English social structure during the last third of the century, changes affecting the educational, religious, governmental, and commercial realms.[464] The specifics of the British context do not have exact transatlantic parallels, but, since Americans hung on every event and publication that proceeded from the United Kingdom, the literary component of this culture war immigrated to America, and

Huxley's and Tyndall's radical rhetoric became fodder for American Protestantism's renewed "war on infidelity."

The controversy crossed the Atlantic in the form of articles, books, and even lecture tours by Tyndall and Huxley themselves, but left behind the social and political context of Anglican Oxbridge control of scientific patronage. Thus it entered the American religious press in a truncated form. Consequently, Americans read about Tyndall and Huxley's campaign differently from the British. The American Revolution had thrown off the yoke of social hierarchy, or what of it had migrated across the Atlantic with the colonists, with the cruel exception of race slavery, so a young American seeking a life in science had no aristocrats or bishops to court. Churches still controlled most educational institutions, and paying jobs in science were scarce, but overall the context was different. In Great Britain, a dissenting Christian might wince at Huxley's and Tyndall's extremist rhetoric but appreciate their challenge to the Anglican powers-that-be. Tyndall and Huxley had assaulted a particular privileged and established church, but to American Christians they had targeted the Church Universal and could only be understood as infidels.

Yet, they did not begin their careers in the religious press as the enemy. Before they launched their assault, religious writers lapped up the sterling pieces on science that Tyndall and Huxley wrote for mass consumption. During the 1860s their names had frequently appeared in the religious weeklies in articles or notices involving science, always in a positive light. They were true scientists who regularly provided the delightful and wholesome kind of scientific information that the religious publishers relished and in whose pastoral agenda science still played an important role as an acceptable and even virtuous past time for the faithful. Tyndall's

and Huxley's popular writings had seemed god-sent for that purpose. For example, a review of Tyndall's *Heat Considered as a Mode of Motion* in an 1863 issue of New York's Presbyterian *Evangelist* warmly recommended to its readers: "Such reading as this ought to crowd out the light and worthless literature which so much abounds, by its superior attractiveness, as well as more solid value."[465] A piece in the *Lutheran Observer* for 1871 described Tyndall as a "model man of science."[466]

Like Agassiz in the 1840s, the Tyndall and Huxley of the 1860s functioned as men of science whose work reinforced the holy alliance and whose authority was all the greater for their lack of religious commitment. Then, like Agassiz and Nott at the beginning of the 1850s, Huxley and Tyndall directly addressed religious minds and hazarded to lecture them on how they should practice their trade when it intersected with scientific activity. Though far more aggressive and overtly offensive than Agassiz—more like Nott, on that count—they presented an infidel rhetoric delivered by undeniable scientific authority, as Agassiz had done in 1850.

Tyndall's Belfast Address, along with articles on the infamous "Prayer Test" or "Prayer Gauge" of 1872, Huxley's lecture on protoplasm, and similar publications and addresses by Tyndall and Huxley through the 1870s, in which they preached the liberation of science from religious oppression, set the tone of the public apologetics regarding religion and science in that decade.[467] The American religious press gridded its loins for battle once again. Clark issued a call to arms: "And now it is for us who are within the fortress to ascertain the damage sustained, and to take counsel how we may defend ourselves against renewed attack." By the end of the decade the religious press had heeded the call.

Tyndall's Belfast Address trigged the most dramatic response to that date. "It is part of the bigotry of much science that it cannot be just to religion. . . . there has been a dogmatism and intolerance on the part of science toward religion, to the full as illegitimate, ill-tempered and illogical, as anything on the other side could ever have fairly been claimed to be," observed one *Congregationalist* correspondent, just a month after the BAAS meeting. With sadness he reported that "even [Tyndall's] splendid power have not availed to deliver him wholly from the influence of that narrow bigotry of which we complain."[468] The following week another article coupled Tyndall with Huxley as scientists who "delight in doing [their] utmost to keep the world in ferment." Although critical of those who labeled them infidels, this particular writer lamented them as those who "sometimes misuse great powers to petty and ignoble ends." He lauded Louis Agassiz, now the leading American defender of special creation, as a naturalist of greater breath of view and depth of insight."[469] Later that month, the Rev. W. C. Cochrane memorialzed the affair in verse:

> That Science must be aggressor,
> And Religion get out of the way . . .
> And we must not place reliance
> On facts of love and trust,
> Since the only kind of science
> Must be 'science of the dust!'[470]

Tyndall's fall from grace in the *Congregationalist* and *Lutheran Observer*, along with Huxley's and, eventually, Darwin's took some time. Other papers rang the infidel alarm earlier.[471] For many, though, the Belfast Address served as a watershed, after which Tyndall and Huxley were understood to be infidel aggressors. Tyndall's claim to "discern in that Matter which we, in our ignorance of its latent powers, and notwithstanding our professed reverence for its Creator, have hitherto covered with opprobrium, the promise and potency of all terrestrial

Life" drew fire from many papers.[472] "Tyndall in a Nutshell," an article copied from the *London Globe* that rejected such potential in matter, appeared in papers as denominationally diverse as Methodist, Baptist, Presbyterian, and Unitarian and as geographically diverse as the Northeast, North Carolina, and Texas.[473] Even then the response was not unanimous, neither among the many religious weeklies nor within them. In several articles, the *Western Christian Advocate* noted that the physicist's own comments indicated the central role of God, even if Tyndall himself did not acknowledge it.[474] Yet that same paper was among the most forthright in acknowledging that the British scientists had launched an assault on religion: "These gentlemen threw down the gauntlet of war on the platform of the Ulster Hall (the venue for the Belfast Address)—of a war not against Christianity merely, but of war against theism in any shape or form."[475]

This episode in the war on infidelity played an important role as a bridge between the unity debate and the controversies over human evolution. The new threat of infidelity became the clearest and most heated issue involving religion and science since the outbreak of the unity debate, and, in that role, ultimately displaced the lingering vestiges of the unity as the infidel *cause célèbre* of the religious press.

Huxley and Tyndall's crusade played a key role in the advent of the very public and rancorous controversies over evolution but was more than merely a preamble to them. In fact, those debates began in the American religious press as an addendum to campaign against the British infidels. Huxley, in particular, used Darwinism as a Shibboleth with which to parse true men of science from pretenders. Opponents of evolution, regardless of their scientific achievements, could only be doing so out of religious convictions, Huxley preached, and,

therefore, illustrated the corrupting influence of religion on science. American religious writers had had no fondness for Darwin's ideas, but neither did they regard them as an infidel attack until this infidelity arose. As Huxley's public campaign increased in power, his use of Darwin's name became central to it, and the Down House recluse emerged in the American religious press as the third member of the British infidel trinity. Thus the Darwinian controversy materialized in the pages of America's weekly religious press. Eventually that trinity grew into a pantheon as religious writers added other prominent proponents of the evolutionary cause, men such as British writer Herbert Spencer and his American disciple John Fiske. Although the content of the ideas may well have driven the evolution debates in books and the quarterlies, in the religious weeklies ideas did not become a threat until they became attached to infidel rhetoric.

New Rhetoric

The unity debate and the aggressive naturalistic campaign of Tyndall and Huxley and their cobelligerents clearly stand as separate historical phenomena. The American religious press treated them as distinct controversies that only occasionally overlapped, even though both contained scientific and religious components. They are, however, related in the history of religious rhetoric. In each case, the religious press responded to the aggressive rhetoric of scientists. Agassiz and Nott both deigned to lecture Christians on how to understand Scripture, and Nott and Gliddon, conjoined that haughtiness with overt distain for their pious opponents. By contrast, Lyell, an Anglican, presented the evidence and arguments for human antiquity in a scholarly, though accessible, manner, and paid scant attention to religious implications. Darwin did target special creation, an essentially religious notion, though not an exclusively Christian

one, as the primary rival theory and floated a few remarks on how those with religious sensibilities should understand his arguments for naturalistic evolution. But the tone and the content of his book lacked the directness of Agassiz and the provocative rhetoric of Nott and Gliddon. Indeed, as James Secord has argued, Darwin intentionally cultivated a subdued, even boring, literary style to avoid the sensationalism that clouded, in his judgment, the reception of Robert Chambers' anonymous, *Vestiges of the Natural History of Creation*, fifteen years before.[476]

Dawin's *Descent of Man* and its reception illustrate the importance of rhetorical packaging. In that book, published in 1871, Darwin's abolitionist convictions took on scientific dress. Seen primarily as his defense of human evolution, a redundant goal after the publication of Huxley's *Man's Place in Nature* (1863) and John Lubbock's *Prehistoric Times* (1865), in fact the *Descent of Man* had more to say about the origin of human races than the origin of the human race. Part one presents Darwin's arguments for human evolution, which principally drew on his theory of natural selection, but ended with a chapter entitled "On the Races of Man." There he reviewed the scientific side of the unity debate and refuted the polygenists' arguments, suggesting that "before long, the dispute between the monogenists and the polygenists will die a silent and unobserved death." The main point of the chapter, though, was to demonstrate that natural selection cannot account for the evolution of racial distinctives. Instead, Darwin suggested, "the differences between the races of man, as in colour, hairiness, form of features, &c. are of a kind which might have been expected to come under the influence of sexual selection." To prove the point, in part two, Darwin "pass[ed] the whole animal kingdom in review" to demonstrate the existence in nature of the principle of sexual selection and then

applied this principle to human beings in the part three.[477] The very structure of the book is an extended demonstration that racial differentiation is a product of sexual selection rather than natural selection.

Darwin believed that science, at least his science, completely undercut any basis for a racial hierarchy or a differentiation of rights based on race. Natural section could, and was, used to develop such a hierarchy by arguing that the supposed superior races were so because they were more highly evolved. This teleological reading is, of course, inimical to Darwin's intent, yet even Darwin could not escape the importation of hierarchy into his understanding of human development. Races, as the product of sexual rather than natural selection, could not be classified as superior or inferior because the criterion of "selection" in sexual selection was aesthetic. Those creatures who were most attractive to the opposite sex succeeded in propagating their characteristics more frequently than their rivals. These characteristics served no purpose other than satisfying the aesthetic preferences of their mating partners. Those characteristics "selected" by natural selection enhanced creatures' ability to cope with their environments, to survive and thrive. Thus, variations generated by natural selection had a productive function and could be ordered into a hierarchy of effectiveness, while variations generated by sexual selection could not. Human races were merely different in appearance, in Darwin's view, different in characteristics that were irrelevant to any taxonomy that would assign higher value to some races than others.[478]

Yet, for all the book's power to address the unity debate, the religious press virtually overlooked it, even though many religious writers had been attuned to Darwin's monogenism since his earlier work. By 1871, Darwin's gentle prose had been upstaged by his colleagues'

aggressive rhetoric, rhetoric that paralleled Nott and Gliddon's in tone, though usually with more sophistication. What is more, Tyndall and Huxley communicated that offensive rhetoric through the public press. The American School ethnologists did not target the public in quite the same way as did Tyndall and Huxley, although Agassiz's articles in the *Christian Examiner* came close. The British infidels made a concerted effort to develop a broad, democratic system of support for their attempt to free the scientific enterprise from clerical influence. The ethnologists' public agenda had less focus, though they clearly hoped to undermine any trend towards racial egalitarianism. Again, in both cases the religious press reacted to their offensive rhetoric, and, in both cases, that press worried about its presence in the public sphere.

Decline but Not Disappearance of the Unity Debate

After the Civil War articles about the unity of the races all but disappeared from the American religious weeklies. Titles such as "Unity of Mankind," so abundant in the 1850s were rare in the 1870s. Once a stock topic, it no longer merited a head-line in the war on infidelity. References did turn up in pieces on other topics, such as Darwinism or general articles on religion and science, but usually only in passing and never with a sense of urgency. For example, a writer in the *Congregationalist* assessing the scientists in attendance at the 1869 meeting of the AAAS observed, with little alarm, that "some may have believed in the pre-Adamic antiquity of man, and more in the multiple origin of the human race." The next mention of human unity in that paper did not appear until a review of volume two of Princeton theologian Charles Hodge's *Systematic Theology* in 1872.[479] It noted in summary fashion that the professor addressed the issues of human origins, antiquity, unity, and evolution. The New York *Christian*

Advocate and Journal, northern Methodists' flagship paper, ran articles entitled "Unity of the Race" in 1862, 1863, and 1864, and a one entitled "Does Moses Speak of a Pre-Adamic Race" in 1865. Then nothing appeared on the topic, aside from a few words in one or two book reviews, until the Rev. R. H. Howard's memorial article on Agassiz published shortly after his death in 1873, which mentioned the great naturalist's polygenism only in passing.[480] That was the paper's last significant mention of the unity issue for the rest of the decade.

Similarly, after the Baptist *Watchman and Examiner* published "Denying the Unity of the Race: Is it not Infidelity?" in October of 1867, human unity received only brief mention over the next eight years.[481] The *Presbyterian Observer* touched on human unity only twice between 1871 and 1879, and, like the *Congregationalist*, one mention was in a review of Charles Hodge's *Systematic Theology*.[482] Of the few mentions of the topic in the *New York Evangelist* in the 1870s, the most elaborate was in a report of discussions in the Massachusetts's legislature over appropriations for Agassiz's Museum of Comparative Zoology. Apparently critics cited some of the professor's comments on the differences between the races to undermine his reputation and influence. Agassiz claimed that his assertions about the human races had been twisted by his detractors and that, while he affirmed separate origins, he held to equal rights. This was only a local interest story involving a public figure not anti-infidelity rant.[483]

Even the *Lutheran Observer*, which had helped lead the charge against the polygenist infidels in 1850, rarely mentioned the issue in more than a few words during the 1870s. At the death of the Rev. John Bachman in 1874, whose high profile within the Lutheran community clearly contributed to the paper's aggressive anti-polygenism, the *Observer* ran an obituary borrowed from Charleston's *News and Courier* which ranked Bachman's *The Doctrine of the*

Unity of the Human Race as his "greatest work." The controversy, though, was described entirely in the past tense.

The topic did reemerge in earnest in a late 1871 in two Baptist weeklies: Philadelphia's *National* Baptist and the *Religious Herald*, published in Richmond, Virginia. The two papers had been sniping at each other over the issue of racial segregation in the context of church meetings. The *National Baptist* had been chastising the *Herald* for its expressed revulsion at the idea of African Americans attending church meetings on the same social level as European Americans. As the *Herald's* editorial staff labored to defend their segregationist views under pressure from their critics in Philadelphia, they felt compelled to declare their belief in the unity of the races after the *National* hinted that they were still pro-slavery. The *National* acknowledged this in "Brethren of One Blood," published in their November 23rd issue, but countered that, to be consistent, Virginia Baptists must allow the full social equality of the races. Nothing in this exchange addressed any infidel threat from polygenists. It was an intramural context in which the evangelical orthodoxy of the doctrine of human unity was deployed by the egalitarians to coerce the segregationists.[484]

A similar but intramural debate appeared in the pages of the *Raleigh Christian Advocate* in 1870. The Rev. E. L. Perkins presented the traditional environmentalist argument in a refutation of plural human origins in the May 11th issue. A month later, Ben Ellet, anxious at the prospect of African American equality, especially the prospect interracial marriage, complained that Perkin's article lent support to the Fifteenth Amendment of the U. S. Constitution. Perkins answered that monogenism does not imply political equality. Political equality depends on equality of capacity, not common origin: "That the races differ in their capacities of knowledge

is too clear to need proof."[485] Both the Baptist and the Methodist disputes belong more in the context of southern resistance to egalitarianism during reconstruction than that of the "war on infidelity." Perkins's reaffirm of human unity may well have arisen out of concern that polygenism would gain new currency among southern

Thus, detached from the rhetoric of the war in infidelity and relocated to an ancillary role in discussions of topics as diverse as segregation and museum appropriations, human unity was a rare topic in the religious weeklies of the 1870s. After 1880, expressions such as the "unity of mankind," which had referred almost exclusively to the American School's threat now turned up almost exclusively in articles on missions. Writers cited the doctrine of human unity as an important impetus for missionary activity, but the rhetorical context of such phrases had shifted from an episode in the war on infidelity to exhortations to evangelize all peoples.

Rehabilitation of Louis Agassiz's Reputation

By the time the religious press girded up to engage Huxley's and Tyndall's assault on religion, the campaign against the American School ethnologists had faded, and discussions of human unity inhabited new contexts. The British infidels displaced the American ones, yet the last surviving polygenist remained a head-liner. The strange career of Louis Agassiz's public reputation in the American religious press illustrates the fluidly of popular periodical literature as one issue displaced another. Agassiz's public stature grew in the early 1870s with his energetic and public attacks on organic evolution, and the religious press all but forgot his polygenic heresy as it celebrated his new status as crusader against organic evolution.

By the mid-1870s, most American scientists, included almost all of Agassiz's students, had embraced evolution in some form.[486] That shift cannot be clearly detected in the American religious press; rather its writers seemed content that evolution had little true scientific value if the great Agassiz continued to reject it. His declining reputation among his colleagues in this period was not paralleled by any decline in his public reputation. In fact, that reputation improved as the shadow of his polygenism became irrelevant to his more important role as the defender of fixity of species as God created them. Jon H. Roberts locates the point of contention between Agassiz and his colleagues in the Harvard naturalist's refusal to adopt a naturalistic discourse in his science writing.[487] Religious writers, who once had lauded Agassiz for maintaining the venerable "holy alliance" of religion and science until his polygenist views offended them, again favored his emphasis on nature as the product of a divine mind after Huxley and Tyndall began their aggressive campaign for naturalism.

The Rev. R. H. Howard, a Methodist clergyman and writer, praised the great naturalist for his character, integrity, political beliefs, dedication, philanthropy, while cautioning that he was at most a theist and clearly not a Christian. Howard worried that religious opponents of Darwinism tended to elevate Agassiz's religious status to the level of orthodoxy in their celebration of his campaign against evolution. Yes, he was the most effective anti-Darwinist, Howard admitted, "but is his plurality theory as to the origin of man, on the other hand, either more biblical or 'orthodox?'" Still, in Howard's eyes, Agassiz "was far from being an infidel;" though "Some of these eminently self-satisfied philosophers who employ themselves in destroying the faith of others without showing either ability or disposition to offer a substitute, have been inclined to claim the great naturalist as one of themselves."[488]

For many religious writers, Agassiz's anti-Darwinism would completely overshadow his polygenism. The evolution of his image in the staunchly anti-polygenist *Lutheran Observer* provides a typical story. Reporting on an ethnological lecture that Agassiz gave in 1867, the Rev. R. Weiser noted that the naturalist opposed human evolution with polygenism and wryly commented that neither theory was Christian. Five years later, the *Lutheran Observer* could draw on Agassiz's arguments and reputation to refute evolution with an unqualified approval and no mention of his commitment to plural human origins.[489] The notice of Agassiz's death in 1873 overlooked his polygenist efforts, and, in fact, the Lutheran paper attributed the cause of death to overwork, declaring Agassiz a martyr to the progress of the mind, an echo of the religious press's treatment of Hugh Miller's suicide years before.[490] From then on, the *Lutheran Observer's* discussion of the late Swiss scientist's reputation blossomed into near hero-worship: Agassiz had a great soul, full of humanity and gentility; he loved children and animals; and he could reveal the hand of God in the physical world while not being duped by the spiritualists.[491] All the while, he was regularly cited against the new scientific infidels.[492]

The same story can be repeated from most papers. It is easy to be cynical about the redemption of Agassiz's reputation in the anti-evolutionary context of the 1860s and 1870s and tempting to attribute it to an opportunist attitude on the part of religious writers. At least part of the phenomenon arose from the boundary rhetoric discussed above. While religious writers rejected the science of Nott and Gliddon out of hand and cast them as dilettantes, they could not do so with Agassiz and thus sought to separate his authoritative work from his polygenism. They preserved large part of his scientific reputation even as they deployed their anti-infidel rhetoric against his ethnology. There may be room for cynicism toward those religious writers

who conveniently forgot his polygenism in the campaign against evolution-preaching infidels, but their application of his immense scientific authority against Darwin's followers is consistent with their respect for that authority even in the heat of the early unity debate.

By the early 1870s the unity debate had lost its headline appeal in the American religious press. The war on the American School infidels was over, and one of them had been enlisted in the campaign against the new scientific infidels. In most papers, mention of human unity came in discussions of related topics and eventually was subsumed under the rubric of missionary outreach. As the influence of the American School failed, the idea of plural human origins took on a new form, one with a more limited geographical range and cultural impact. During Reconstruction a version of preadamist polygenism surfaced in regions of the South, one rooted far more in an idiosyncratic interpretation of scripture than the scientific and religiously skeptical literature of the American School.

Popular Biblicist Polygenism

The Civil War ended slavery in America, but not white Americans' belief in their own racial superiority. In the late 1860s those who wanted to maintain a racially ordered society had to face the movement to gain African Americans the right to vote. Freedom from slavery was one thing, political equality quite another. In 1867 Buckner Payne, a white Nashville pamphleteer, argued that Africans were not merely an inferior race; they were subhuman. In a pamphlet titled *The Negro: What Is His Ethnological Status?*, written under the pseudonym "Ariel," Payne combined a detailed interpretation of the Hebrew text of the Bible with a smattering of scientific material in an attempt to prevent the social and political disaster that he

was sure would result from any further elevation of the status of African Americans. This ignited a pamphlet war, the so-called Ariel controversy, which continued into the early twentieth century.[493]

Payne believed that a proper reading of the biblical creation stories taught that Africans had been created before Adam and Eve, that they belonged to the animal kingdom, and that they possessed no souls. He reasoned that the "serpent" that tempted Eve in the Garden of Eden must have been a Negro, since no other animal could talk. Whenever true humans committed the unforgivable sin of interbreeding with Africans, God had severely punished them. If the United States decided, contrary to nature and the command of God, to give African Americans political equality, Payne warned, then God would destroy America as surely as he had destroyed the antediluvian miscegenists at the time of Noah.[494]

In Payne's view, egalitarianism was an affront to God's law, a law revealed in nature as much as in scripture. By his exegesis, the word "man" in the creation narrative had two meanings, determined by the presence of the definite article. "The man" is Adam, ancestor of Shem, Ham, and Japheth, who were all white. The anarthrous "man" is a beast, designated "man" by Adam when he named all the animals. This beast was the noblest of all, the highest member of the ape family, almost human in appearance, though, like all beasts, lacking a soul. It was so like "the man" that Adam and Eve were able to understand its articulations. It was, in fact, a talking beast, the beast that tempted them in the garden. It was the "negro." In Payne's opinion, sub-Sahara Africans constituted an order of monkeys. As a separate species and culpable for the fall, they bore an odium grounded in both nature and revelation.

Payne's pamphlet appeared in 1867, just as congress was deciding on suffrage for African Americans.[495] Published during the anxiety of reconstruction, Payne's ethnology focused exclusively on Africans in an attempt to expose egalitarianism as blasphemous and unnatural. Even his disciples could not swallow his reduction of the African to an animal, and most adopted a less severe racial taxonomy while maintaining a preadamist accommodation of polygenism.

As marginal as Payne and his followers may have been in the larger context of the American debates over religion and science, these Christian polygenists illustrate the range of opinions on the origin of races in the late nineteenth century. In a period when leading scholars were reclassifying many biblical stories as myths, Payne and his disciples, along with many other Americans, insisted on the historical and scientific accuracy of every word of biblical history. Instead of seeing themselves as scientific and theological obscurantists, they attacked their monogenist opponents as clerical despots, behaving just as the Catholic inquisitors had done in condemning Galileo in the seventeenth century.[496]

Payne's preadamist polygenism bears only a generic resemblance to Nott and Agassiz's. The gentlemen of Cambridge and Mobile focused first on the science and offered preadamism is a means of harmonizing polygenism with the biblical narrative probably more out of necessity than conviction. Indeed, Nott's treatment of the Bible seems a strategy to show up American clergy rather than conciliate them. He and Agassiz may have well believed that the holy text required plural human origins, but their greater conviction was that the Bible was irrelevant to scientific pursuits and should have no voice in ethnological research. Payne, in contrast, presented his preadamist polygenism first as biblical teaching and secondarily as a scientific

conclusion. Nott and Agassiz preached science and claimed simply that the Bible did not contradict their theory. Payne preached the Bible and cast scientific polygenism in a supporting role.

In general terms, the three held the same views, but in method Payne belongs to the same tradition of biblicist exegesis as his fellow southern Methodist, the Rev. Samuel Baldwin, discussed in the last chapter. Both severely limited the level of accommodation in the Bible and thereby found in scripture an explicit and detailed mandate for the separation of the races and subordination of non-whites. Digging all manner of ethnological information out of the biblical text, information invisible to most, Baldwin and Payne sought to save America from the divine judgment and political chaos that was sure to follow if egalitarianism won the day. They agreed on the correct approach to scripture, though not on its interpretation, and both warned of God's displeasure at the encroaching egalitarianism in America.

Although some racist Christians found Payne's fusion of preadamism and polygenism appealing, most readers, even among those who believed in the inferiority of Africans, found his rants repulsive. One critic suspected Payne of disingenuously writing his outrageous attack on Negro suffrage in order to discredit genuine opponents of African-American rights. Agassiz, to whom Payne sent a copy of his pamphlet in hopes of receiving an endorsement, rejected the content as disgusting.[497] Payne's arguments rested primarily on an idiosyncratic reading of the Bible, but also on a smattering of scientific ideas. One Methodist minister readily detected the source of Payne's science: not in the work of "the great naturalists of the world" but in the writings of "Messrs. Nott and Gliddon."[498]

Many papers simply ignored the work of Payne and his disciples, though some southern papers felt the need to respond: a five-part refutation appeared in the *Biblical Recorder*, North Carolina's Baptist weekly.[499] Georgia's *Christian Index* quipped that "Such vagaries refute themselves" and proclaimed Ariel's opinions shameful, and too absurd to merit attention.[500] The *North Carolina Presbyterian* considered Payne's a silly pamphlet and beneath contempt yet engaged it enough to draw on Joseph Henry's authority, in the "*Smithsonian Report,*" that assigned the cause of racial diversification to principles of variety in offspring and adaptation to "new conditions of existence."[501] Far off in the lone-star state, a well-read "J.A.K." disposed of Payne in an eight-part series in the weekly *Texas Baptist Herald.* For his trouble he then had to grind out several more articles fending off "G," who expressed outrage that Payne's ideas had been so summarily discarded.[502] Clearly Payne touched a nerve among some southern whites during reconstruction; still, even the southern religious press could not endorse his biblical preadamist polygenism any more than they could the more scientific version of Agassiz, Nott, and Gliddon.

The two southern Methodists, Payne and Baldwin, represent the profoundly populist bent in nineteenth-century American intellectual life: every man his own physician, philosopher, and here, ethnologist and exegete. Both believed that they had found the key to important biblical truth long overlooked or hidden, opinions that put them in the company of William Miller, Joseph Smith, Ellen White, and Mary Baker Eddy, to name just the most prominent. Although Payne's and Baldwin's understanding of scripture was clearly conditioned by their racism, and they distorted the text to serve that end, the free-market nature of religious authority at the time allowed a cultural space for their views and for a following.

They also illustrate the new life that some of the American School ethnologists' ideas found among white supremacists. These apologists for racism preferred the authority of the Bible over that of science, as had many antebellum southern Christians in their defense of slavery, and merged it with elements of the polygenists' work that heretofore had been rejected by the South's religious leadership. Their program gained traction in the crises prior to and following the Civil War and became encoded in their disciples to this day.[503] As enduring as these ideas have been, their home in such increasingly marginal groups contrasts sharply with the central stage the unity debate had formerly played in America's prestigious religious press.

The American School Redeemed?

By the late 1870s the public unity debate had ended. Polygenism and preadamism had not escaped suspicion among religious writers nor had they disappeared from the landscape of American thought. But the clearly defined and vigorously prosecuted battle against the American School's version carried out in the religious weekly press had faded away. The reception in that press of the work of two men well illustrates this sea change. The Rev. George Dana Boardman, a prominent Baptist minister, and Alexander Winchell, a respected geologist and darling of the Methodist press, both publically expressed a respect for members of the American School and accepted elements of its work. In *The Creative Week*, Boardman claimed that polygenism was compatible with Christianity, and Winchell adopted much of the American School polygenists' exegetical and scientific support for preadamism in his *Preadamites; or, A Demonstration of The Existence of Men before Adam*. Boardman's book received a respectable endorsement in the religious weeklies. Winchell's drew heated criticism from some in that press

but not for his very generous treatment of the polygenists' work. That both Boardman and Winchell could use the American School's ideas and writings and treat them as authoritative without the religious press identifying their work as part of the infidel offensive that was the American School demonstrates that that particular battle in the war on infidelity was over.

Boardman's *The Creative Week* began as a series of sermons preached in his church in Philadelphia, and then, apparently by popular demand, delivered as a lecture series at the local Y.M.C.A., in early 1878. A great local success, these noon lectures packed the lecture hall, and the editor of *National Baptist*, a weekly of the same city, counted it an extraordinary honor to publish them. The American Baptist Publications Society issued them separately shortly thereafter.[504] *The Creative Week* attempts to harmonize the Genesis creation stories with modern science by means of a non-literal reading of those stories and a highly idealized theological approach. In his discussion of the creation of Adam, Boardman told his audience that science had not yet settled the question of the unity of the human races. That, however, was no cause for concern. "But suppose that it should hereafter be proved that there were a hundred original Adams and Eves, the discovery would not affect the true Unity of the Race. That unity is not so much genealogical as moral; not in blood but in Imageship, not in the first Adam but in the Second."[505] While not endorsing polygenism, Boardman declared it fully compatible with Christianity, at least his version of Christianity.

In many ways this was a local event. Boardman's work was not widely discussed beyond Philadelphia, and, although it received very respectful notices in a few weeklies, none shared the high enthusiasm of the *National Baptist*. This soft impact was not the result of any lack in Boardman himself. Born in Burma to American missionary parents involved in the celebrated

work among the Karen people, Boardman's stepfather—his own father died when he was six years old—was the dean of nineteenth-century Baptist missionaries, Adonirum Judson. Boardman lived up to his prestigious Baptist roots and enjoyed a prominent career serving churches in South Carolina, New York, and Pennsylvania. At the peak of his career he served as president of the American Baptist Missionary Union and as a trustee of the University of Pennsylvania, where a lectureship in his name still exists as a fitting memorial to a man well acquainted with the lectern. In the 1890s he became associated with the leaders of the emerging "Social Gospel" movement.

Though not endorsing the arguments for the plural origins of the human race, Boardman did present a means of accommodation to Christianity through an idealist theology, possibly influenced by Agassiz's idealist approach to taxonomy, an aspect of the Harvard professor's polygenism that had been overlooked by the religious press. While Josiah Nott had labored to undermine any form of unity of the human races, Agassiz believed that human polygenism did not undermine the spiritual commonality of all people. Physical descent on this view became irrelevant. "We maintain therefore," he wrote, "that the unity of mankind does not imply a community of origin for men; we believe, on the contrary, that a higher view of this unity of mankind can be taken than that which is derived from a mere sensual connection,—that we need not search for the highest bond of humanity in a mere animal function, whereby we are most closely related to the brutes." Agassiz looked, instead, for unity in those

> more dignifying distinctions . . . those intellectual and moral qualities which are so eminently developed in civilized society, but which equally exist in the natural dispositions of all human races, constituting the higher unity among men, making them all equal before God, because all of them have been created in his image, inasmuch as they have a spark of the divine light which elevates man above the present, and enables him to look forward in the future towards eternity, to remember the past, to record his

> destinies, and to be taught how to improve himself, and to be led in these improvements by motives of a higher, of a purely moral character.[506]

Perhaps here Agassiz accommodated his views to Boston's anti-slavery upper-crust, but his argument was quite consistent with his general views on science. The European-educated naturalist had blended the hard-headed empiricism of Cuvier with Lorenz Oken's idealist *naturphilosphie*.[507] His empirical rigor as a taxonomist was proverbial, but Agassiz's categories existed above. Genera and species were, for Agassiz, ideas in the mind of God. Although they were discovered through painstaking study of the book of nature rather than revealed in the book of scripture, their existence prior to physical creation meant that God could create humans as one species yet in several distinct and geographically separate acts of creation. One species but as many creations as races—this was Agassiz's philosophical anthropology.

An admirer of Agassiz, whom he called "Prince of Scientists," Boardman may have been influenced by the great naturalist's statements of three decades prior.[508] Like the Harvard naturalist, he located the unity of the human race in the spiritual realm, where it transcended physical origins and bloodlines, but the Baptist preacher set this claim in a much larger theological context. Boardman wove together the fruits of extensive reading in science and a well-developed natural theology involving theistic evolution. The biblical writers had no knowledge of modern science, he explained, and the language of the Genesis creation accounts is phenomenal and not to be read literally. It is a Divine vision describing transcendent truth by means of a visual panorama.[509] For example, Boardman termed the story of Eve's creation "a Divine parable," teaching the functional subordination of women and not a description of surgical procedure. To understand the Genesis account, the reader must identify with the point of view of the ancient Hebrew, which Boardman described as "childlike."[510]

Implicit in this view is the priority of the spiritual over the physical. Boardman declared that the preexistent Christ himself is the archetype of humanity. His incarnation was not modeled on Adam; rather Adam was modeled on Christ. "Yes, Jesus Christ is the Original Archetypal Man. From Him humanity was modeled: Jesus the Form, mankind the figure."[511] Because the temporally prior Adam of the creation narratives is metaphysically posterior to Christ, salvation does not depend on physical unity through common descent from Adam and Eve, an idealist solution to the Apostle Paul's theology of first and second Adam.

The Baptist preacher, thus approached the Unitarian naturalist by allowing, though not endorsing, a physical polygenism, while maintaining the spiritual and moral unity of humankind. But he added a theological underpinning far more elaborate than Agassiz's brief allusion to the image of God in humans. Like Agassiz's, Boardman's theology bore an idealist bent. His notion of Jesus as the "archetypal Man" functioned in a manner similar to Agassiz's idealist philosophy of taxonomic categories.[512] Both rendered unnecessary the task of reconciling polygenism to the biblical creation accounts. Although Boardman's *The Creative Week* was advertised fairly widely in the religious weeklies, it was rarely reviewed. New York's *Christian Advocate* received it warmly and described it as well written and pleasant. The *Independent* only questioned Boardman's consistency in determining which passages are to be treated as literal and which as non-literal. The section on human unity went unnoticed.[513]

Agassiz's reputation had by that time been redeemed by his dogged opposition to Charles Darwin's work, which was based on his idealist approach to natural history. Species were firm, unchangeable categories because they came from above. His popularity among the faithful had always rested on that divine element in his natural history. There was also a component of

philosophical theology built into the idealist side of Agassiz's science that appeared in the last of his three *Christian Examiner* articles of 1850 and 1851, which discussed God's dignity and activity in nature. Theologically, Agassiz wanted to ensure that the laws of nature did not intrude on God's domain. In his attacks on environmentalist monogenism, he complained that ascribing organic changes to the influence of physical causes is to reduce the wisdom of God to impersonal natural law. Species, both in their natures and geographical distribution, are direct expressions of the intelligence and will of God, not the results of laws of adaptation. This fine-tuning to environment, which would help lead others to evolution, could only, in Agassiz's view, be the product of an intelligent will. Certainly, he argued, the creation of species in large numbers, in precise ecological balance with all other species of their environment, by an immediate act of God's will and power was a higher view of God than to delegate such a function to impersonal laws of nature.[514]

Environmentalist monogenism, in which racial diversification is the product of natural variation, was, therefore, theologically, as well as scientifically, repugnant to Agassiz. This view endured in his crusade against organic evolution. Environmentalism and evolution were insults to the wisdom and will of God. Here lies a true historical irony. Agassiz was attacked in 1850 for his articles advocating human polygenism and then cheered for his opposition to human evolution in the 1870s, although both opinions were based on the same philosophical/theological structures.

Unlike Boardman, Winchell held no future for polygenism, once declaring that "Since the era of Darwinism, the question [of plural racial origins] has lost its interest."[515] Winchell was a devout Methodist, convinced monogenist, and daring theistic evolutionist.[516] As much as he

believed that the discoveries of high human antiquity and organic evolution had derailed the theory of plural racial origins, he adopted significant arguments from the American polygenists. As staunch a racialist as he was a monogenist, Winchell used the extended chronology of Lyell and Darwin to located the point of human racial differentiation so far in the past that, by now, the races were as diverse and fixed as any polygenist would have it. This extended chronology allowed him to maintain human unity over the long run, while adopting many of the polygenists' arguments for fixity of race in the relative short run. Historian David Livingstone describes Winchell as "[p]erhaps chief among those who ruptured the ties between pre-adamism and polygenism"[517]

Winchell enjoyed an illustrious career as a geologist, educator, and prominent interpreter of modern science to Christians, especially Methodists. He held faculty positions at Michigan State University and Vanderbilt University, occupied the chancellor's position at Syracuse University, and executed Michigan State's second geological survey.[518] He wrote and lectured for the general public and devoted considerable effort to the relationship between religion and science, including many articles for the *Methodist Quarterly Review*. And, as one religious writer noted, he held "what is certainly not always found in men of learning or science, a facile and graphic pen."[519]

Preadamites is perhaps Winchell's most ambitious work, certainly his most controversial. With a strikingly aggressive style, he presented a preadamist monogenism in which the biblical Adam descended from an unknown ancient ancestor whose progeny had diversified under environmental influences into three major races. The biblical Adam, then, fathered a portion of the human races, which included the white races. Caucasians, Winchell speculated, had

descended from Dravidians, who belonged to the line of Noah's son Japheth. Africans and Asians, in this scheme, were not from Adam's bloodline, but had descended from the original human, whose origin lay inaccessibly distance in the past, perhaps one hundred thousand years ago.[520]

By accepting the evidence of a high human antiquity, Winchell's theory posited tens of thousands of years for the development of human racial differentiation, instead of the few hundred allowed by conventional biblical chronologies. Therefore, Winchell had no need to refute the polygenists' evidence from the ancient Egyptians monuments of the existence of all the modern human races long before Christ. Instead of alleging a miracle or arguing that these natural processes operated at an accelerated rate in the early history of humankind, he maintained an entirely naturalistic mechanism for that differentiation. His preadamism protected this very progressive scientific account of human development from discarding the notion of a historical Adam and, with it, the historicity of the creation narratives, tenets precious to Winchell's fellow evangelicals.

For Winchell, all humans share a common bloodline; though he found it improbable that all humans had descended from one couple or that the original group of humans had been created in more than one place. Plural origins, he wrote, "is opposed to the observed fact of lines of relationships converging toward one type and one place."[521] This blending of evidence and arguments from both sides of the unity debate gave Winchell's *Preadamites* its unique character. He assembled the philological and historical evidence for dispersion from a single origin, but accepted typical polygenists' claims that mulatoes are feeble, disease-prone, short-lived, and possessed of smaller brains that either of their parent stocks.[522] Through the book, Winchell

repeatedly cited and used the work of the American polygenists, always treating them as with respect, even when disagreeing. He cited Nott and Agassiz to support his claim that human "racial distinctions are as wide as those which we regard of specific value among Quadrumana and other Mammals."[523] He accepted Morton's claim that Eskimoe crania differ significantly from other indigenous American peoples and used other craniometrical data from Morton and from the French ethnologist Paul Broca.[524] He treated *Types of Mankind* and *Indigenous Races of the Earth* as authoritative scientific works rather than infidel "science-falsely-so-called" and politely remarked that polygenism "has been most ably defended by L. Agassiz and J. C. Nott."[525]

The similarities between Winchell's work and the American polygenists' did not end with the scientific arguments. His preadamist interpretation of the Bible could have been the penned by Nott or Agassiz; in fact Winchell borrowed Nott and Gliddon's argument that Arabs, not Africans, had descended from the biblical Cushites, citing the polygenists directly.[526] Like Nott and Gliddon, he emphasized that the existence of non-adamic peoples would make puzzling biblical stories—such as Cain's exile and marriage—more intelligible and relieve ethnologists of the task of squeezing "racial divergence . . . [into] little more than 4,000 years."[527] With Gliddon, Winchell held that the names in the table of nations of Gen. 10 are patronymic rather than the names of individuals, a point he claimed ethnology has verified. With the polygenists, Winchell held that Noah's flood had only local effects, which did not extend to non-adamic peoples, that the Bible "is . . . thoroughly unchronological," and that its ethnology is limited to the peoples the biblical writers knew.[528] Had Nott or Agassiz lived long enough to read

Preadamites, they may have felt vindicated. Here was a man of unquestioned piety and orthodoxy advocating what they had recommended thirty years before.

Winchell's resemblance to the American polygenists extends to a further point, one important to the rhetorical context of the religious weeklies treatment of religion and science. He promoted his preadamism forcefully and was not shy in his demands that points of biblical interpretation that could be addressed by science must be addressed by science. The first chapter of *Preadamites* begins with a list of ten propositions traditionally understood as derived from Genesis, including "That . . . creation took place 4, 000 years before our era. . . .That the first man, Adam, was created on the sixth day. . . . [T]hat all the existing races of men are descended from Noah." Save the first of the list, which asserts that creation is a divine act, "They are all subjects which fall under the legitimate cognizance of what we call 'science,'" Winchell asserted.[529] He insisted on the right of science to speak to such issues: "The pretense that the Bible must be interpreted grammatically and Hebraically, without scientific aids, is an implicit denial of its divine inspiration, and is one of those self-destructive claims which a blind faith is ever setting up against the demand of common sense." If the Bible is divine, then "the literal phrase can seldom rise to the full idea which it adumbrates."[530] Interpreters need aids to access that eternal truth "sublimely subsumed in the text of the divine revelation", and science helps overcome the limitations of language and ideas which "transcend all power of expression."[531] Thus the scientist, such as Winchell himself, had the authority to address issues of biblical interpretation. Theologians and exegetes take note!

The limitations of divine-human verbal communication opened up, according to Winchell, an important voice for nature. His views on this subject resemble those of the Baptist,

Boardman, but the geologist prosecuted his conclusions aggressively, whereas the preacher couched his understanding of how science and scripture meet in more tentative terms. Boardman's integration of science and scripture resulted in a more-or-less traditional reading of the creation narratives, while Winchell's uncompromising preadamism boldly challenged the exegetical *status quo*. Aware that the *odium theologicum* had lingered over preadamism since Isaac de La Peyrère's publication in 1655, Winchell retold La Peyrère s story of persecution by the church casting him as a martyr to ecclesiastical bigotry. With a forthright and aggressive tone, Winchell instructed his readers that, though "well-nigh submerged by a torrent of ecclesiastical choler . . . Peyrerius, nevertheless, was less impious and mad than the bond slaves of dogma who silenced his tongue."[532] He even gave a detailed account of La Peyrère's exegesis of Romans 5:12-14, something that few other nineteenth-century preadamists bothered to do.[533]

As with the polygenists, Winchell's preadamism forced him into theological as well as exegetical considerations. If a correct reading of Genesis required preadamism, that doctrine still had to be squared with the representative nature of Adam and the meaning of Christ as the last Adam. In other words, how can sin and the need for redemption passed on to all humans if some of their ancestors predate Adam and belong, therefore, to a collateral line of descent. As with Agassiz and Boardman before him, Winchell denied the need for a blood link to Adam for every recipient of salvation. The bond need only be psychic, and that psychic unity is guaranteed by the prehumen ancestry that united the Adamites and the rest of humanity. A direct line to Adam was not necessary. Winchell justified this by appeal to temporal and special arguments made by other Christian scholars. Sir David Brewster and others had claimed that, if life exists on other planets, then Christ's redemptive work still appeals in spite of the spatial gap. The reformers

taught that Christ's work also applies to Old Testament saints who could not know the events on Calvary, and, therefore, Winchell argued by extension, so might preadamites.[534]

It is no surprise that Winchell's *Preadamites* caused a stir in the religious press. Prior to its publication, Winchell had been somewhat of a darling to the religious press, and his arguments for theistic evolution add been respectfully treated even when rejected. Writers had uniformly applauded his earlier works on religion and science, and certainly the authority of such a qualified scientist of unquestioned orthodoxy comforted the faithful, especially in the age of the inflated rhetoric of Tyndall, Huxley, Draper, and White. *Preadamites*, however, did not impress the religious critics in the weeklies. Winchell had tred too far into the professional domain of biblical interpretation for some. As always, preadamism was hard sell to the faithful, and Winchell's version fared no better. M. S. Terry vented outrage in New York's *Christian Advocate*, especially at Winchell's claim that the translators of the King James Version knew little Hebrew and at the questions he raised about the integrity of the received biblical text. Thirty years prior, George Gliddon had endured the same criticism. *Preadamites* was read as too radical and too speculative to many: "We had seldom seen so large a building erected on so small a foundation," quipped the *National Baptist* about the exegetical foundation he provided his preadamism.[535] Some accused him of a haughtiness or arrogance, a criticism that they had commonly directed at both Huxley and Tyndall.[536] Many writers in the religious weeklies expressed more openness, though hesitant, and a willingness to see how the scientific and exegetical chips may fall. A reviewer in the *Christian Union* withheld judgment, but conceded that "This is certainly one way of reconciling the Scriptures with the facts of geology, and the history of races and of languages."[537]

Most notable in the response of Winchell's reviewers in the weekly religious press is what they did not say. The credibility Winchell accorded the American polygenists and his dependence on many of their arguments went unnoticed. No one complained when this Methodist geologist treated Nott and Gliddon as senior colleagues rather than offensive infidels and dilettante scientists. The American School Infidels had lost their power to provoke.

Winchell was not the only one within America's Christian community to find preadamism useful. Biblical scholars, too, sometimes turned to preadamism as a potential tool for accommodating the evolution and antiquity of humans to a conservative reading of the Bible. For example, both Charles Woodruff Shields, professor of the harmony of science and revealed religion at Princeton College, and his seminary colleague Benjamin Breckinridge Warfield, a leading proponent of biblical inerrancy, entertained monogenetic preadamism. The fundamentalist evangelist and educator Reuben A. Torrey also turned to preadamism as a possible means of harmonizing the findings of modern archaeology and anthropology with a strict reading of the Bible.[538] Such uses of preadamism in the defense of Christian orthodoxy illustrate the chameleon-like history of the idea. Born a heresy in the mind of Peyrère, it eventually became, for some, an apologetic tool in the defense of the Christian faith. The absence of controversy in Winchell's use of American School work and these Protestant scholars' openness to preadamism as a potential means of maintaining the harmony of scripture and modern science demonstrate how a once threatening collection of ideas could be dismembered and parts reallocated to fresh agendas in new contexts.

An End

Ideas propagate through disciples. Nott and Gliddon left none. Morton did, but they stayed within the confines of Philadelphia's *Academy of Nature Sciences* rather than engage in public debate. Agassiz had many, but almost to a man they defected to evolution and monogenism. Ironically, Agassiz's idealist approach to taxonomy was the foundation of both his polygenism and his rejection of evolution, and during the 1860s and 1870s he crusaded on that second topic to a far greater degree than the first. Consequently, the American School had lost its voice by the 1870s. The religious press executed its pastoral goal of exposing and alerting its readership to infidel threats through the continuing review of current literature and addresses. For them, a silent enemy was no enemy. Infidelity had to be vocal to be a threat, and a new threat appeared. The voices of Huxley and Tyndall, heard from clear across the Atlantic, overwhelmed what remained of the unity debate on the pages of America's religious press.

The two most cited causes of the demise of American polygenism, Darwinist monogenism and the social transformation that came with the destruction of the Old South, are not fully supported by this study. Religious writers noticed Darwin's monogenism, but did not deploy it as major rebuttal to the polygenists, and they ignored the wealth of anti-polygenist material in *The Descent of Man.* By the time Darwin's work had fully captured their attention, the American School has grown quiet and the British campaign for scientific naturalism was underway. Perhaps the Civil War played a role in the timing of events. Not until after the war did American religious writers have the leisure to seize on Darwin as an answer to polygenism, but by that time the new British infidels has enlisted his name to their campaign. Darwin's brief opportunity to be recognized as a crusader for human unity was consumed by a new infidel

campaign waving the Darwinian flag, and he endures as the devil's parson to so many religious Americans when he might possibly have become the scientific savior of the doctrine of "one blood."

But this distraction from all things scientific and the delay in the full American engagement with evolution sums up the role of the Civil War in our story. Polygenism could be as useful in the debates on the social status of African Americans in Reconstruction as it was in the debates on their legal status before emancipation. Perhaps the most direct effect the war had in the decline of the unity debate was to kill off two of Josiah Nott's sons, a tragedy that contributed to the vitriolic doctor's silence. Sadly, Nott was open to new science but not social change. In one last outburst, he wrote to Major General O. O. Howard, superintendent of the Freedman's Bureau, to make an assault on racial egalitarianism. Reluctantly accepting the monogenist implications of Darwinism, he still pleaded that, since enormous periods of time are required for evolutionary development, the sudden elevation of African Americans would be disastrous government policy.[539] Same beat, different drum.

Although the American School had no direct disciples, it had some lingering influence in segments of society. On the one hand, the separation of preadamism from polygenism—seen in people as diverse as the radical racist, Rev. Samuel Baldwin, the geologist Alexander Winchell, and the theological B. B. Warfield—illustrates the both the end of the American School's infidel threat and their ongoing literary influence. On the other, Buckner Payne's version of preadamist polygenism illustrates the American School's contribution to the rants and raves of marginalized European American racism. Yet, in important ways, Payne and his followers represent the religiously grounded racism of the Old South, rooted more in scripture than science, in spite of

their borrowing from the American School. And that stands in stark contrast to the polygenists attempt to place their science over the biblical narrative. Payne and Baldwin may have been infidels socially, but not religiously.

CONCLUSION

> Finally, we may conclude that when the principle of evolution is generally accepted, as it surely will be before long, the dispute between the monogenists and polygenists will die a silent and unobserved death.
>
> Charles Darwin, *The Descent of Man*, 1871

As we have just seen, the debate over human unity in the middle third of the nineteenth century eclipsed all other contemporary American discussions of science and religion: in astronomy, geology, and biology. Indeed, the much discussed clash over Charles Darwin's theories never attracted the attention—or generated the venom—of the polygenist-monogenist controversy. Like many debates involving science and religion, this one became very public, argued more in the newspapers produced for mass consumption than in the high-brow scientific or theological literature. Thus it had a larger impact on how Americans understood the interaction of scientific ideas and religious convictions than did the literary productions of theologians or men of science. As we have already seen in other recent studies of science and religion in the public square, politics matters. That should come as no great surprise, because new sources, such as the weekly religious newspapers, typically bring new insights into even the best understood historical phenomena.

From such public debates we also learn that rhetoric is at least as important as content. Although the religious opponents of polygenism who wrote for the weeklies sought to show their readers that the theory of plural origins was wrong, they also attempted to persuade them that it posed no threat to their faith. They educated and polemicized, debated and instructed, but they

also comforted and encouraged. Their rhetorical strategies had an emotive effect as important as the information that they delivered. Perhaps polygenism had the scientific high ground in 1850, but, they preached, ethnology is an immature science that will change, there are prestigious men of science who reject it, and—after 1859—Charles Darwin's ideas controvert plural origins, showing the weakness of an enemy divided. Readers of the religious weeklies would not master the science of ethnology, but they could sleep more soundly believing that this too shall pass.

Their faith was vindicated, even though polygenism is still with us, perpetuated in the rants of white supremacist groups whose shrill rhetoric only betrays their cultural marginality.[540] Modern evolutionary scientists may not believe that all humans are descendants of a single couple, but they do posit a genetic unity of our species. We are, metaphorically, "one blood." That, in itself, points to the importance of the unity debate for public understanding of religion and science. Here, at least, the science did not win. The persecution of Galileo, the Scopes trial, and contemporary court cases in which creationists attempt to block the teaching of evolution in the public schools all appear to be conflicts in which religious people back the wrong scientific horse. The church made a grave mistake in its opposition to Copernicanism, and legal barriers to high school lessons on organic evolution rarely succeed for long and have no impact on the security of that theory within the scientific community. Popular perceptions of the history of religion and science are founded on these stories of the triumph of scientific truth over religious dogmatism and ignorance. It matters little that detail historical accounts undermine the triumphalist meaning of these stories. Their rhetorical power is impressive.

This story of the unity debate helps to contextualize the those late nineteenth-century evolution debates by describing the rhetorical forms and techniques designed to deal with

threatening science that had been honed in the religious press in the decades immediately prior. But this is not about Darwinism. The unity debate ought to stand on its own historiographically just as it did in the mid-nineteenth century, when newspaper stories entitled “The Unity of Man” abounded.

Appendix

Bibliographic information on the religious weeklies can be problematic. Mergers and name changes were common for some, representing complex family trees. Collecting continuous runs can be difficult because of the name changes and because many have not survived. The list below indicates the names, denomination, publication locations, and runs collected for this study.

Denomination/Title	Location	Collected
Baptist		
Biblical Recorder	Raleigh, NC	1843-1880
Christian Index	Washington, GA	1839-1848, 1850-1866, 1871-1880
Christian Reflector and Christian Watchman	Boston	May- Oct., 1848
Christian Secretary	Hartford, CT	1839-1851, 1876-1877
Christian Times	Chicago	1853-Aug., 1869
Christian Watchman	Boston	1839-Apr., 1848
Confederate Baptist	Columbia, SC	Oct., 1863-1864
Examiner & Chronicle	New York	1865-1867
National Baptist	Philadelphia	1865-1880
Religious Herald	Richmond, VA	1850-Jun., 1869
Texas Baptist	Anderson, TX	1855-1861
Texas Baptist Herald	Houston	1865-1880
Watchman and Reflector	Boston	Oct., 1848-1861, 1868-1871

Catholic		
Catholic Mirror	Baltimore	1850-1880
Congregationalist		
Boston Recorder	Boston	1840-May 1849, Apr., 1869-Apr., 1876
Congregationalist	Boston	1853-1861
Puritan Recorder	Boston	May 1849-1850,
Jewish		
Israelite	Cincinnati, OH	1854-1864, 1866-1876
Jewish Messenger	New York	1859-1865
Jewish Times	New York	1869-May, 1878
Jewish Tribune	St. Louis	1879-1883
Lutheran		
Lutheran Observer	Baltimore/ Philadelphia	1839-1880
Methodist		
California Christian Advocate	San Francisco	1852, 1864-1875, 1880
Christian Advocate	New York	1866-1876
Christian Advocate and Journal	New York	1844-1865
Christian Recorder (A.M.E.)	Philadelphia	1854-June 1865
Nashville Christian Advocate	Nashville	1852-1861, 1869-1873, 1877
Raleigh Christian Advocate	Raleigh, NC	1863-1886

Southern Christian Advocate	Columbia, SC	1840-1859, Jan. to Aug., 1862
Western Christian Advocate	Cincinnati, OH	1839-1843, 1850-1865, 1868-1869, 1874, 1880
Zion's Herald	Boston/Portland	1849-1850, 1855-56
Presbyterian		
North Carolina Presbyterian	Fayetteville, NC	1858-1880
South-Western Presbyterian	New Orleans	1869-1881
New York Evangelist	New York	1839-1865, 1868-1880
New York Observer	New York	1840-1847, 1851-1869,1872-1879
Christian Observer	Philadelphia	1849-1860
Christian Intelligencer	New York	1839-Oct., 1867
Episcopalian		
Southern Churchman	Richmond	1840-1865
Churchman	Hartford/N.Y.	1867-1874
Universalist		
Trumpet & Universalist	Boston	1839-June 1851, 1864-1878
Unitarian		
Unitarian Register	Boston	1842-1850

ENDNOTES

[1] Not all versions of the New Testament have the phrase "one blood" in Acts 17:26. The Authorized Version was translated from the so-called *Textus Receptus* of the Greek New Testament, which followed the majority of the manuscript evidence. Most modern translations are based on critical editions of the Greek text that favor the older manuscripts rather than that majority. These do not have the word "blood" after "one." Hence, translators often supply a noun as in "one ancestor" (New Revised Standard Version) or "one man" (New International Version). Bruce M. Metzger, *A Textual Commentary on the Greek New Testament* (New York: United Bible Societies, 1971).

[2] When Charles Darwin addressed the origin of the human races in his *Descent of Man* (1871), he directly attacked the ideas of the American polygenists. The terms "polygenist" and "monogenist" were coined by one of these polygenists, George R. Gliddon, in *Indigenous Races of the Earth: or New Chapters of Ethnological Inquiry* (Philadelphia: J. B. Lippincott, 1857). In *Darwin's Sacred Cause: How a Hatred of Slavery Shaped Darwin's Views on Human Evolution* (Boston: Houghton Mifflin Harcourt, 2009), Adrian Desmond and James Moore reject the term "polygenism" and its opposite "monogenism" as too sullied by the racists who "had stamped their authority on the language" and use "unitarist" and "pluralist" in their place. Their point about the disreputable origin of these words is well taken, but "polygenist/polygenism" and "monogenist/monogenism" remain more technically specific and less ambiguous than the alternative and continue to be widely used by historians.

[3] Josiah C. Nott, *Two Lectures on the Connection between the Biblical and Physical History of Man* (New York: Bartlett and Welford, 1849). Agassiz's argument came in a triad of articles. The first presented the evidence for animal polygenesis: L[ouis] A[gassiz], "Geographical Distribution of Animals," *Christian Examiner* 48 (1850): 181-204; he then applied the argument to humans in "The Diversity of Origin of the Human Races," *Christian Examiner* 49 (1850): 110-45; he concluded with the theological

claim that science demonstrates divine intelligence and care in the ways God designed nature, L[ouis] A[gassiz], "Contemplations of God in the Kosmos," *Christian Examiner* 50 (1851): 1-17.

[4] William Stanton's *The Leopard's Spots: Scientific Attitudes toward Race* (Chicago: University of Chicago Press, 1960) is by far the most cited work on American ethnology and the unity debate. Other studies include Herbert Hovenkamp, *Science and Religion in America, 1800-1860* (Philadelphia: University of Pennsylvania Press, 1978), ch. 9; George M. Fredrickson, *The Black Image in the White Mind: The Debate on Afro-American Character and Destiny, 1817-1914* (Hanover, N. H.: Wesleyan University Press, 1971): Joan Mark, *Four Anthropologists: An American Science in its Early Years* (New York: Science History Publications, 1980); Curtis M. Hinsley, Jr., *Savages and Scientists: The Smithsonian Institution and the Development of American Anthropology, 1846-1910* (Washington, D. C.: Smithsonian Institution Press, 1981); Reginald Horsman, *Race and Manifest Destiny: The Origins of American Racial Anglo-Saxonism* (Cambridge, Mass.: Harvard University Press, 1981); Stephen J. Gould, *The Mismeasure of Man* (New York: W. W. Norton, 1981); Robert E. Bieder, *Science Encounters the Indian, 1820-1880: The Early Years of American Ethnology* (Norman: University of Oklahoma Press, 1986); Lester D. Stephens, *Science, Race, and Religion in the American South: John Bachman and the Charleston Circle of Naturalists, 1815-1895* (Chapel Hill: University of North Carolina Press, 2000); Barry Allan Joyce, *The Shaping of American Ethnology: The Wilkes Exploring Expedition, 1838-1842* (Lincoln: University of Nebraska Press, 2001); Bruce Dain, *A Hideous Monster of the Mind: American Race Theory in the Early Republic* (Cambridge, Mass.: Harvard University Press, 2002); G. Blair Nelson, " 'Men before Adam!' American Debates over the Unity and Antiquity of Humanity," in *When Science and Christianity Meet*, ed. David C. Lindberg and Ronald L. Numbers, (Chicago: University of Chicago Press, 2003); Scott Trafton, *Egypt Land: Race and Nineteenth-Century American Egyptomania* (Durham, N. C.: Duke University Press, 2004), Colin Kidd, *The Forging of Races: Race and Scripture in the Protestant Atlantic World, 1600-2000* (Cambridge: Cambridge University Press, 2006); David N. Livingstone, *Adam's Ancestors: Race, Religion, and the Politics of Human Origins* (Baltimore: Johns Hopkins University Press, 2008); and James Lander, *Lincoln and Darwin: Shared Visions of Race, Science, and Religion* (Carbondale: Southern Illinois University

Press, 2010). The following biographies are also important: Edward Lurie, *Louis Agassiz: A Life in Science* (Baltimore: Johns Hopkins University Press, 1998); Reginald Horsman, *Josiah Nott of Mobile: Southerner, Physician, and Racial Theorist* (Baton Rouge: Louisiana State University Press, 1987); Terry A. Barnhart, *Ephraim George Squier and the Development of* American Anthropology (Lincoln: University of Nebraska Press, 2005); and Daniel Noah Moses, *The Promise of Progress: The Life and Work of Lewis Henry Morgan* (Columbia: University of Missouri Press, 2009). Moore and Desmond demonstrate Darwin's abolitionist views beyond question in *Darwin's Sacred Cause*. Their attempt to make those views the driving motive for the publication of *The Origin of Species* is less convincing.

[5] Horsman, *Nott*, 105.

[6] Chapter 1 provides a detailed description of the weeklies. See the appendix for exact information on the sources.

[7] Ronald L. Numbers *Science and Christianity in Pulpit and Pew* (Oxford: Oxford University Press, 2007), 9.

[8] This has been demonstrated by a number of works, including John Dillenberger, *Protestant Thought and Natural Science: A Historical Interpretation* (Westport, Ct: Greenwood Press, 1960); Theodore Dwight Bozeman, *Protestants in an Age of Science: The Baconian Ideal and Antebellum American Religious Thought* (Chapel Hill: University of North Carolina Press, 1977); David C. Lindberg and Ronald L. Numbers, eds., *God and Nature: Historical Essays on the Encounter between Christianity and Science* (Berkeley: University of California Press, 1986): John H. Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991); John Brooke and Geoffrey Cantor, *Reconstructing Nature: The Engagement of Science and Religion* (New York: Oxford University Press, 1998); David N. Livingstone, D. G. Hart, and Mark A. Noll, eds., *Evangelicals and Science in Historical Perspective* (New York: Oxford University Press, 1999); Gary B. Ferngren, ed., *Science and Religion: A Historical Introduction* (Baltimore, Md.: Johns Hopkins University Press, 2002); Lindberg and Numbers, eds., *When Science and Christianity Meet*; Numbers, *Science and Christianity in Pulpit and Pew*;

and John H. Brooke and Ronald L. Numbers, eds., *Science and Religion around the World* (New York: Oxford University Press, 2011).

[9] Bernard Lightman, "'The Voices of Nature': Popularizing Victorian Science," in *Victorian Science in Context*, ed. Bernard Lightman (Chicago: University of Chicago Press, 1997); Louise Henson, et al., eds., *Culture and Science in the Nineteen-Century Media* (Aldershot: Ashgate, 2004); Geoffrey Cantor et al., eds., *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature* (Cambridge: Cambridge University Press, 2004); Aileen Fyfe, *Science and Salvation: Evangelical Popular Science Publishing in Victorian Britain* (Chicago: University of Chicago Press, 2004); Aileen Fyfe and Bernard Lightman, eds., *Science in the Marketplace: Nineteenth-Century Sites and Experiences* (Chicago: University of Chicago Press, 2007); Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (Chicago: University of Chicago Press, 2007); Jonathan Topham, "Science, Religion, and the History of the Book," in *Science and Religion: New Historical Perspectives*, ed. Thomas Dixon, Geoffrey Cantor, and Stephan Pumphrey (Cambridge: Cambridge University Press, 2010); and the "Focus" section of *Isis* 100, No. 2 (2009): 310-368. See also Numbers, *Science and Christianity in Pulpit and Pew*.

[10] James R. Moore's *The Post-Darwinian Controversies: A Study of the Protestant Struggle to Come to Terms with Darwin in Great Britain and America, 1870-1900* (Cambridge, UK: Cambridge University Press, 1979) remains the most effective refutation of the "conflict theory." See also the references in note 8.

[11] Luke Burke coined the term in "Progress of Ethnology in the United States," *Ethnological Journal* (1848), 173, cited in Barnhart, *Squier*, 283.

[12] Lurie, *Louis Agassiz*, is the standard biography.

[13] Horsman, *Nott*, 19-26, 42-52.

[14] Hovenkamp, *Science and Religion*, 161.

[15] Livingstone, *Adam's Ancestors*, 55.

[16] English philosopher Herbert Spencer may have coined the term; see Hannah R. Augstein, ed., *"Race" The Origins of an Idea, 1760-1850* (Bristol, England: Thoemmes Press, 1996), xiii. On climate see Augstein's introduction to the above and J. H. Eddy, Jr., "Buffon, Organic Alterations, and Man," *Studies in the History of Biology* 7 (1984): 1-46; Livingstone, *Adam's Ancestors*, 55-57; Kidd, *Forging*; and John C. Greene, *The Death of Adam: Evolution and Its Impact on Western Thought* (Ames: Iowa State University Press, 1959), 224-230.

[17] See Glyndwr Williams, "'One Rude Chaos': Accounts of Africa in the Slave Trade Era," in *The Great Map of Mankind: Perceptions of New Worlds in the Age of Enlightenment,* ed. P. J. Marshall and Glyndwr Williams (Cambridge: Harvard University Press, 1982), 227-257; Michael T. Bravo, "Ethnological Encounters," in *Cultures of Natural History*, ed. N. Jardine and E. C. Speary (Cambridge: Cambridge University Press, 1996), pp. 338-357.

[18]The complete title of the English translation is *Men before Adam; or, A Discourse upon the Twelfth, Thirteenth, and Fourteenth Verses of the Fifth Chapter of the Epistle of the Apostle Paul to the Romans, by Which Are Prov'd, That Men Were Created before Adam* (London, 1656). Richard Popkin and David N. Livingstone have written the most on Peyrére and preadamism. See Popkin's "Pre-Adamism in 19th Century American Thought: 'Speculative Biology' and Racism," *Philosophia* 8 (1978): 205-39, and his biography *Isaac La Peyrére (1596-1676): His Life, Work and Influence* (Leiden: E. J. Brill, 1987). See also David N. Livingstone, "The Preadamite Theory and the Marriage of Science and Religion," *Transactions of the American Philosophical Society* 82, no. 3, 1992, and Livingstone, *Adam's Ancestors*.

[19] Rom. 5:12-21, and 1 Cor. 15:21-23.

[20] Brooke and Cantor, *Reconstructing Nature*, xi, et passim.

[21] Fyfe, *Science and Salvation*, 4, 56, 97 -106. Quotation, 21.

[22] On scientific naturalism, see Ronald L. Numbers, "Science Without God: Natural Laws and Christian Beliefs," in *When Science and Christianity Meet*, ed. Lindberg and Numbers; Jon H. Roberts and James Turner, *The Sacred and the Secular University* (Princeton, N. J.: Princeton University Press, 2000), 28-33; Edward B. Davis and Robin Collins, "Scientific Naturalism," in *Science and Religion: A Historical*

Introduction, ed. Gary B. Ferngren (Baltimore, Md.: Johns Hopkins University Press, 2002); and Jon H. Roberts, "Louis Agassiz on Scientific Method, Polygenism, and Transmutation: A Reassessment," *Almagest* 2 (2011): 76-99.

[23] "Watchman and Reflector for 1857," *Watchman-Examiner*, 20 November 1856.

[24] According to Elizabeth Baker's estimates, 3,170 man hours were required for 10,000 copies of a magazine in 1852, with a labor cost of $302.50. By 1896 it took 14 hours, 56 minutes, with the labor valued at $4.63. Data are unreliable for the period before 1850, but technological improvements in that period likely produced a similar story. Cited by Ronald J. Zobay in "Technology and the Character of Community Life in Antebellum America: The Role of Story Papers," in Leonard I. Sweet, ed., *Communication and Change in American Religious History* (Grand Rapids, MI: William B. Eerdmans, 1993), 196-7 note 42.

[25] *Western Methodist*, 22 November 1833, quoted in James Penn Pilkington and Walter N Vernon, *The Methodist Publishing House: a History* (Nashville: Abingdon Press, 1968), 243. Evangelicals led the way in publishing for the masses in early nineteenth-century Britain, as well; see Aileen Fyfe, *Science and Salvation: Evangelical Popular Science Publishing in Victorian Britain* (Chicago: University of Chicago Press, 2004), 10.

[26] Mark Noll has assembled compelling illustrations of the significance of evangelical Protestantism in mid-nineteenth-century American culture in his *The Civil War as a Theological Crisis* (Chapel Hill: University of North Carolina Press, 2006), 12-14.

[27] See Adrian J. Desmond, *The Politics of Evolution: Morphology, Medicine, and Reform in Radical London* (Chicago: University of Chicago Press, 1989); Roger Cooter and Stephen Pumfrey, "Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture," *History of Science* 32 (1994): 237-67; Jonathan R. Topham "Beyond the 'Common Context': The Production and Reading of the Bridgewater Treatises," *Isis* 89 (1998): 233-262; James A. Secord, *Victorian Sensation: the Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation* (Chicago: University of Chicago Press, 2000); G. N. Cantor and Sally

Shuttleworth, *Science Serialized: Representation of the Sciences In Nineteenth-century Periodicals* (Cambridge, Mass.: MIT Press, 2004); Aileen Fyfe, *Science and Salvation: Evangelical Popular Science Publishing In Victorian Britain* (Chicago: University of Chicago Press, 2004); G. N. Cantor, *Science In the Nineteenth-century Periodical: Reading the Magazine of Nature* (Cambridge: Cambridge University Press, 2004); Bernard V. Lightman, *Victorian Popularizers of Science: Designing Nature for New Audience* (Chicago: University of Chicago Press, 2007); Aileen Fyfe and Bernard V. Lightman, *Science In the Marketplace: Nineteenth-century Sites and Experiences* (Chicago: University of Chicago Press, 2007); Ronald L. Numbers, "Science and Christianity among the People: A Vulgar History," in *Science and Christianity in Pulpit and Pew* (Oxford: Oxford University Press, 2007), 11-37; and Jonathan R. Topham, "Science, Religion, and the History of the Book," in Thomas Dixon, Geoffrey Cantor, and Stephen Pumfrey, eds., *Science and Religion: New Historical Perspectives* (Cambridge: Cambridge University Press, 2010).

[28] Nathan O. Hatch, "Elias Smith and the Rise of Religious Journalism in the Early Republic," in *Printing and Society in Early America*, ed. William L. Joyce, David D. Hall, Richard D. Brown and John B. Hench (Worcester, MA: American Antiquarian Society, 1983), 251.

[29] Mark Noll, "The Evangelical Enlightenment and the Task of Theological Education," in Sweet, 270.

[30] Hatch, "Elias Smith," 250.

[31] Charles H. Lippy, *Being Religious American Style: A History of Popular Religiosity in the United States* (Westport, CT: Greenwood Press, 1994), 94; Gaylord P. Albaugh, *History and Annotated Bibliography of American Religious Periodicals and Newspapers Established from 1730 through 1830* (Worcester: American Antiquarian Society, 1994), 1: xi.

[32] "The Religious Press," *North Carolina Presbyterian*, 3 September 1873, citing statistics from Geo P. Powell and Co's *American Newspaper Directory.*

[33] Louise Henson, et al., eds. *Culture and Science in the Nineteenth-Century Media* (Aldershot, U. K: Ashgate Publishing, 2004), xii (more people). The number 125,000 comes from John North's *Waterloo Directory of English Newspapers and Periodicals, 1800-1900,* cited in Henson, xix.

[34] Those that survived are predominantly Baptist, and include the *Biblical Recorder*, which now lives online at www.biblicalrecorder.org, the *Religious Herald*, at www.religiousherald.org, and the *Christian Index*, at www.christianindex.org.

[35] Frank. A Mott, *History of American* Magazines, 1741-1850, 4 vols. (Cambridge, Massachusetts: Harvard University Press, 1966), 2:61.

[36] The phrase appears on the banner of the *Puritan Recorder*'s 1857 issues. This prominent Congregationalist weekly changed names several times. During the period studied here it was the *Boston Record* until 11 May 1849, then the *Puritan Recorder* from 17 May 1849 until 13 May 1858, when it returned to the title *Boston Recorder*. In 1867 it merged with the *Congregationalist*, forming the *Congregationalist and Boston Recorder*. In 1870, the two titles were again published separately.

[37] Wesley Norton, *Religious Newspapers of the Old Northwest to 1861: A History, Bibliography, and Record of Opinion* (Athens: Ohio University Press, 1977), 9 and 16; Henry Smith Stroupe, *The Religious Press in the South Atlantic States, 1802-1865: An Annotated Bibliography with Historical Introduction and Notes* (Durham, S.C.: Duke University Press, 1956), 25; Pilkington and Vernon, *Methodist Publishing House*.

[38] Zobay, 198-199.

[39] "Religious Newspaper Business," *Lutheran Observer*, 23 July 1858.

[40] "Religious Newspapers," *Southern Churchman*, 7 April 1848.

[41] A sampling of articles complaining about unpaid subscriptions include: "Report on Periodicals," *Western Christian Advocate*, 11 October 1839; Rev. Dr. Nevins, "Do You Pay for a Religious Newspaper?" *Christian Intelligencer*, 30 November 1839, copied in the *Western Christian Advocate*, 26 June 1840; "Payment for Religious Newspapers," *Biblical Recorder*, 10 January 1856; "Religious Periodicals," *Lutheran Observer*, 24 February 1843; E., "Wonders on Wonders: If We Are to Believe

Every Thing," *Southern Christian Advocate*, 24 December 1841; "Support of the Religious Press," *Southern Christian Advocate*, 25 November 1842; and "Commencement of a New Volume," *Southern Churchman*, 21 January 1842.

[42] "Religious Periodicals," *Watchman-Examiner*, 22 December 1843, and "The Watchman and Reflector," 6 December 1849.

[43] "Religious Newspapers," *Lutheran Observer*, 7 January 1842, crediting the "Chas. Obs."; see also "Newspaper Subscribers," *Trumpet & Universalist*, 2 March 1850, credited to the *Prairie Farmer* and repeated in *Lutheran Observer*, 14 September 1855.

[44] "Religious Periodicals," *Boston Recorder*, 3 July 1840.

[45] "Support of the Religious Press," *Religious Herald*, 10 January 1850. Other examples include, J. Brewster, "Claims of the Western Christian Advocate," *Western Christian Advocate*, 7 August 1840; "The Religious Paper in the Family," *Christian Advocate and Journal*, 16 April, 1857; "The Evangelist," *New York Evangelist*, Oct. 15, 1868; and "The Religious Newspaper," *Trumpet and Universalist*, 9 July 1864.

[46] "A Proposal," *Lutheran Observer*, 1 May 1840.

[47] Robert H. Krapohl in *Popular Religious Magazines of the United States*, ed. P. Mark Fackler and Charles H. Lippy (Westport, CT: Greenwood Press, 1995), 101 (quotation); Nathan O. Hatch, *The Democratization of American Christianity* (New Haven, CT: Yale University Press, 1989, 141 (*American National Preacher*); Hatch, "Elias Smith," 250 (15,000); and "Report on Periodicals," *Western Christian Advocate*, 11 October 1839.

[48] See Albaugh, *History*, I: xi-xvi, and Norton, *Religious Newspapers*, ch. 1.

[49] "The Religious Newspaper as an Auxiliary to the Pastor," *Christian Intelligencer*, 19 August 1843, and "Why I Take a Religious Newspaper," *Trumpet and Universalist*, 7 May 1864 (readership higher); Albaugh, I, xiv-xv (loitering). See also, Rev. Dr. Nevins "Do You Pay for a Religious Paper?" *Christian Intelligencer*, 30 November 1839, rerun on 29 June 1844, and copied in the *Western Christian* Advocate, 26 June 1840; "Religious Periodicals," *Boston Recorder*, 3 July 1840; "The Religious

Newspaper as an Auxiliary to the Pastor," 3 July 1840; *Christian Intelligencer*, 19 August 1843; and "Religious Newspapers," *Christian Intelligencer*, 13 March 1845.

[50] On Smith's publishing see Hatch, "Elias Smith," 256-277.

[51] Fackler and Lippy, 312-313.

[52] "The Church and the Newspaper, "*New York Evangelist*, 26 May 1870.

[53] Hatch, *Democratization.*

[54] Richard D. Brown, *Knowledge is Power: The Diffusion of Information in Early America, 1700-1865* (New York: Oxford University Press, 1989), ch. 9.

[55] "Our Cheap Literature," *Christian Intelligencer*, 25 May 1848.

[56] "Novels and Insanity," *Christian Intelligencer*, 19 October 1848; "Novel Reading Dangerous," *Raleigh Christian Advocate*, 15 October 1857; "Novel Reading," *Southern Christian Advocate*, 28 April 1843. On novel reading and insanity, see Ronald L. Numbers, *Prophetess of Health: A Study of Ellen G. White*, 3rd ed. (Grand Rapids, Michigan: Eerdmans, 2008), 272. On criticism of novels among non-religious Americans, see Brown, *Knowledge is Power*, 223.

[57] "Religious Periodicals," *Boston Recorder*, 3 July 1840.

[58] "Religious Newspapers," *Lutheran Observer*, 19 July 1855.

[59] "Religious Newspapers," *Biblical Recorder*, 16 December 1843.

[60] See above, note 12.

[61] "The Religious Newspaper," *Biblical Recorder*, 19 April 1851.

[62] "The Power of the Religious Press on Moral Subjects," *Puritan Recorder*, 18 November 1842.

[63] "Why a Man Should Take a Religious Newspaper," *Biblical Recorder*, 25 February 1853.

[64] "Evils of the Cheap Press," *Boston Recorder*, 11 July 1844. See also "Religious Newspapers," *Lutheran Observer*, 19 July 1855; and "The Periodical Press," 4 February 1853.

[65] "Our Religious Papers," *Trumpet & Universalist*, 8 July 1848.

[66] See Fyfe, *Science and Salvation*, for parallels.

[67] "The Religious Newspaper," *Trumpet & Universalist*, 9 March 1844.

[68] "Shall a Newspaper be Payed For?" *New York Evangelist*, 12 March 1868.

[69] "The Religious Newspaper," *South-Western Presbyterian***,** 9 March 1876.

[70] "The Church and the Newspaper," *New York Evangelist*, May 26, 1870.

[71] "Religious Newspapers," *Lutheran Observer*, 8 December 1843.

[72] See, for example, the essays by Barbara Gates, Bernard Lightman, Ann Shteir, Douglas Lorimer, and Paul Fayter in Bernard Lightman, ed., *Victorian Science in Context* (Chicago: University of Chicago Press, 1997).

[73] Ronald L. Numbers discusses the metaphor of the two books in "Reading the Book of Nature through American Lenses," ch. 3 of his *Science and Christianity in Pulpit and Pew*. A small selection of the countless articles from some of the major religious weeklies that celebrate the harmony of science and religion and/or deploy the metaphor of God's revelation in two books, scripture and nature, includes, from the *Biblical Recorder*: "The Bible and Science," 27 August 1857, and "Physiology and the Sabbath," 5 August 1858; from the *Congregationalist*: Charles C. Coffin, "The Testimony of the Stars," 6, 13, 30, 27 January, 3, 10, 17, 24 February, 2, 9, 16, 23, 30 March 1860; from the *Christian Advocate and Journal*: "Creative Thoughts on the Mosaic Account," 20 May 1846; Rev. Dr. Rice, "Science, Revelation, and Preaching," July 3 1856; review of *Genesis; or, the First Book of Moses*, by John Peter Lange, 4 June 1868; Rev. J. B. Sylvester, "The Geologist's Hammer," 15 September 1872; from the *Southern Christian Advocate*: "Religion and Science," 29 May 1840; "Future Changes of the Earth," 24 November 1848; "Christianity and Science," 26 December 1851; "Science and Theology—Their Harmony," 2 June 1854; "Miscellany: The Astronomy of Job," 4 March 1870; from the *Western Christian Advocate*: "Moses and Antiquity Consistent,"14 May 1841; from the *Christian Index*: "Revelation and True Philosophy Harmonized," 23 May 1850. A sampling of articles invoking the immensity of the universe from only the most prominent religious weeklies includes: "The Fixed Stars," *Western Christian Advocate*, 19 June 1840; "Infinity of Space," *Southern Christian Advocate*, 4 April 1845; William Wirt, "The Grandeur of Astronomical Discoveries," *Western Christian Advocate*, 3 September 1841, and *Biblical Recorder*, 30 October 1841; "The Comet," *Southern Christian Advocate*, 31 March 1843; "Immensity of Space," *New*

York Evangelist, 6 February 1845; "The Teachings of Astronomy," *Biblical Recorder*, 17 April 1847; from the *Lutheran Observer*: "The Sabbath and Man—Physical, Mental, Moral," 26 June 1840; "The Bible and Science: Lecture of J. E. Teschemancher, Esq., before the Harvard Natural History Society," 3 August 1849; "Conflagration of the Globe," 25 April 1851; "Science and Religion," 15 October 1852; "Science and the Bible," 3 June 1859; "The Bible and Geology," 23 August 1861; "Moses and Geology," 27 March 1863; "The Two Books,"6 January 1865; Rev. Henry S. Osborne, "Science and Religion: The Theology of Science," 18 January 1867; from the *New York Evangelist*: "Science and the Bible Agree," 23 January 1845; "The Siderial (*sic*) Heavens," 20 February 1845; "Science and Scripture," 27 January 1853; "Science and the Bible,"12 May 1859; "The Conflagration of the World a Scientific Possibility," 28 April 1864; from the *New York Observer*, "Science and Scripture," 4 March 1843; "Agassiz' Last Lecture," 3 April 1861; from the *Southern Churchman*: "Science and Religion," 9 August 1844; and "Harmony of Revelation with Nature and Science,"14 April 1848.

[74] For example, the *Lutheran Observer* began a "Science" column in 1840, but it was not regular, while the *Christian Advocate and Journal* had a regular column on "Literature and Science" from 1846. The *Southern Christian Advocate* had infrequent columns that included science from 1849. The 1850s saw the beginning of regular columns that included science in the *Zion's Herald* and the *Watchman-Examiner*. Other papers developed more consistent science reporting of this type in the 1860s and 1870s, including the *Biblical Recorder*, the *Trumpet and Universalist*, and the *National Baptist*.

[75] The Rev. Jay Dana, "Geology," *Congregationalist*, 1, 15, 22, 29 January, 12, 19, 26 February, 12, 19, March, 2, 16, 23, April, 7, 21, 28 May, 11, 18, June, 2, 16, 23, 30 July, 6, 13, 20 August 1858.

[76] Charles C. Coffin, "The Testimony of the Stars," *Congregationalist*, 13, 30, 27 January, 3, 10, 17, 24 February, 2, 9, 16, 23, 30 March 1860.

[77] "Hints and Selections on Geology," *New York Evangelist*, 24 November, 1, 8, 15 December 1842, 5 January 1843.

[78] "Natural History," *Christian Secretary*, seventeen installments running from September 1839 to late January of 1840.

[79] *Raleigh Christian Advocate* 26 February, 5, 19, 26 March, 2, 9, 16, 30 April 14, 21, 28 May 11, 18 June 1873.

[80] L. D. Williams, "The Nebular Hypothesis," *Western Christian Advocate*, 28 July, 4, 11, 18 August, and 15 September 1858. This first installment had "Theory" instead of "Hypothesis" in the title.

[81] "Geological Cabinet," *Western Christian Advocate*, 1 January 1841. The paper is vague on the authorship of this piece, which is mostly a description of twenty five minerals recommended for a beginner's cabinet. It is prefaced by a note from the editor that a Mr. Holbrook sent the specimens described in the piece, loosely implying that he was the author. The article ends with a note that beginner's cabinets are available for one dollar from the Rev. Sheldon. Sheldon's own series is: "Scientific Exchanges," 23 October 1840; "Scientific Exchanges—Family Cabinets., No. II," 25 December 1840; "Scientific Exchanges—Family Cabinets.—No. III," 12 February 1841; and "Scientific Exchanges—Family Cabinets.—No. IV," 2 April 1841.

[82] "The Study of Geology," *New York Observer*, Apr. 9, 1842. See also "Family Cabinets Scientific Exchanges," *Southern Churchman*, 24 June 1841.

[83] Amicus, "Natural History No. 2," *Christian Secretary*, 20 September 1839.

[84] "Our Wonderous Atmosphere," *Biblical Recorder*, 9 December 1848, repeated on 14 July 1849 and appeared as "The Atmosphere," in the *Christian Advocate and Journal*, 17 May 1849, and the *North Carolina Presbyterian*, 8 January 1873, as "Wonders of the Atmosphere," in the *Lutheran Observer*, 23 January 1863 and 19 April 1867, and no less than three times in four months, under various of the above titles, in the *Trumpet & Universalist*, 30 December 1848, 16 March 1850, and 27 April 1850. It was extracted from a *London Quarterly Review* article.

[85] Articles addressing religious infidelity, especially the work of Renan and Strauss include: "German Rationalists," *Watchman-Examiner*, 5 June 1851; "Science and Theology," *New York Evangelist*, 8 January 1852; "The Latest Ruse of Modern Infidelity (Concluded)," *Southern Churchman*, 21 April 1853; "Natural Improbability of Strauss' Hypothesis of Our Lord's History," *Southern Churchman*, 20 September 1855; "Renan's Life of Jesus," *New York Evangelist*, 15 December 1863; "Modern Infidelity,"

Western Christian Advocate, 20 July 1864; "Mr. Renan's New Publication," *New York Observer*, 31 May 31, 1866; "Renan's Life of the Apostle's," *New York Observer*, July 19, 1866; "Buffalo Convocation," *Churchman*, 29 June 1867; "Modern Civilization," *Christian Advocate and Journal*, 24 October 1867; "Science, Philosophy, and Religion," *New York Evangelist*, 26 May 1871; "Strauss's 'Old and New Faith,'" *Churchman*, 28 December 1872; Y., "Modern Skepticism," *Churchman*, 18 October 1873; "Scientific Bigotry," *Raleigh Christian Advocate*, 19 November 1873; "Infidelity Irrational," *Raleigh Christian Advocate*, 8 January 1874; "Strauss, and the Lesson of His Life," *Christian Advocate and Journal*, 26 February 1874. The *New York Evangelist*, in particular, published a barrage of articles on *Essays and Reviews* and the trial of its authors: "Rationalism in the Church of England," *New York Evangelist*, 7 March 1861; "Oxford 'Essays and Reviews,'" *New York Evangelist*, 18 April 1861; "The 'Essays and Reviews,'" *New York Evangelist*, 15 August 1861; "Essays and Reviews," *New York Evangelist*, 3 March 1864 (and an update on the trail later in that issue). Reactions in other American weeklies include: "The Essays and Reviews," *Congregationalist*, 15 February 1861; "Essays and Reviews," *Christian Advocate and Journal*, 21 March 1861 "Essays and Reviews," *Southern Churchman*, 6 March 1863; "Is Christianity to be Modernized?" *South-Western Presbyterian*, 3 July 1873. Reports on Colenso include: "Letter to Bishop Colenso," *New York Evangelist*, 8 January 1863; "Bishop Colenso's Book," *Western Christian Advocate*, 21 January 1863; "Colenso on the Pentateuch," *Lutheran Observer*, 13 February 1863; "Colenso," *Christian Intelligencer*, 19 March 1863; "Infidelity in the Church of England," *Biblical Recorder*, 1 April 1863; "Colenso on the Pentateuch," *Christian Recorder*, 16 April 1863; "Skepticism Cured," *Christian Advocate and Journal*, 28 May 1863; Albion, "Letter from England," *Zion's Herald and Wesleyan Journal*, 17 February 1864, online http://search.proquest.com.ezproxy.library.wisc.edu/docview/127314079?accountid=465 (accessed July 16, 2008); "The Colenso Case," *New York Evangelist*, 20 October 1864; "Bishop Colenso a Universalist," *New York Observer*, 15 June 1865.

[86] Examples from traditions other than traditional Protestantism include: "Infidelity---opposites to Christianity," *Trumpet & Universalist*, 28 May 1842; "Infidelity," *Unitarian Register*, 6 August 1842; "The

Young Infidel," *Unitarian Register*, 14 November 1846; "Infidelity Overcome," *Trumpet & Universalist*, 21 April 1849; "Infidelity Valueless," *Trumpet & Universalist*, 2 March 1850; "The Three Sources of Infidelity," *Catholic Mirror*, 10, 17, and 24 August 1850; and "The Mask of French Atheism," *Catholic Mirror*, 11 March 1855; "Essays and Reviews," *The Israelite*, 16 August 1861; "Essays and Reviews," *The Israelite*, 20, 27 February, 6 March 1863; "Bishop Colenso," *Catholic Mirror*, 9 May 1863; "The Colenso Controversy," *The Jewish Messenger*, 17 July 1863; Rev. Henry Jewell, "Christianity—Renan," *Trumpet & Universalist*, 24 December 1864; "The Protestant and Catholic View of Biblical Inspiration Applied to Colenso's Work against the Pentateuch and Book of Josue," *Catholic Mirror*, 18 March 1865; "Dr. McCosh on Renan," *Trumpet & Universalist*, 18 March 1871.

[87] "Modern Infidelity," *Southern Christian Advocate*, 4 August 1854 (quotation). See also Etham, "Infidelity in Disguise, "*Biblical Recorder*, 18 February 1843; "Modern Infidelity," *Christian Intelligencer*, 28 September 1854; "The Infidelity of Our Times," *Biblical Recorder*, 19 May 1859; "The Delusion of Infidelity," *Biblical Recorder*, 19 March 1862; "To a Country Fireside," *New York Evangelist*, 1 January, 1863; "Modern Civilization—Its Results," *Christian Advocate and Journal*, 24 October 1867; "Science, Philosophy, and Religion," *New York Evangelist*, 26 May 1871; Auriga, "The Prospects of Infidelity," *South-Western Presbyterian*¸ 6 July 1871; "Modern Infidelity," *New York Evangelist*, 7 December 1871; review of *Modern Skepticism*¸ by A. D. F. Randoph, *Christian Index*, 22 August 1872; Amzi, "Science and Religion—No. 1, " *Biblical Recorder*, 29 January 1879.

[88] Articles identifying Paine and Voltaire as key infidels include: "The Influence of Infidelity on Individual and National character," *Southern Christian Advocate*, 14 August 1840; "The Dying Deist," *Christian Index*, 17 September 1840; "Modern Unitarianism," *Western Christian Advocate*, 13 August 1841; An Old Disciple, "Modern Infidelity," *Boston Recorder*, 11 March 1842; "Wandering Stars," *New York Evangelist*, 2 January 1845; Rev. J. Kennaday, "Thomas Paine," *Christian Advocate and Journal*, 18 November 1846; "The Infidelity of the Present Time," *Puritan Recorder*, 25 July 1850; "Thomas Paine," *Watchman-Examiner*, 28 August 1851; "Science and Theology," *New York Evangelist*, 8 January 1852; "Voltaires' Sneer at Sir. I. Newton," *New York Evangelist*, 27 October 1853; "Paine, the infidel," *Southern*

Christian Advocate, 29 January 1857; C. H. S. D., "Science and the Bible," *Christian Intelligencer*, 18 January 1866. On Paine's birthday celebrations see "Thomas Paine," *Lutheran Observer*, 26 April 1844; "Thomas Paine," *Southern Churchman*, 17 May 1844; "Christianity versus 'The Age of Reason,'" *Catholic Mirror*, 3 March 1855; "Tom Paine Festival," *New York Observer*, 5 February 1857; and Buckeye, "Ingersollism in Cincinnati," *Lutheran Observer*, 13 February 1880.

[89] "Vagaries of Infidelity," *New York Evangelist*, 24 April 1845 (quotation). Other articles on *Vestiges* in the religious press include "North British Review of the 'Vestiges of Creation,'" *New York Evangelist*, 11 September 1845; B. Hawley, "The Nebular Hypothesis Stated and Examined," *Christian Advocate and Journal*, 17 December, 1845; "The 'Nebular Theory,"' *Southern Christian Advocate*, 24 November 1848; and "Professor Agassiz on the 'Vestiges of Creation,'" *Southern Churchman*, 21 December 1848. James Secord's *Victorian Sensation* has shown that, in spite of opposition by authoritative men of science, *Vestiges* was widely read in England but also that readers understood it in a variety of ways. The complexity of its reception in America has not been studied, and the American religious weeklies mimicked the authorities in Britain.

[90] "Science Confirming the Bible," *New York Evangelist*, May 20, 1852.

[91] "The Transparencies of Nature," *Christian Advocate and Journal*, 1 January 1874.

[92] David Brewster, *The Life of Sir Isaac Newton* (London: J. Murray, 1831). Simon Schaffer briefly describes the nineteenth-century debates over the religious value of Newton's life and achievement that occasioned Brewster's emphasis on the "transcendent genius and inimitable heroism" of the master scientist," in his essay on "Newtonianism" in R. C. Olby, et al, eds, *Companion to the History of Modern Science* (London: Routledge, 1990), 610-626; the quotation is from p. 623.

[93] "Superficial Infidels," *Lutheran Observer*, 19 March 1841. It also appeared in the *Boston Recorder*, 30 December 1842, the *Biblical Recorder*, 28 January 1843, and again in the *Boston Recorder*, 25 February 1848. Other articles celebrating the achievements and piety of men of science include: "The Devoted Man of Science," *Southern Churchman*, 2 November 1848; "Science and Christianity," *Southern Christian Advocate*, 3 November 1848; "Religious Character of Lord Bacon," *Lutheran Observer*, 17 May

1850; "Revelation and True Philosophy Harmonized," *Christian Index,* 23 May 1850; "Science and Theology," *New York Evangelist,* 8 January 1852; "The Bible and Newton," *New York Observer*, 21 February 1856; review of *Religious Truth Illustrated from Science,* by Edward Hitchcock, *New York Evangelist,* 1 January 1857; "Hugh Miller's Last Book," *New York Evangelist,* 14 May 1857; "A Significant Fact," *New York Evangelist,* Mar. 27, 1862; "Our Scientific and Literary Reviews," *New York Evangelist* 25 February 1864; "Death of Prof. Hitchcock," *New York Evangelist,* 3 March 1864; "Michael Faraday," *New York Evangelist*, 30 July 1868; review of *Sketches of Creation,* by Alexander Winchell, *New York Evangelist,* 5 May 1870.

[94] "Religious Belief of Humboldt," *New York Evangelist,* 14 October 1869. Most religious writers faced up to the evidence that the great man was not their spiritual brother: "The Humboldt Centennial," *Christian Advocate and Journal*, 24 June 1869; "The Humboldt Celebration," *Christian Advocate and Journal,* 23 September 1869; Phillip Schaff, "Sketches of German Universities," *New York Evangelist,* 15 and 29 January 1857; while a writer in the *Christian Intelligencer* found the Baron offensively irreligious, "Humboldt," 7 June 1860.

[95] "Science and Christianity," *Southern Christian Advocate,* 3 November 1848, taken from the *Witness*. Likely this was the Scottish geologist Hugh Miller, who edited the *Witness,* a religious newspaper that represented the interests of the Scottish Free Church, but such bibliographic notes in the religious press are often unclear.

[96] Theodore Dwight Bozeman, *Protestants in an Age of Science: the Baconian Ideal and Ante-bellum American Religious Thought* (Chapel Hill: University of North Carolina Press, 1977).

[97] "Science Correcting Its Own Errors," *New York Evangelist,* 26 July, 1860. See also "Geology and Revelation," *New York Evangelist,* 8 April 1869.

[98] "Religion of Geology," *New York Evangelist,* 18 August 1853.

[99] "The Bible and Newton," *New York Evangelist,* 21 February 1856.

[100] "Science and Revelation," *Lutheran Observer*, 19 August 1864. On the reception of the nebular hypothesis in America, see Ronald L. Numbers, *Creation by Natural Law: Laplace's Nebular Hypothesis in American Thought* (Seattle: University of Washington Press, 1977).

[101] "Natural Theology in Schools," *Boston Recorder*, 12 June 1840. See also, Edward Everett, "Kindred between Geology and Religion," *Watchman-Examiner*, 17 September 1841; Thomas Smyth, "Latest views of Professor Agassiz, and his theory tested," *Southern Christian Advocate*, 10 May 1850; "Galileo and his Daughter," *Biblical Recorder*, 11 September 1861; "The Faithfulness of God," *New York Evangelist*, 2 November 1865; and "Astronomy and Religion," *New York Evangelist*, 14 January 1869. However, a Connecticut pastor rejected the claim, "Astronomy and Religion," *New York Evangelist*, 14 January 1869.

[102] Review of *Outline of the Geology of the Globe*, by Edward Hitchcock, *Christian Advocate and Journal*, 23 February 1854.

[103] Y-N-R, "Study Nature," *Boston Recorder*, 25 September 1840.

[104] Examples of the use of this argument include: Y-N-R, "Science and the Bible," *Boston Recorder*, 25 September 1840; review of *Outline of the Geology of the Globe*, Edward Hitchcock, *Christian Advocate and Journal*, 23 February 1854; Rev. Dr. Rice, "Science, Revelation, and Preaching," *Christian Advocate and Journal*, 3 July 1856; and "Geology and Revelation," *New York Evangelist*, 8 April 1869.

[105] On "scriptural geology" see Rodney Stiling, "Scriptural Geology in America," in David N. Livingstone, D. G. Hart, and Mark A. Noll, eds. (New York: Oxford University Press, 1999), 177-192, and Richard Tison, "Lords of Creation: American Scriptural Geology and the Lord Brothers' Assault on 'Intellectual Atheism'" (Ph.D. diss, University of Oklahoma, 2008).

[106] The Reviewer, "Genesis and Geology," *Christian Observer*, 28 August 1852.

[107] Senex, "Theoretical Geology," *New York Evangelist*, 21 July 1859.

[108] "Geology and the Bible," *New York Evangelist*, 21 July 1859.

[109] "Thoughts on the First Chapter of Genesis Reviewed: Number I," *Western Christian Advocate*, 2 January 1850; "The Mosaic Account of Creation," *Watchman-Examiner*, 1 January 1852. See also, H., "Geology and Revelation," *Watchman-Examiner*, 10 July 1851; K, "Religion and Science," *Puritan Recorder*, 25 February 1853; "The Six Days of Creation," *New York Observer*, 1 and 15 November 1855; Sophmore, "Tohu and Bohu, in the last Quarterly Review," *Nashville Christian Advocate*, 17 November 1859; review of *Answer to Hugh Miller and Theoretical Geologists*, by Thomas Davies, *New York Evangelist*, 23 February 1860; and "Is the Bible Behind the Times," *Congregationalist*, 28 December 1860.

[110] "Hugh Miller," *Lutheran Observer*, 6 February 1857; and "Death of Hugh Miller," *Christian Advocate and Journal*, 22 January 1857.

[111] "Progress of American Science," *New York Evangelist*, 4 June 1857.

[112] Gail Hamilton (possibly Mary Abigail Dodge, who published under this pseudonym), "Natural Religion," *Puritan Recorder*, 6 April 1860. See also Rev. Dr. Rice, "Science, Revelation, and Preaching," *Christian Advocate and Journal*, July 3, 1856.

[113] "The Bible and Science," *Lutheran Observer*, 11 August 1871 (copied from the *Christian Advocate and Journal*); and "Theology and Science," *Lutheran Observer*, 29 November 1872. A sampling of overtly pro-science views expressed in the religious weeklies includes: "Scientific Exchanges," *Western Christian Advocate*, 23 October 1840; "The Bible and Geology," *New York Evangelist*, 25 September 1845; "Religious Tendencies of Modern Science," *Southern Christian Advocate*, 29 October 1847; "Science and Christianity," *Southern Christian Advocate*, 3 November 1848; "The Bible and Science: Lecture of J. E. Teschemancher, Esq., before the Harvard Natural History Society," *Lutheran Observer*, 3 August 1849; "Science and Revelation," *New York Evangelist* , 25 April 1850; "Science and Scripture," *New York Evangelist*, 26 June 1851; "Science and Theology," *New York Evangelist*, 8 January 1852; K, "Religion and Science," *Puritan Recorder*, 25 February 1853; "Objections to Christianity from the Study of Natural Science," *Lutheran Observer*, 28 March 1856; review of "*Cassel's Natural History*," *Lutheran Observer*, 11 May 1860; "Religion of Geology," *New York Evangelist*, 17 January 1861; "Man's Folly versus God's Wisdom," *Christian Advocate and Journal*, 1 February 1866; "Science and Religion: The Theology of

Science," *Lutheran Observer*, 18 January 1867; "Christianity and True Science," *Lutheran Observer*, 19 August 1870; and "Theology and Science," *Lutheran Observer*, 29 November 1872.

[114] Psalm 19:1.

[115] "Natural Theology: Air, Light, Water," *Lutheran Observer*, 20 March 1868 (atmosphere); and "The Aurora Borealis," *Southern Churchman*, 17 September 1847.

[116] See, for example, "The Mechanism of the Eye," *Southern Churchman*, 6 November 1846, and "Creative Wisdom Displayed in the Human Eye," *Biblical Recorder*, 5 August 1848. The *Biblical Recorder* extracted this piece from the writings of Thomas Dick, one of the most popular harmonizers of science and religion in the early nineteenth century. It is striking that a later editor ran exactly the same piece eighteen years later in the issue for 19 December 1866.

[117] "Nature and Religion," *New York Evangelist*, 15 March 1855; "God's Plan in Geography," *Lutheran* Observer, 10 May 1861 (geography); "Microscopic Wonders," *Southern Churchman*, 4 February 1848 (bees and silkworms); "God's Wonders in Creation," *New York Evangelist*, 19 September 1861 (webs and globules); "A Bit of Natural History," *Congregationalist*, 8 July 1869 (platypus); "Evidence of Design in Sea and Air," *New York Evangelist*, 15 March 1855; "Science and the Bible," *Southern Christian Advocate*, 30 June 1854; and "The Grandeur of Creation," *Biblical Recorder*, 2 March 1860 (solar system).

[118] "Nature and Science: The Power of God in the Energies of Nature," *Lutheran Observer*, 26 August 1864.

[119] "The Grandeur of Creation," *Biblical Recorder*, 2 March 1860. A sampling of the many articles expressing the argument from design and nature as evidence of God's existence and action include: "The Goodness and Wisdom of God in Creation," *Western Christian Advocate*, 29 November 1839; "The Order Manifest in the Arrangement on Creation," *Boston Recorder*, 4 September 1841; "Law of God Visible in Nature," *Lutheran Observer*, 27 August 1847; "God Revealed in His Works," *Lutheran Observer*, 6 May 1853; "Natural Evidences of the Truth of Revealed Religion," *Lutheran Observer*, 11 March 1859; Charles C. Coffin, "The Testimony of the Stars: Introduction," *Congregationalist*, *6* January 1860; "The Atheist's Walk," *Congregationalist*, 5 October 1860; "Agassiz on the Existence of God,"

Lutheran Observer, 22 August 1862; "The Works of Nature Considered as a Source Whence We may Derive a Knowledge of God," *Lutheran Observer*, 26 June 1863; review of *Science and the Bible*, by Herbert W. Morris, *Southern Christian Advocate*, 19 April 1871; and "The Attributes of Deity Deduced from Astronomy," *Boston Recorder*, 17 June 1874.

[120] The following is a sampling of newspaper articles claiming scientific support for specific doctrines. Sabbath: "The Sabbath and Man—Physical, Mental, Moral," *Lutheran Observer*, 26 June 1840; "Physical Necessity of the Sabbath," *Southern Christian Advocate*, 29 October 1841; "The Sabbath the Law of Nature," *Southern Churchman*, 30 October 1846; "Physiology and the Sabbath," *New York Evangelist*, 6 May 1858; and "Physiology and the Sabbath," *Biblical Recorder*, 5 August 1858. Resurrection: "The Resurrection and Chemistry," *New York Evangelist*, 2 March 1865. Fiery end of the world: "Conflagration of the Globe," *Lutheran Observer*, 25 April 1851; "Insignificance of this earth," *New York Evangelist*, 25 May 1854; "Quarterly Review—Professor Cobleigh's Article," *Christian Advocate and Journal*, 15 October 1857; and "The Conflagration of the World a Scientific Possibility," *New York Evangelist*, 28 April 1864. The flood: Wayne, "Antediluvian Mountains," *New York Evangelist*, 30 July 1857. The divine inspiration of the Bible: "Science and the Bible Agree," New *York Evangelist*, 23 January 1845; "Science Confirming the Bible," *New York Evangelist*, 20 May 1852; and "Science and the bible," *New York Evangelist*, 22 September 1853.

[121] "The Siderial (sic) Heavens," *New York Evangelist*, 20 February 1845, (animaculae and of stars); "The Telescope and the Microscope," *New York Evangelist*, 18 March 1847; and "Minuteness of Creation," *South-Western Presbyterian*, 5 January 1871.

[122] "Immensity of the Universe," *Christian Advocate and Journal*, 24 December 1857.

[123] The awe-evoking wonder of the magnitude of the universe was one of the most common tropes for writers using modern science for doxological purposes. A sampling of articles invoking the immensity of the universe from only the most prominent religious weeklies includes: "The Fixed Stars," *Western Christian Advocate*, 19 June 1840; "Infinity of Space," *Southern Christian Advocate*, 4 April 1845; William Wirt, "The Grandeur of Astronomical Discoveries," in both the *Western Christian Advocate*, 3

September 1841 and the *Biblical Recorder*, 30 October 1841; "The Comet," *Southern Christian Advocate*, 31 March 1843; "Immensity of Space," *New York Evangelist*, 6 February 1845; "The Teachings of Astronomy," *Biblical Recorder*, 17 April 1847; F. N. E., "The Universe," *Christian Advocate and Journal*, 30 August 1855; "Immensity of the Universe," *Christian Advocate and Journal*, 24 December 1857; "Antiquity of the Earth," *Congregationalist*, 17 June 1859 (this article notes the parallel of the great scale of geological time); Charles Coffin, "The Siderial (*sic*) Heavens," *Congregationalist*, 10 February 1860; Charles Coffin, "Translation—The Last Problem," *Congregationalist*, 2 March 1860 (these last two pieces were part of a series by Coffin, called "The Testimony of the Stars" which ran in the *Congregationalist* from January through March of 1860); "Science—True and False," *New York Evangelist*, 5 March 1868; "Immensity of the Universe," *New York Evangelist*, 31 March 1870; and "Professor Proctor on Solar and Sidereal Systems," *Christian Advocate and Journal*, 23 April 1874. An emphasis on the size on the universe, and even descriptions of how long it would take a train to traverse such great distances, invoking wonder in the reader were not restricted to religious writers. For example, Robert Ball, one of the most successful of the late-nineteenth century popular science writers, used the train travel comparison in the same manner as the religious weeklies. He slipped away from his evangelical upbringing in his adult years. See Lightman, *Victorian Popularizers*, pp. 400-401, and 408.

[124] "Analogy of Scientific and Moral Truths," *Lutheran Observer*, 2 March 1866. Some religious writers compared prayer to the telegraph: "Wonderful Than the Magnetic Telegraph," *Southern Churchman*, 9 July 1847; "The Celestial Telegraph," *New York Evangelist*, 24 July 1856; and "Moral of the Telegraph," *Southern Christian Advocate*, 21 August 1846.

[125] "The Eye of the Christian, Microscopic and Telescopic," *Lutheran Observer*, 14 May 1852.

[126] "Wandering Stars," *New York Evangelist*, 2 January 1845. Also "Moral Gravitation in Heaven," *Congregationalist*, 8 October 1858, and "Analogy of Scientific and Moral Truths," *Lutheran Observer*, 2 March 1866.

[127] "The Voice of the Comet," *Congregationalist*, 22 October 1858.

[128] "A Solar System without a Sun," *New York Observer*, 9 September 1843. A similar spiritual application of modern astronomy appeared in "Meteoric Religion," *Christian Advocate and Journal*, 5 December 1867.

[129] "Insignificance of This Earth," *New York Evangelist*, 25 May 1854.

[130] "Man's Folly versus God's Wisdom," *Christian Advocate and Journal*, 1 February 1866. See also "Teachings of Nature," *Biblical Recorder*, 17 June 1858.

[131] "Science Preparing the Way for Religion," *Southern Christian Advocate*, 3 September 1841; "Science in Aid of Missions," *Lutheran Observer*, 13 August 1841, and *New York Observer*, 7 August 1841; and "The Microscope," *Trumpet & Universalist*, 11 February 1843. A sampling of other articles on science and missionaries, addressing both its benefit to them and their contributions to it, include "Science and Religion," *New York Observer*, 20 March 1841; "Missions and the Natural Sciences," *New York Evangelist*, Sept. 13, 1849; and "Science and Missions," *Southern Christian* Advocate, 11 February 1848.

[132] William Stanton maintained this illusion by arguing that, even though polygenism was deficient scientifically and morally repulsive, its relative success cannot be used to argue the need for any extra-scientific oversight of the scientific community because science is self-correcting: the scientific community discredited the arguments for plural origins without external influence; see William Stanton, *The Leopard's Spots: Scientific Attitudes toward Race in America, 1815-59* (Chicago: University of Chicago Press, 1960). The moral of *The Leopard's Spots* is that science is an extra-cultural institution that ought to be left to itself—to be self-policing—because, as a generator of truth, it will always purge out any pollution of its product. That thesis includes the argument that the American School of ethnology had little involvement or impact on the politics of the ante-bellum period. This has been challenged by several scholars, notably by Christopher Luse's, "The Offspring of Infidelity: Polygenesis and the Defense of Slavery," Ph.D. dissertation, Emory University, 2008, which argues that American polygenism was both a product of and a contribution to the politics of pro-slavery in the ante-bellum south.

[133] The Garden of Eden story belongs to the second creation narrative of Genesis 2, in which God created "adam" from the dust of the earth and divine breath and then produced gender diversity by creation

of the woman from the "adam." The story in chapter one is more abstract and has no mention of a garden. It has humans created—both male and female—in one instant and emphasizes the relationship of humans to God more than to creation.

[134] Benjamin Braude, "The Sons of Noah and the Construction of Ethnic and Geographical Identities in the Medieval and Early Modern Periods" *William and Mary Quarterly* 44 (1997):103-142, especially p. 123.

[135] The tragic case of Sara Baartman, the "Hottentot Venus," is the most notable case of humans being treated as zoological specimen. Baartman (we do not know her real name), a member of the Khoisan people group of South Africa, was brought to England from South Africa a displayed in both sideshows and scientific venues. Much has been written on Baartman exposing the dehumanizing racism and sexism of her oppressors. For a critical account of this episode and the historiography see Sadiah Qureshi, "Displaying Sarah Baartman, the 'Hottentot Venus,'" *History of Science* (2004): 233-257; and Winthrop D. Jordan, *White over Black: American Attitudes Toward the Negro, 1550-1812* (Chapel Hill: University of North Carolina Press, 1968), 28-29.

[136] Jordan, *White over Black*, 226-9, and ch.XIII.

[137] Prichard, James Cowles, *Researches into the Physical History of Mankind*, 3rd ed., 5 vols. (London: 1836-1847), 15; and Michael C. Carhart, "Polynesia and Polygenism: The Scientific Use of Travel Literature In The Early 19th Century," *History of the Human Sciences* 22 (2009): 58-9.

[138] Braude, "The Sons of Noah," 142-3.

[139] John C. Greene, *The Death of Adam: Evolution and Its Impact on Western Thought* (Ames: Iowa State University Press, 1959), ch. 6. See also Winthrop Jordon's introduction to Samuel S. Smith, *An Essay on the Causes of the Variety of Complexion and Figure in the Human Species*, 2d ed. (New York, 1810; reprint Cambridge, Massachusetts: Harvard University Press, 1965), xxvii-xxviii.

[140] David N. Livingstone, *Adam's Ancestors: Race, Religion and The Politics of Human Origins* (Baltimore: Johns Hopkins University Press, 2008), 6-7.

[141] The complete title of the English translation is *Men Before Adam; or, A Discourse upon the Twelfth, Thirteenth, and Fourteenth Verses of the Fifth Chapter of the Epistle of the Apostle Paul to the Romans, by Which Are Prov'd, That Men Were Created before Adam* (London, 1656). In his *Adam's Ancestors* Livingstone has recovered a host of polygenists, preadamists, and sympathizers, revealing a far greater influence for Peyrere's ideas than been heretofore imagined. Still, it was a minority movement, and not one well-advertised. See also Richard Popkin, "Pre-Adamism in 19th Century American Thought: 'Speculative Biology' and Racism," *Philosophia* 8 (1978): 205-39, and his biography of Peyrére, *Isaac La Peyrére (1596-1676): His Life, Work and Influence* (Leiden: E. J. Brill, 1987); David N. Livingstone, "The Preadamite Theory and the Marriage of Science and Religion," *Transactions of the American Philosophical Society* 82, no. 3, 1992; and Colin Kidd, *The Forging of Races: Race and Scripture in the Protestant Atlantic World, 1600-2000* (Cambridge: Cambridge University Press, 2006), 62-65.

[142] Hannah F. Augstein, *James Cowles Prichard's Anthropology: Remaking the Science of Man in Early Nineteenth-Century Britain*, *Clio Medicus*, 52 (Amsterdam: Editions Rodopi,1999), xiii; and George W. Stocking, Jr., introduction to, James Cowles Prichard, *Researches into the Physical History of Man* (Chicago: University of Chicago Press, 1973), xvii-xviii (a reprint of Prichard's 1813 edition).

[143] Prichard, *Researches*, 3rd ed., 1: 1-6. Significantly, the first publication of the Smithsonian Institution dealt with the mysterious mounds of the Mississippi, Ohio, and other Midwestern valleys, monuments which the authors believed could not have been made by America's native population of their day: Ephraim G Squier and Edwin H. Davis, *Ancient Monuments of the Mississippi Valley*, edited and with an introduction by David J. Meltzer (Washington, D. C.: Smithsonian Institution Press, 1998). Squier, the more prominent of the two authors, leaned toward polygenist views, and the Smithsonian's secretary, Joseph Henry, who did not, frustrated Squier by exercising considerable editorial control of the publication; see Terry A. Barnhart, *Ephraim George Squier and the Development of American Anthropology* (Lincoln, Nebraska: University of Nebraska Press, 2005), ch. 3. Although he was on familiar terms with the members of the ASE, Squier's own interests had more to do with cultural than physical aspects of anthropology, and his later work left the door open to monogenism. According to Barnhart, Squier

believed that "man was morally and mentally everywhere the same and motivated by the same impulses and aspirations," which suggests a similar version of polygenism to Agassiz's: diverse physical origins but a common spiritual nature. Barnhart cautions "that Squier was receptive and even sympathetic to the doctrine of separate origins is undeniable, but he was not so doctrinaire a supporter as to reject the possibility that certain analogies [analogous religious symbols, such as the serpent], if submitted to the proper tests, might indicate connections more or less intimate between the ancient people of the old and new worlds during the remote recesses of the unrecorded past," *Ephraim George Squier*, 197 and 206.

[144] Smith, *Essay*, 84.

[145] Henry Home [Lord Kames], *Sketches of the History of Man*, 2d ed., 4 vols. (Edinburgh, 1778; reprint, Hildesheim: Georg Olms Verlagsbuchhandlung, 1968), 1:3-84, esp. 76-79. George Stocking describes Kames turn from polygenism to the more orthodox story of racial differentiation occurring at the tower of Babel as "rather half-hearted," *Race, Culture, and Evolution*, (Chicago: University of Chicago Press, 1982), 47.

[146] Smith, *Essay*, 2.

[147] Also, he and changed "Man" in the title to "Mankind." The second edition was published in 1826. According to Hannah Augstein, Prichard did this to stress "that it was man as a biological species he was dealing with," *Prichard's Anthropology*, 61.

[148] Smith, *Essay*, 23-93; quotation, 71.

[149] Jordan, *White over Black*, 516 (Ramsay), and 533-4 (Caldwell).

[150] Smith, *Essay*, 8-9.

[151] Smith, *Essay*, 22 (quotation), 71-72, 89-90, 155, 184-185, and passim. I am grateful to David N. Livingstone for pointing out the political dimension of Smith's work. Mark Noll has examined the political context of Smith's work in great detail in *Princeton and the Republic, 1768-1822: The Search for A Christian Enlightenment in the Era of Samuel Stanhope Smith* (Princeton, New Jersey: Princeton University Press, 1989). See also Livingstone, *Adam's Ancestors*, 76-78; also Winthrop D. Jordan's introduction to Smith's *Essay*, xv-xvi.

[152] Jordan in Smith, *Essay*, xx.

[153] Smith, *Essay*, 33-40.

[154] Ibid., 5.

[155] Stocking's essay in Prichard, *Researches* (1813 ed.), lxi.

[156] Prichard, *Researches*, 3d ed., I: 7-8.

[157] Smith, *Essay*, 39.

[158] Prichard, *Researches*, 3d ed., I: 15.

[159] Ibid., I: 98-99.

[160] Ibid., I: 97.

[161] Jack Morrell and Arnold Thackery, *Gentlemen of Science: Early Years of the British Association for the Advancement of Science* (Oxford: Clarendon Press, 1981), 283-286.

[162] Augstein, *Prichard's Anthropology*, 145 (subsection); *Report of the Seventeenth Meeting of the British Association for the Advancement of Science; held at Oxford in June 1847* (London, 1848), 231 (ethnology as history).

[163] Prichard, *Researches*, 3d ed., I: v and vii.

[164] On British polygenists see Livingstone, *Adam's Ancestors*, 170-173; Desmond and Moore, *Sacred Cause*, 188-190, and 332-3. On Burke see Barnhart, *Squier*, 294-296. Adrian Desmond has considerable biographical information on Knox in *Politics of Evolution: Morphology, Medicine, and Reform in Radical London* (Chicago: University of Chicago Press, 1989). On Prichard and the BAAS, *Report of the Seventeenth Meeting*; and Austein, *Prichard's Anthropology*, xi.

[165] Thomas R. Trautman, *Lewis Henry Morgan and the Invention of Kinship* (Berkeley: University of California Press, 1987); and Daniel N. Moses, *The Promise of Progress: The Life and Work of Lewis Henry Morgan* (Columbia: University of Missouri Press, 2009).

[166] John V. Murra, ed., *American Anthropology: The Early Years*, in *1974 Proceedings of the American Ethnological Society* (St. Paul: West Publishing, 1976), ch. 2; and Robert E. Bieder, *Science Encounters the Indian, 1820-1880* (Norman: University of Oklahoma Press, 1986), ch. 2.

[167] Samuel G. Morton, *Crania Americana; or, A Comparative View of the Skulls of Various Aboriginal Nations of North and South America, to Which Is Prefixed an Essay on the Varieties of the Human Species* (Philadelphia and London, 1839), 260. Stephen Jay Gould, *The Mismeasure of Man* (New York: W. W. Norton, 1981) contains his work on Morton's bias. Criticism of Gould is found in J. E. Lewis, D. DeGusta , M. R. Meyer, J. M. Monge, A. E. Mann AE, et al., "The Mismeasure of Science: Stephen Jay Gould versus Samuel George Morton on Skulls and Bias" *PLOS Biol* 9(6) (2011): e1001071. doi:10.1371/journal.pbio.1001071. On Hodge's criticisms see [Charles Hodge], "Examination of some Reasonings against the Unity of Mankind," *Biblical Repository and Princeton Review* 34 (1862): 439-4478. Ronald L. Numbers discusses Hodges ongoing criticisms of the polygenists in *Science and Christianity in Pulpit and Pew* (New York: Oxford University Press, 2007), 106-8.

[168] Morton, *Crania Americana*, 260.

[169] Samuel G. Morton, *Crania Ægyptiaca; or, Observations on Egyptian Ethnography, Derived from Anatomy, History and the Monuments* (Philadelphia, 1844), 66.

[170] In a paper sent to the American Ethnological Society in December of 1846, Morton argued that Native Americans are "true *autochthones*," Stanton, *Leopard's Spots*, 97; and Horsman, *Nott*, 104-105.

[171] Desmond and Moore, *Darwin's Sacred Cause*, 125.

[172] *Crania Americana*, 2-3.

[173] Morton, "Hybridity in Animals considered in reference to the question of the Unity of the Human Species," *American Journal of Science and Arts* 53 (1847): 39-50, 203-213. The quotation is from Morton's conclusions, p. 212, and the editors' disclaimer in a footnote on p. 39.

[174] *American Journal of the Medical Sciences*, 11 (1843): 252-256.

[175] Horsman, *Josiah Nott*, 14-22. On Cooper as an opponent of Silliman see Herbert Hovenkamp, *Science and Religion in America, 1800*-1860 (Philadelphia: University of Pennsylvania Press, 1978), 129-31.

[176] Nott, "The Mulatto," 252-4

[177] Ibid.," 254.

[178] Augstein, *Prichard's Anthropology*, 71-76.

[179] Josiah C. Nott, *Two Lectures on the Natural History of the Caucasian and Negro Races* (Mobile, 1844), 7 and 41.

[180] Nott, *Natural History*, 8-13.

[181] Josiah C. Nott and George R. Gliddon, *Types of Mankind: or, Ethnological Researches, Based upon the Ancient Monuments, Paintings, Sculptures, and Crania of Races, and upon Their Natural, Geographical, Philological, and Biblical History* (Philadelphia: Lippincott, Gambo, 1854), 67.

[182] Nott, *Natural History*, 17.

[183] Ibid., 29.

[184] Ibid., 17-20.

[185] Ibid., 39.

[186] Prichard, *Researches*, 3rd ed., 2:218

[187] Nott complained to Morton that in Mobile he could not even find copies of Baron Munchausen and Robinson Crusoe for his son; Reginald Horsman, *Josiah Nott of Mobile: Southerner, Physician, and Racial Theorist.* Baton Rouge: Louisiana State University Press, 1987, 99.

[188] The quotation is from George W. Stocking, Jr.'s introduction to Prichard's *Researches into the Physical History of Man,* ed. by George W. Stocking, Jr., Classics in Anthropology, ed. Rodney Needham (Chicago: University of Chicago Press, 1973), lxxv. See also Augstein, *Prichard's Anthropology,*12.

[189] Prichard did publish a more accessible summary of his work, *The Natural History of Man: Comprising Inquiries Into the Modifying Influence of Physical and Moral Agencies On the Different Tribes of the Human Family* (London: H. Bailliere, 1843), but American writers in the Unity Debate took little notice of it.

[190] Josiah C Nott, *An Essay on the Natural History of Man, Viewed in Connection with Negro Slavery; Delivered before the Southern Rights Association, 14th December, 1850* (Mobile, Alabama: 1851).

[191] Prichard, *Researches*, 3rd. ed., 5:552-570

[192] Ibid., 5: 560-2.

[193] Ibid., 5: 569-570

[194] Josiah C. Nott, *Two Lectures on the Connection between the Biblical and Physical History of Man. Delivered by Invitation, from the Chair of Political Economy, Etc., of the Louisiana University, in December, 1848.* (New York: Bartlett and Welford, 1849), 25-26 and 103.

[195] Prichard, *Researches*, 3d ed., 5: 563.

[196] Nott, *Biblical and Physical History*, 25, and 33-34.

[197] Josiah C. Nott, *Two Lectures on the Natural History of the Caucasian and Negro Races* (Mobile, 1844), 3.

[198] Nott, *Caucasian and Negro Races*, 5; italics are his.

[199] [Moses A. Curtis], "Unity of the Races" *Southern Quarterly Review*, 7 (1845): 386.

[200] Stanton, *Leopard's Spots*, 77.

[201] Nicholas Wiseman, *Twelve Lectures on the Connexion between Science and Revealed Religion*, American Edition (Andover: Gould and Newman, 1837).

[202] [Curtis], "Unity of the Races," 447

[203] J. C. Nott, "Dr. Nott's Reply to 'C,'" *Southern Quarterly Review*, 8 (1845): 165-6

[204] J. C. Nott, "Unity of the Human Race: A Letter Addressed to the Editor, on the Unity of the Human Race," *Southern Quarterly Review*, 9 (1846): 1 (footnote).

[205] Nott, "Dr. Nott's Reply," 148, editor's note.

[206] Nott to George Ephraim Squier, 30 September 1845, quoted in Stanton, *Leopard's Spots*, 80.

[207] Josiah C. Nott, *Two Lectures on the Connection between the Biblical and Physical History of Man. Delivered by Invitation, from the Chair of Political Economy, Etc., of the Louisiana University, in December, 1848* (New York: Bartlett and Welford, 1849); L[ouis] A[gassiz], "The Diversity of Origin of the Human Races," *Christian Examiner* 49 (1850): 110-45.

[208] Reginald Horsman, *Josiah Nott of Mobile: Southerner, Physician, and Racial Theorist* (Baton Rouge: Louisiana State University Press, 1987), 84; and Colin Kidd, *The Forging of the Races: Race and Scripture in the Protestant Atlantic World, 1600-2000* (Cambridge: Cambridge University Press, 2006), 135-6.

[209] *Crania Americana: Americana: or a Comparative View of the Skulls of Various Aboriginal Nations of North and South America* (Philadelphia, 1839), Morton's first major publication, does not figure into this chronology because his polygenism was so well veiled that no one suspected its presence. Nott was first of the American School ethnologists to argue the theory of plural human origins in print; see Josiah Nott, *Two Lectures on the Natural History of the Caucasian and Negro Races* (Mobile, Alabama: 1844).

[210] Quoted in A. Hunter Dupree, *Asa Gray: American Botanist, Friend of Darwin* (Baltimore: Johns Hopkins University Press, 1988), 152.

[211] Amicus, "Natural History," *Christian Secretary*, 11 & 18 November 1839. The quotation is from the latter installment. See also "Identity of the Different Races of Men," *Lutheran Observer*, 23 August 1844; "Indians of the Lost Tribes," *Western Christian Advocate*, 1 April 1842; Review of Thomas Bond, *A dissertation on the Varieties of Mankind*, *Christian Advocate and Journal* 24 January 1844 ; and "Geology," *Christian Intelligencer* 6 January 1848.

[212] See ch. 2.

[213] "Different Color of the Jews," which appeared in *Christian Secretary*, Apr. 26, 1850; *Southern Christian Advocate*, 23 August 1850; *Western Christian Advocate*, 13 February 1850; *Trumpet and Universalist* 3 August 1850; and three times in *Lutheran Observer*, 8 February 1850, 5 July 1850; and 19 October 1855 was extracted from pp. 417-418 of "Report of the Seventeenth Meeting of the British Association for the Advancement of Science, held at Oxford, June, 1847," *British Quarterly Review* 20 (1849): 408-440. "On the Races of Man," from Alexander von Humboldt's *Kosmos*, appeared in *Christian Advocate and Journal* 16 May 1850; *Christian Secretary* 31 May 1850; and "Genealogy of Adam," extracted from Smyth's *The Unity of the Human Races, Proved to be the Doctrine of Scripture, Reason and*

Science; with A Review of the Present Position and Theory of Professor Agassiz (New York: George P. Putnam, 1850), p. 375 appeared in the *Christian Watchman and Christian Reflector*: 20 June 1850; *Puritan Recorder*, 6 July 1850; *Lutheran Observer*, 27 September 1850; and, years later, *North Carolina Presbyterian*, Jan. 1, 1858. Smyth took it from Nicholas Wiseman, *Twelve Lectures on the Connexion between Science and Revealed Religion* (American ed.; Andover: Gould and Newman, 1837).

[214] Most of the *Lutheran Observer's* articles were borrowed, three alone from the *Puritan Recorder*. The Bachman articles are 19 April 1850, 31 May 1850, and 28 June 1850.

[215] At the Charleston meeting of the AAAS in March of 1850. See below.

[216] Lester D. Stephens, *Science, Race, and Religion in the American South: John Bachman and the Charleston Circle of Naturalists, 1815-1895* (Chapel Hill: University of North Carolina Press, 2000), 132 (Agassiz's visits). Stevens work has provided great insight into the Charleston circle of naturalists and a needed corrective to Stanton's understanding of Bachman in *The Leopard's Spots: Scientific Attitudes toward Race in America, 1815-59* (Chicago: University of Chicago Press, 1960).

[217] In his study of the six keys figures of the Charleston circle of naturalists, *Science, Race, and Religion in the American South*, Stevens attempted to ascertain each man's position on plural human origins. Bachman's is, of course, clear. John E. Holbrook (94, 172) and John McGrady (160-161, 235-236) were polygenists. Stevens does not identify Edmund Ravenel, Lewis R. Gibbes, or Francis S. Holmes as clearly accepting that view. Robert W. Gibbes, paleontologist and cousin to Lewis Gibbes, supported Agassiz's views. He resided in Columbia, South Carolina, but had deep roots in Charleston. The publishers of the *Charleston Medical Journal*, D. J. Cain and Francis P. Porcher, also sided with the polygenists. More significant is the fact that "none of the Charleston naturalists or the professors in the medical college came to the support of Bachman" in his attack on plural origins.(173)

[218] Review of Nott, *Two Lectures on the Connection between the Biblical and Physical History of Man*, *Southern Christian Advocate*, 12 October 1849; Omicron, "Notes on Dr. Nott's Lectures," *Southern Christian Advocate*, 16, 23, 30 November, 7 December 1849; and "The Unity of the Human Race," *Southern Christian Advocate*, 9 November 1849 (Southern Presbyterian).

[219] See note 58.

[220] *Religious Herald*: "Stuart upon Agassiz," 18 July 1850; "All Men of one Blood," 18 July 1850; and "All Men of one Blood," 5 December 1850. *Biblical Recorder*: "Plurality of Human Races," 15 June 1850; "Genealogy of Adam," 6 July 1850; "Unity of the Human Family," 7 September 1850; and Vigil, "The Controversy upon the Unity and Plurality of the Human Species," 7 December 1850.

[221] Gaylord P. Albaugh, *History and Annotated Bibliography of American Religious Periodicals and Newspapers Established from 1730 through 1830* (Worcester, MA: American Antiquarian Society, 1994), I: xv.

[222] Terry A. Barnhart, *Ephraim George Squier and the Development of American Anthropology* (Lincoln: University of Nebraska Press, 2005), 296.

[223] Horsman, *Nott*, 95 and 112. In fact, the *Christian Reflector and Christian Watchman* noted the "tendency of Mr. Gliddon's lectures in support of true religion and reverent belief," "Ancient Egypt," 27 October 1843, though it would condemn him years later once he showed his stripes. This paper changed its name to the *Christian Watchman and Christian Reflector* in October of 1848. "S" in the *Christian Advoate and Jounal* recommended the lectures declaring that there was "nothing better calculated to develop a desire and taste for history and scientific reading on the part of the young," "Ancient and Modern Egypt," 14 February 1850.

[224] Horsman, *Nott*, ch. 1.

[225] Josiah C. Nott, *An Essay on the Natural History of Man, viewed in Connection with Negro Slavery: Delivered Before The Southern Rights Association, 14th December, 1850* (Mobile, AL: 1851).

[226] Nott, *Biblical and Physical History of Man*, 20.

[227] Josiah C. Nott, *Natural History of Man*.

[228] So argued one the South's greatest theologians Robert L. Dabney, see Harry S. Stout and Christopher Gasso, "Civil War, Religion, and Communications: The Case of Richmond," in *Religion and the American Civil* War, ed. Randall M. Miller, Harry S. Stout, and Charles Reagan Wilson (New York:

Oxford University Press, 1998), 317. See also Christopher Luse, "'The Offspring of Infidelity': Polygenesis and the Defense of Slavery" (Ph.D. diss., Emory University, 2008), 228-231.

[229] George M. Fredrickson, *The Black Image in the While Mind: The Debate on Afro-American Character and Destiny, 1817-1914* (Hanover, NH: Wesleyan University Press, 1985), ch. 2; Eugene D. Genovese, *A Consuming Fire: The Fall of the Confederacy in the Mind of the White Christian South* (Athens: University of Georgia Press, 1998); H. Shelton Smith, *In His Image, But . . .: Racism in Southern Religion, 1780-1910* (Durham, North Carolina: Duke University Press, 1972). Larry E. Tise associates the evolution of the southern positive defense of slavery from 1835 with a rise of conservative republicanism, a mainstream movement in American thought at the time, *Proslavery: A History of the Defense of Slavery in America, 1701-1840* (Athens: University of Georgia Press, 1987), ch. 14. This view associates proslavery more with politics than with religion.

[230] Josiah C. Nott and George R. Gliddon, *Types of Mankind: or, Ethnological Researches, Based upon the Ancient Monuments, Paintings, Sculptures, and Crania of Races, and upon Their Natural, Geographical, Philological, and Biblical History* (Philadelphia: Lippincott, Gambo, 1854), 55.

[231] Horsman, *Nott*, 14-18, 38-40, Pettigru quotation, p. 41.

[232] Nott, *Biblical and Physical History of Man*, 13

[233] Horsman, *Nott*, 86-94. For an example of such criticism, see review of Nott's "Two Lectures on the Connection between the Biblical and Physical History of Man," *Southern Presbyterian Review* 3 (1849-50):334-5.

[234] Horsman, *Nott*, 89.

[235] Over time, DeBow allowed both sides of the debate room in his review, but puffed Nott's contribution in the early 1850s. Notice of Nott's *Biblical and Physical History of Man*, *DeBow's Review*, 7 (1849): 377; "Physical Characteristics of the Negro," 9 (1850): 231; "Ethnological Researches—Is the African and Caucasian of Common Origin?" 9 (1850): 243-5; "On the Common Origin of the Human Races," 17 (1854): 25-39; "Moral and Intellectual Diversities of the Races," 21(1856): 63-70. However, he

published a positive review of Dr. J. L. Cabell's monogenist *The Testimony of Modern Science to the Unity of Mankind*, "Unity of Mankind," 30 (1861): 407-410.

[236] Horsman, *Nott*, 111-2.

[237] Nott, *Biblical and Physical History of Man*, 18-19

[238] Ibid., 17-19.

[239] Ibid., 63. The front of the book included a map showing "all the World known to the inspired writers of the Old Testament."

[240] Stephen R. Haynes also argues that Southern defenders of slavery understood Ham's offense against his father as a violation of honor, and not a sexual act—such as intercourse with his mother, Noah's wife; see "Original Dishonor: Noah's Curse and the Southern Defense of Slavery," *Journal of Southern Religion* 3 (2000): published 2/2/2000, at http://jsr.fsu.edu/honor.htm. Thomas Virgil Peterson has demonstrated the mythic character of the curse on Canaan in southern planter culture in *Ham and Japheth: The Mythic World of Whites in the Antebellum South*, (Metuchen, NJ: The Scarecrow Press & The American Theological Library Association, 1978). On shifting identifications of which of Noah's descendants was black see Benjamin Braude, "The Sons of Noah and the Construction of Ethnic and Geographical Identities in the Medieval and Early Modern Periods," *William and Mary Quarterly*,44 (1997):103-142, for a history of the ethnological identification of the sons of Noah. James McDonald, for example, identified the African race with the children of Phut, not Cush, "Historical Value of the Pentateuch," *Biblical Repository and Princeton Review* 30 (1858): 424.

[241] Nott, *Biblical and Physical History of Man*, 96-99.

[242]Stanton, *Leopard's Spots*, 68-69, and 163; Bieder, *Science Encounters the Indian, 1820-1880: The Early Years of American Ethnology* (Norman: University of Oklahoma, 1986), 92; Hebert Hovenkamp, *Science and Religion in America, 1800-1860* (Philadelphia: University of Pennsylvania 1978), 162; Horsman, *Nott*, in passim; Horsman, *Race and Manifest Destiny: The Origins of American Racial Anglo-Saxonism* (Cambridge, MA: Harvard University Press, 1981), 129: and Adrian Desmond and James

Moore, *Darwin's Sacred Cause How a Hatred of Slavery Shaped Darwin's Views on Human Evolution* (Boston: Houghton Mifflin Harcourt, 2009), 168.

[243] Nott, *Biblical and Physical History of Man*, 5.

[244] See Ronald L. Numbers, *Darwinism Comes to America* (Cambridge, MA: Harvard University Press, 1998), ch. 2, for the history of the meanings of "creationism."

[245] Nott, *Two Lectures*, 92, quoting one of his authorities, but he did not indicate which.

[246] Nott, *Biblical and Physical History of Man*, 94-95.

[247] Ibid., 15.

[248] Ibid., 6 and 16.

[249] Ibid., 7.

[250] "The Unity of the Race," *Christian Advocate and Journal*, 8 October1863.

[251] See Stephens, *Science, Race, and Religion*, on the Charleston naturalists.

[252] The *Southern Presbyterian*, *Southern Baptist*, and the *Southern Christian Advocate* [Methodist], were all published in Charleston at that time.

[253] Review of Nott's *Two Lectures on the Connection between the Biblical and Physical History of Man*, *Southern Christian Advocate*, 12 October 1849.

[254] In in *Puritan Recorder*, 11 April 1850.

[255] "Notes on Dr. Nott's Lectures," *Southern Christian Advocate*, 16 November, 1849. This was one part of a four part series that ran 16, 23, 30 November, 7 December 1849.

[256] Omicron, "Notes on Dr. Nott's Lectures," 7 December 1849. "The Unity of the Human Race," *Southern Christian Advocate*, 9 November 1849, copying the *Southern Presbyterian* (Cooper's disciples).

[257] See James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of* Vestiges of the Natural History of Creation (Chicago: University of Chicago Press, 2000), 11-12 on the meaning of "sensation" in the nineteenth century.

[258] *Southern Christian Advocate*, 16 November 1849.

[259] In the *Southern Christian Advocate*, 9 November 1849.

[260] See note 11.

[261] Stephens, *Science, Race, and Religion*, 187.

[262] "Virgil," "The Controversy upon the Unity and Plurality of the Human Species," *Biblical Recorder*, 7 December 1850.

[263] "The Unity of the Human Races—The Doctrine of Scripture, Reason, and Science," *Southern Christian Advocate*, 21, 28 December, 1849, 4, 11, 18, 25 January, 1, 8, 22 February, 1, 8, 15, 22, 29 March, 5, 12, 19, 26 April, 3, 10, 17, 24, 31 May 1850. The papers that ran Smyth's series and the places of publication are the Methodist *Southern Christian Advocate*, *Southern Presbyterian*, and *Southern Baptist* in Charleston, South Carolina; the Presbyterian *Watchman and Observer* in Richmond, Virginia; the *Presbyterian of the West* in Springfield, Ohio; and the *New Orleans Presbyterian*. Smyth gives an account of the evolution of the project in *Unity of the Human Races*, preface. He made a number of changes as he reworked the newspaper series into the book and more changes for the Edinburgh edition. For the latter edition he excised all comments about race relations in the American South, including all of chapter 23 in which, for example, he wrote, "The relation now providentially held by the white population of the South to the colored race is an ordinance of God, a form and condition of government permitted by Him, in view of ultimate beneficial results. The Christianization as well as the civilization of the colored population is at stake, and woe it unto the South if she neglects her high and holy mission," American edition, 334.

[264] Papers outside the South that reviewed Smyth's book include, *Christian Advocate and Journal*, July 18, 1850; *Christian Intelligencer*, 30 May 18; *Lutheran Observer*, 5 July 1850; *Unitarian Register*, 15 June 1850; *Watchman and Reflector*, 8 August 1850;

[265] Rev. G. R. Brackett, *The Christian Warrior Crowned: A Discourse; Commemorative of the Life, Character and Labors of the Rev. Thomas Smyth, D. D., Delivered in the Second Presbyterian Church, Charleston, S. C., December 14th, 1873*, in *Complete Works of Rev. Thomas Smyth, D. D.*, edited by Rev. Prof. J. Wm. Flinn, D. D., 10 vols. (Columbia, SC: reprinted by The R. L. Bryan Company, 1910), X: 792.

[266] Brackett, *Christian Warrior Crowned*, 782-3.

[267] Smyth, "The Unity of the Human Races," *Southern Christian Advocate*, 21 December 1849.

[268] For example, "Unity of the Human Race," *Religious Herald*, 5 December 1850.

[269] Smyth, "The Unity of the Human Races," *Southern Christian Advocate*, 21 December 1849.

[270] Ibid., 21 and 28 December 1849. Quotation from 21 December.

[271] Ibid., 21 December 1849 (sons and daughters) and 10 May 1850 (antediluvians and castaways). No less than four other papers copied from Smyth the anecdote about the castaways, which Smyth took from Wiseman, *Twelve Lectures*, 146. The anecdote traveled under the title "Genealogy of Adam:" *Christian Watchman and Christian Reflector*, 20 June 1850; *Biblical Recorder*, 7 July 1850; *Lutheran Observer*, 27 September 1850; and much later *North Carolina Presbyterian*, 1 January 1850.

[272] Genovese. *Consuming Fire*, 1-5.

[273] Smyth, "The Unity of the Human Races," *Southern Christian Advocate*, 18 January 1850.

[274] Ibid., 11 January 1850.

[275] Nott, *Biblical and Physical History of Man*, 17-19.

[276] Ibid., 28 December 1849.

[277] Ibid., 4 January 1850.

[278] Ibid., 8 February 1850.

[279] *Proceedings of the American Association for the Advancement of Science. Third Meeting. Held at Charleston, S.C., March 1850* (Charleston, 1850), v. Bachman was a member, but Smyth's name does not appear on the list of members published with the proceedings. According to the membership data compiled by Sally G. Kohlstedt in *The Formation of the American Scientific Community: The American Association for the Advancement of Science, 1848-1860* (Urbana: University of Illinois Press, 1976), Smyth was not a member of the AAAS until 1853. In his book, though, Smyth claimed to be a member of" AAAS, and the Edinburgh edition added the British Association for the Advancement of Science to his list of affiliations.

[280] Letter to the editor, *Charleston Courier*, 18 March 1850.

[281] Sally G. Kohlstedt , Michael M. Sokal, and Bruce V. Lewenstein, *The Establishment of Science in America: 150 Years of the American Association for the Advancement of Science* (Piscataway, NJ: American Association for the Advancement of Science/Rutgers, 1999), 15- 16 (public). Letter to the editor, *Charleston Courier,* 18 March 1850.

[282] The attack on Agassiz took up parts 18-20 or the 24 in the series; 26 April, 3 and 10 May, 1850, in the *Southern Christian Advocate's* version of the series. These became the last chapter of the American edition of *The Unity of the Human Race*.

[283] Edward Lurie, *Louis Agassiz: A Life in Science* (Chicago: University of Chicago Press, 1960) is the standard biography. See also John H. Roberts, "Louis Agassiz on Scientific Method, Polygenism, and Transmutation: A Reassessment," *Almagest* 2 (2011): 76-99.

[284] L[ouis] A[gassiz], "Geographical Distribution of Animals," Christian Examiner 48 (1850): 184-85, _____, "The Diversity of Origin of the Human Races," 49 (1850):110-145; and _____, "Contemplations of God in the Kosmos," 50 (1851): 1-17.

[285] Agassiz, "Geographical Distribution of Animals," 184-85.

[286] Agassiz, "The Diversity of Origin of the Human Races," 134-135.

[287] Agassiz, "The Diversity of Origin of the Human Races," 119 and 120.

[288] See Lurie, *Agassiz*, ch. 2, for his education and the influence of Cuvier and Oken.

[289] Nott, *Biblical and Physical History of Man*, 5.

[290] Agassiz, "Geographical Distribution of Animals," 184.

[291] Smyth, "The Unity of the Human Races," *Southern Christian Advocate*, 10 May 1850.

[292] Nott to Morton, 4 May 1850, in Morton Papers, Historical Society of Pennsylvania.

[293] *Puritan Recorder*, 16 May 1850. See also *Puritan Recorder*, 11 April 1850 [copied by nBIR15 June 1850], 2 May 1850, 16 May 1850, *Biblical Recorder*, 16 June 1850, 7 December 1850, *Lutheran Observer* 13 December 1850.

[294] *Southern Christian Advocate*, 23 November 1849.

[295] Y. C., "Unity of races," *Puritan Recorder* 30 May 1850.

[296] "Lake Superior," *Christian Watchman and Christian Reflector,* 25 April 1850.

[297] The *Puritan Recorder*'s first article on the debate was "Plurality of Human Races," 11 April 1850. M, "Origin of the Human Races," *Christian Watchman and Christian Reflector,* 20 June 1850 (tender); see also Philo Veritatis, "Unity of Races," *Puritan Recorder,* 13 June 1850. Review of Rev. Thomas Smyth's *The Unity of the Human Race, Watchman and Reflector,* 8 August 1850 (account).

[298] *Christian Watchman and Christian Reflector,* 25 April 1850 (quotation). A sampling of early reactions to Agassiz's polygenism in the northern religious weeklies includes: "Unity of Races," *Puritan Recorder,* 18 April 1850; "Unity of the Races," *Christian Observer,* May 18, 1850; "Unity of the Human Race," *Lutheran Observer,* 31 May 1850; "Criticism on Professor Agassiz," *Christian Intelligencer,* 6 June 1850; "Prof. Agassiz on the Origin of the Human Race," *Christian Watchman and Christian Reflector,* 6 June 1850; Medicus, "Startling Avowal--Unity of the Races," *Christian Observer,* 15 June 1850; M, "Origin of the Human Races," *Christian Watchman and Christian Reflector,* 20 June 1850; Review of Thomas Smith's *The Unity of the Human Race, Christian Advocate and Journal,* 18 July 1850; and "Unity of the Human Race," *Christian Observer,* 10 August 1850.

[299] "Agassiz and Adam," *Puritan Recorder,* 29 August 1850; and "Prof. Agassiz on the Origin of the Human Race," *Watchman and Reflector,* 6 June 1850. See also the Y. C., "Unity of Races," *Puritan Recorder,* 30 May 1850, and C. D., "Unity of Races," *Puritan Recorder,* 27 June 1850, and Medicus, "Startling Avowal--Unity of the Races," *Christian Observer,* 15 June 1850.

[300] "Agassiz and Adam," *Puritan Recorder,* 29 August 1850.

[301] "The New Doctrine Spreading," *Puritan Recorder,* 16 May 1850. "Criticism on Professor Agassiz," *Christian Intelligencer,* 6 June 1850.

[302] "Plurality of Human Races", *Puritan Recorder,* 11 April 1850.

[303] Y. C., "Unity of races," *Puritan Recorder,* 30 May 1850.

[304] "Agassiz and Adam," *Puritan Recorder,* 29 August 1850.

[305] "Prof. Agassiz on the Origin of the Human Race," *Christian Watchman and Christian Reflector,* 6 June 1850.

[306] David N. Livingstone has emphasized the similar importance of geography in responses to Darwinism: "Science, Region, and Religion: The Reception of Darwinism in Princeton, Belfast, and Edinburgh," in *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender*, eds. Ronald L. Numbers and John Stenhouse (Cambridge: Cambridge University Press, 1999).

[307] "Prof. Agassiz and His Discoveries," *New York Evangelist*, Oct. 10, 1850.

[308] Virgil, "The Controversy upon the Unity and Plurality of the Human Species," *Biblical Recorder*, 7 December 1850.

[309] *Christian Watchman and Christian Reflector*, 18 July 1850.

[310] *Puritan Recorder*, 29 August 1850.

[311] *Unitarian Register*, 13 April 1850. Smyth answered this claim by noting that the Apostle Paul called Adam, the "first man Adam," citing I Cor. 15:45 and 47; *Unity of the Human Races*, xxii.

[312] "Anniversary Week at Cambridge," *Unitarian Register*, 20 July 1850.

[313] "Unity of the Human Family," 13 July 1850 (from the *Southern Presbyterian Review*); "The Unity of the Human Race," 3 August 1850 (from the *Puritan Recorder*); and the often copied "Different Color of the Jews," 3 August 1850 (from the *British Quarterly Review*).

[314] "On the Races of Man," *Christian Advocate and Journal*, May 16, 1850 (Humboldt); and "Literary Intelligence," *Christian Advocate and Journal*, July 18, 1850 (quotation).

[315] *New York Evangelist*, 25 April 1850.

[316] *New York Evangelist*, 10 October 1850.

[317] Bachman gave an account of the development of his book in his pamphlet *A Notice of the 'Types of Mankind,' with an Examination of the Charges Contained in the Biography of Dr. Morton, Published by Nott and Gliddon* (Charleston: 1854), 7, as did Smyth in the preface of his *The Unity of the Human Races, Proved to be the Doctrine of Scripture, Reason and Science; with A Review of the Present Position and Theory of Professor Agassiz* (New York: George P. Putnam, 1850).

[318] In the 1840s some papers reported Scottish churchman Thomas Chalmers's withering attack on phrenology and other dangerous sciences: Chalmers, "Geology," *Southern Christian Advocate*, 20 March

1840; Chalmers, "Assaults Upon Divine Revelation," *Christian Reflector and Christian Watchman*, 22 January 1841; and Dr. Chalmers, "Antagonism to Christianity," *Southern Churchman*, 17 July 1846. Other negative treatments include: review of *Phrenology Examined*, by B. P. Flourens, *Christian Advocate and Journal*, 24 February 1847; Philo, "Thoughts on the First Chapter of Genesis Reviewed: Number I," *Western Christian Advocate*, 2 January 1850; "Phrenology and Infidel Lectures," *Lutheran Observer*, 25 April 1851; K, "Religion and Science," *Puritan Recorder*, 25 February 1853; and Athanasius, "Phrenology," *Christian Advocate and Journal*, 22 December 1853. An example of ridicule: E, "Wonders on Wonders: If We Are to Believe Every Thing," *Southern Christian Advocate*, 24 December 1841.

Examples of more neutral assessments include: review of "Mr. Combe's Address," *Boston Recorder*, 17 April 1840; "Phrenology," *Southern Churchman*, 18 December 1846; J. B. F. H., "Phrenology," *Southern Christian Advocate*, 27 April 1849; "Moral Bearings of Phrenology," *Lutheran Observer*, 2 November 1849; and a review of *The Scientific Basis of Education*, by John Hecker, *Churchman*, 19 December 1868.

Direct endorsements were rare, but the following come close: "Phrenology," *Southern Churchman*, 13 March 1840; "A New Race," *Christian Intelligencer*, 18 December 1851; H. M Shaffer, "The Race of People Inhabiting America before the Indians," *Western Christian Advocate*, 24 June 1857; "No Infidelity in Phrenology," *Texas Baptist Herald*, 18 October 1871. Perhaps more significant is that he *Phrenological Journal* was regularly reviewed by several major papers, including the *Christian Advocate and Journal* and *New York Evangelist*; the *Boston Recorder* even ran ads for a phrenologist, D. P. Butler, 2 March 1860.

[319] "Science Confirming the Bible," *Christian Intelligencer*, 3 June 1852; and the *Lutheran Observer*, 4 June 1852. Since these issues appeared only a day apart, it is more likely that both papers copied the article from a third source than that the *Observer* copied from the *Intelligencer*. It was quite common for editors not to acknowledge sources.

[320] William Stanton, *The Leopard's Spots: Scientific Attitudes toward Race in America, 1815-59* (Chicago: University of Chicago Press, 1960), 46-50.

[321] "Ancient Egypt," *Christian Watchman*, 27 October 1843; and "S," "Ancient and Modern Egypt," *Christian Advocate and Journal*, 14 February 1850.

[322] Stanton, *Leopard's Spots*, 145-147.

[323] "General Intelligence: The Mummy," *Unitarian Register*, 15 June 1850; and P, "The Natural History of Man," *Christian Watchman and Reflector*, 5 February 1852. See also "Mr. Gliddon and the Mummy," *Lutheran Observer*, 12 July 1850.

[324] Stanton, *Leopard's Spots*, 163.

[325] "A Man Before Adam," *Nashville Christian Advocate*, 11 May 1854.

[326] Dr. Henry S. Patterson, "Memoir of the Life and Scientific Labors of Samuel George Morton," in *Types of Mankind: or, Ethnological Researches, Based upon the Ancient Monuments, Paintings, Sculptures, and Crania of Races, and upon Their Natural, Geographical, Philological, and Biblical History*, ed. Josiah Nott and George Gliddon, (Philadelphia: Lippincott, Gambo, 1854), xlvi, and liii-lv.

[327] Nott and Gliddon, *Types of Mankind*, 337-8. On contemporary debates over human antiquity, see Donald K. Grayson, *The Establishment of Human Antiquity* (New York: Academic Press, 1983); and A. Bowdoin Van Riper, *Men Among the Mammoths: Victorian Science and the Discovery of Human Prehistory* (Chicago: University of Chicago Press, 1993).

[328] Nott and Gliddon, *Types of Mankind*, 397.

[329] Ibid., 437-438.

[330] Ibid., 379, 566, and 503.

[331] Review of *Types of Mankind*, *Presbyterian Magazine*, 4 (June, 1854): 285-289; republished in "Nott and Gliddon's Book Exposed," *Christian Observer*, 27 May 1854.

[332] An exception is Jean Dietz Moss, *Novelties in the Heavens: Rhetoric and Science in the Copernican Controversy* (Chicago: University of Chicago Press, 1993).

[333] Nott and Gliddon, *Types of Mankind*, 566. Cosmas Indicopleustes was also a whipping boy in Andrew Dickson White's classic statement of the warfare of science and religion, *A History of the Warfare*

of Science with Theology in Christendom, 2 vol. (New York: Appleton, 1917), I:93-95 and 109. The result of a long development, White's book was first published in 1896.

[334] Nott and Gliddon, *Types of Mankind*, 614, 112.

[335] Ibid., xlvi.

[336] Ibid., 675.

[337] Ibid., 691.

[338] Ibid., 573, 556.

[339] Ibid., 565.

[340] Ibid., 593.

[341] Review of *Notice of the Types of Mankind*, by John Bachman, *Lutheran Observer*, 13 October 1854.

[342] "The African Race—Its Character, Condition, and Destiny," a review of J. L. Cabell, *The Testimony of Modern Science to the Unity of Mankind*, *Christian Advocate and Journal*, 19 May 1859.

[343] Review of *Types of Mankind*, *(American) Church Review* 7 (1854): 443.

[344] Review of *Types of Mankind*, *(American) Church Review* 8 (1855): 30.

[345] Review of *Types of Mankind*, *Southern Presbyterian Review* 8 (1854-5): 300-302

[346] Review of *More Worlds than One*, by Sir David Brewster, *Biblical Repertory and the Princeton Review* 26 (1854): 726.

[347] S. R., "Mr. Gliddon's Biblical Criticism," *Christian Examiner* 57 (1854): 340-364

[348] "Unity of the Races," *Southern Christian Advocate*, 15 September 1854.

[349] A. P. M., "Infidelity of the Times," *Nashville Christian Advocate*, 28 September 1854.

[350] See ch. 1, p. 26 for the "new infidelity."

[351] "The Unity of the Race," *Christian Advocate and Journal*, 8 October, 1863.

[352] "Egyptian Archaeology," *Southern Christian Advocate*, 5 March 1852.

[353] W. H. Brisbane, "Ethnology and the Bible," *Christian Advocate and Journal*, 14 & 21 September 1854.

[354] Review of *The Testimony of Modern Science to the Unity of Mankind*, by J. L. Cabell, M. D., *Boston Recorder*, 26 November 1858.

[355] "Infidelity of the Times," *Nashville Christian Advocate*, 28 September 1854.

[356] "The Unity of the Race," *Christian Advocate and Journal*, 8 October, 1863; "The Bible and Slavery," *Western Christian Advocate*18 March 1857; "The Unity of the Human Race," *Christian Intelligencer*, 2 & 9 December 1858 ; review of "Notice of the *Types of Mankind*," by John Bachman, *Lutheran Observer*, 13 October 1854.

[357] "A Southern View of Slavery," *Religious Herald*, 22 January 1857; "The Unity of the Race—Slavery," *Religious Herald*, 27 February 1862 (which was an extract from James Henley Thornwell's famous "Our National Sin," a sermon delivered on a fast-day in November 1860. There Thornwell, a leading Southern Presbyterian preacher and teacher, registered a deep alarm at the success of polygenists views in southern society); and "Unity of the Races," *Southern Christian Advocate*, 15 September 1854.

[358] "Infidel Objections to the Unity of the Human Species," *New York Observer*, 29 January 1857.

[359] W. H. Brisbane, "Ethnology and the Bible," *Christian Advocate and Journal*, 14 & 21 September 1854; "Origin of the American Indians," *Christian Advocate and Journal*, 14 December 1854; "'Types of Mankind,'" *Southern Christian Advocate*, 19 May 1854.

[360] "The Credulity of Science" *Christian Intelligencer*, 27 April 1854; also copied in the *Christian Observer* for 13 May 1854.

[361] "Infidelity of the Times," *Nashville Christian Advocate*, 28 September 1854.

[362] P, "The Natural History of Man," *Christian Watchman and Reflector*, 22 January 1852 (dignity); and "Ethnology," *Nashville Christian Advocate*, 14 April 1859 (established).

[363] W. H. Brisbane, "Ethnology and the Bible," *Christian Advocate and Journal*, 14 September 1854.

[364] P, "The Natural History of Man," *Christian Watchman and Reflector*, 5 February 1852. Also "American Association for the Advancement of Science," *New York Evangelist*, 27 August 1857, reported that men of science considered ethnology to be under developed.

[365] "The Bible and Newton," 21 February 1856, and "Infidel Objections: to the Unity of the Human Species," 29 January 1857.

[366] "Unity of the Human Species," *Southern Christian Advocate*, 16 July 1852.

[367] "Types of Mankind," *Christian Watchman and Reflector*, 16 November 1854. For similar views see "The African Race—Its Character, Condition, and Destiny," *Christian Advocate and Journal*, 9 August 1855; and "Is the Bible Behind the Times," *Boston Recorder*, 28 December 1860.

[368] Reginald Horsman, *Josiah Nott of Mobile: Southerner, Physician, and Racial Theorist* (Baton Rouge: University of Louisiana Press, 1987), 210. The *New York Observer* is the only paper that I have found to notice *Indigenous Races of the Earth* and then only with a brief mention of it a forthcoming work, "Infidel Objections: to the unity of the human species," 29 January 1857.

[369] "The Unity of the Race," *Christian Advocate and Journal*, 8 October, 1863. Other articles in the religious weeklies promoting environmentalism include: "Man--Change, Diversities, etc. are Produced," *Nashville Christian Advocate*, 7 July 1853; "The Unity of the Species," *New York Observer*, 22 December 1853; "Influence of Climate on the Color of Mankind," *Southern Christian Advocate*, 21 July 1854; "Types of Mankind," *Southern Churchman*, 1 March 1855 (an extract from an article by William Cocke in the *Southern Literary Messenger*); "The Unity of Species," *Lutheran Observer*, 23 March 1855; and "The Bible in Science," *New York Observer*, 26 March 1863.

[370] Thomas Smyth, "The Unity of the Human Races—The Doctrine of Scripture, Reason, and Science," *Southern Christian Advocate*, 24 May 1850; "The Unity of the Species," *New York Observer*, 22 December 1853, also run in the *Lutheran Observer*, 23 March 1855; A-Yin, "Man—Did all Spring from One Pair," *Nashville Christian Advocate* July 14, 1853; and "Ethnological: The Negro, Extracts from Mr. Brace's forthcoming Work on Ethnology, "*Lutheran Observer*, 29 May 1863, also run in the *Christian Recorder*, June 29, 1863.

[371] "Attractions of Ireland.—No. III: Society," *Dublin University Magazine* 8 (1836):658-675; (the plight of these unfortunates is described on p. 667-9.

[372] "Report of the Seventeenth Meeting of the British Association for the Advancement of Science, held at Oxford, in June, 1847," *British Quarterly Review*, 10 (1849): 414; the Rev. Thomas Smyth, *The Unity of the Human Races, Proved to be the Doctrine of Scripture, Reason and Science; with A Review of the Present Position and Theory of Professor Agassiz,* (New York: George P. Putnam, 1850), 78-80; the Rev. George Howe, "Unity of the Race," *Southern Presbyterian Review* 3(1849-50):162; William Archer Cocke, "Types of Mankind," *Southern Literary Messenger*, 21 (1855):23-30; and "The Unity of the Species," *New York Observer*, 22 December 1853.

[373] J. Morrel and A. Thackaray, *Gentlemen of Science: Early Years of the British Association for the Advancement of Science* (Oxford: Clarendon Press, 1981), 286.

[374] "Report of the Seventeenth Meeting of the British Association," 418. This extract appeared verbatim in weeklies including: *Southern Christian Advocate*, 25 January 1850 and 23 August 1850; *Christian Secretary*, 26 April 1850; *Lutheran Observer*, 5 July 1850 and 19 October 1855; *Western Christian Advocate* 13 February 1850; *Trumpet & Universalist*, 3 August 1850. Other version of this argument appeared as well: "Stuart upon Agassiz," *Lutheran Observer*, 16 August 1850; "Jewish Negroes," *Christian Advocate and Journal*, 6 January 1853; "Influence of Climate on the Color of Mankind," *Southern Christian Advocate*, 21 July 1854; "The Unity of Species," *Lutheran Observer*, 23 March 1855; "Influence of Climate on the Color of Mankind," *Christian Index* 13 March 1856; and "The Unity of the Race," *Christian Advocate and Journal*, 8 October, 1863.

[375] "The Creation of Man," *Christian Observer*, 18 September 1856.

[376] "The Brain of the Negro," *Christian Times*, 6 March 1857. See also "The Unity of the Species," *New York Observer*, 22 December 1853; copied in the *Lutheran Observer* for 23 March 1855.

[377] "Were the Aborigines of American Jews?" *Nashville Christian Advocate*, 3 January 1861 (Jews); "Origin of the American Tribes," *Lutheran Observer*, 6 November 1863 (multiple origins); "Origin of American Indians," *Religious Herald*, 1 March 1855 (Mongolian and Tartar).

[378] "'Types of Mankind,'" *Southern Christian Advocate*, 19 May 1854; "Causes of the Phenomena of Organic Nature—Origin of Species," *Western Christian Advocate*, 13 May 1863; "The Human Race," *Lutheran Observer*, 3 June 1853; and "The Unity of the Species," *New York Observer*, 22 December 1853.

[379] Lester C. Stephens, *Science, Race, and Religion in the American South: John Bachman and the Charleston Circle of Naturalists, 1815-1895* (Chapel Hill: University of North Carolina Press, 2000), 178-9.

[380] "'Types of Mankind,'" *Southern Christian Advocate*, 19 May 1854; "The Creation of Man," *Western Christian Advocate*, 1 October 1856; "The Creation of Man," *Christian Observer*, 18 September 1856; "The Human Race," *Lutheran Observer*, 3 June 1853; and "The Unity of the Species," *New York Observer*, 22 December 1853.

[381] "The Unity of the Race," *Christian Advocate and Journal*, 8 October, 1863.

[382] "The Unity of the Race," *Christian Advocate and Journal*, 8 October, 1863; H. M. Johnson, D.D, "Unity of the Race," *Christian Advocate and Journal*, 23 & 30 June 1864; "The Unity of the Primitive Language," *Christian Intelligencer*, 12 April 1855; "The Primitive Language," *Christian Intelligencer*, 23 December 1858; "On the Original Language," *Christian Observer*, 22 October 1857; Review of *Lectures on the Science of Language*, by Max Muller, *Christian Times*, 20 April 1865; and review of *Lectures on the Science of Language*, by Max Muller, *New York Evangelist*, 15 May 1862 .

[383] H. M. Johnson, D.D., "Unity of the Race," *Christian Advocate and Journal*, 23 and 30 June 1864.

[384] Nott and Gliddon, *Types of Mankind*, 335-8.

[385] "The Credulity of Science," *Christian Intelligencer*, 27 April 1854.

[386] "The Credulity of Science," *Christian Observer*, 13 May 1854; and "The Credulity of Science," *Southern Churchman*, 4 May 1854.

[387] "Types of Mankind," *Scientific American* 9 (1854): 333.

[388] See below for exceptions.

[389] John Bachman, review of *Types of Mankind, Charleston Medical Journal and Review* 9(1854):627-659, and John Bachman, review of Agassiz's contribution in *Types of Mankind*, 9(1854):790-806; republished as John Bachman, *A Notice of the 'Types of Mankind,' with an Examination of the Charges Contained in the Biography of Dr. Morton, Published by Nott and Gliddon* (Charleston: 1854), and John Bachman, *An Examination of Professor Agassiz's Sketch of the Natural Provinces of the Animal World and their Relation to the Different Types of Man, with a Tableau Accompanying the Sketch* (Charleston: 1855).

[390] Stephens, *Science, Race, and Religion*, 181-2.

[391] Bachman, *Notice of the 'Types of Mankind,'* 4.

[392] Bachman, *Professor Agassiz's Sketch*, 11-13.

[393] Bachman, *Notice of the 'Types of Mankind*, 24 and 29

[394] Bachman, *Professor Agassiz's Sketch*,, 21

[395] "Dr. Backman [sic.], of Charleston, S. C., versus Professors Agassiz, Nott, Gliddon, and the whole family of Infidel Philosophers, in regard to the Bible account of the origin of the human race," *Lutheran Observer*, 12 October 1855; "Unity of the Races," *Southern Christian Advocate*, 15 September 1854; and notice of Bachman's "Unity of the Human Race," *Nashville Christian Advocate*, 13 September 1855. Other notices of Bachman's pamphlets include "Notice of the Types of Mankind," *Lutheran Observer*, 13 October 1854; and a host in the *Southern Christian Advocate*: "A Notice of 'Types of Mankind' with an Examination of the Charges Contained in the Biography of Dr. Morton, published by Nott & Glidden (sic)," 15 September 1854; "Unity of the Human Race," 29 September 1854; and review of John Bachman, *Unity of the Human Race: A Refutation of the Theory of Dr. Morton, Prof. Agassiz, and Dr. Nott on the Characteristics of Genera and Species*, 27 September 1855. Articles that mention Bachman's work as an authoritative refutation of the polygenists in general included a northern papers, for example, "Infidel Objections: to the Unity of the Human Species," *New York Observer*, January 29 1857, and "A Southern View of Slavery," 22 January 1857; and "Types of Mankind," *Watchman-Examiner*, 16 November 1854.

[396] James L. Cabell, *The Testimony of Modern Science to the Unity of Mankind*, 2d ed. (New York: Robert Carter & Brothers, 1859), ix.

[397] *Christian Advocate and Journal* , 19 May 1859; *Southern Churchman*, 17 December 1858; *Boston Recorder*, 26 November 1858

[398] Other reviews include: *Boston Recorder*, 22 April 1859; *Christian Intelligencer*, 2 December 1858; *Christian Observer*, 18 November 1858; *New York Evangelist*, 2 December 1858, 21 April 1859, and 12 May 1859; *New York Observer*, 29 January 1857.

[399] "Editor's Table," *Western Christian Advocate*, 2 January 1850; and "American Association for the Advancement of Science," *New York Evangelist*, 27August 1857.

[400] Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (Chicago: University of Chicago Press, 2007), 495. Thanks to Bernard Lightman, Jonathan Topham, Aileen Fyfe, and others mentioned in the introduction to this dissertation, we know a lot about popularizers in the British market. We know far less about their American parallels, however the continuing influence of British writer's on America in course of the nineteenth-century makes work on British popular science essential to American studies.

[401] Charles Hodge, "An Examination of Some Reasonings against the Unity of Mankind," *Biblical Repository and Princeton Review* 34 (1862): 435-64; and "The Unity of Mankind," *Biblical Repository and Princeton Review* 31 (1859): 131; and Steven J. Gould, *Mismeasure of Man* (New York W. W. Norton, 1981), 54-69. On Hodge and science, see also Ronald L. Numbers, "Charles Hodge and the Beauties and Deformities of Science," in *Science in Christianity and Pulpit and Pew* (New York: Oxford University Press, 2007).

[402] "The Work of Creation," *Israelite*, 14 August 1857; and "The Mosaic Vision of the Creation," *Jewish Messenger*, 18 February 1859.

[403] David N. Livingstone has emphasized the importance of geographical analysis of such debates. See his "Science, Region, and Religion: The Reception of Darwinism in Princeton, Belfast, and Edinburgh," in *Dissemination Darwinism: The Role of Place, Race, Religion, and Gender*, ed. Ronald L.

Numbers and John Stenhouse (Cambridge: Cambridge University Press, 1999); and *Putting Science In Its Place: Geographies of Scientific Knowledge* (Chicago: University of Chicago Press, 2010).

[404] For example the influential *Puritan Recorder* dropped the issue after a vigorous start.

[405] Notice of *Types of Mankind*, *California Christian Advocate*, 15 December 1854.

[406] J. D. Dana, "Thoughts on Species," *American Journal of Science and Arts* 74 (1857):305-316; *Bibliotheca Sacra* 14 (1857): 854-74; and J. D. Dana, "Unity in the Origin of the Human Family," *New York Observer*, 4 February 1858. The *Christian Advocate and Journal* copied the article in its 18 February 1858 edition.

[407] Articles in the *Lutheran Observer* that lean heavily on Bachman's work include: "The Unity of the Human Race," 19 April 1850; "Unity of the Human Race," 31 May 1850; "Unity of Race," 28 June 1850; review of "Notice of the Types of Mankind," by John Bachman, 13 October 1854; and "Dr. Backman [sic.], of Charleston, S. C., versus Professors Agassiz, Nott, Gliddon, and the whole family of Infidel Philosophers, in regard to the Bible account of the origin of the human race," 12 October 1855.

[408] "Special Literary Intelligence," *Boston Recorder*, 29 June 1855 (quotation). Review. of J. L. Cabell, M. D., *The Testimony of Modern Science to the Unity of Mankind*, 26 November 1858; and review of the Cabell's second edition, 22 April 1859.

[409] Articles occasioned by the publication of *Types* in these two *Christian Advocates* include, for the *Southern Christian Advocate*, "'Types of Mankind,'" 19 May 1854, "A Notice of 'Types of Mankind' with an Examination of the Charges Contained in the Biography of Dr. Morton, published by Nott & Glidden," 15 September 1854, "Unity of the Races,"15 September 1854, "Unity of the Human Race," 29 September 1854, rev. of John Bachman, Unity of the Human Race: A Refutation of the Theory of Dr. Morton, Prof. Agassiz, and Dr. Nott on the Characteristics of Genera and Species," 27 September 1855.; for the *Nashville Christian Advocate*: "A Man Before Adam," 11 May 1854, "Infidelity of the Times, 28 September 1854.

[410] "Unity of the Races," *Southern Christian Advocate*, 15 September 1854.

[411] "Political Redemption," *Nashville Christian Advocate*, 14, 21, 28 August, 4, 11, 18, 25 September, 2 October 1856. Baldwin's book, *Dominion; Unity and Trinity of the Human Race; with the Divine Political Constitution of the World* (Nashville, Tennessee: 1858), was sold by the Southern Methodist Book Concern.

[412] "Political Redemption," *Nashville Christian Advocate*, 18 September 1856; and Baldwin, *Dominion*, 22.

[413] Review of *Dominion, or the Unity and Trinity of the Human Race*, by S. D. Baldwin, *Christian Advocate and Journal*, 10 June 1858; and Review of *Dominion, or the Unity and Trinity of the Human Race*, by S. D. Baldwin, *Western Christian Advocate*, 24 March 1858.

[414] "Ethnology," *Nashville Christian Advocate*, 14 April 1859.

[415] A. Yin made gave a detailed presentation of the environmentalist theory in "Man—Did all Spring from One Pair," *Nashville Christian Advocate*, 14 July 1853.

[416] "DeBow's Review," *Nashville Christian Advocate*, 28 June 1860.

[417] "Unity of the Races," *Southern Christian Advocate*, 15 September 1854.

[418] Stanton, *Leopard's Spots*, 194.

[419] Quoted in "The Southern Apostasy," *New Englander and Yale Review* 12(1854): 664.

[420] "The African Race—Its Character, Condition, and Destiny," *Christian Advocate and Journal* 9, 16, 23, and 30 August 1855.

[421] L[ouis] A[gassiz], "The Diversity of Origin of the Human Races," *Christian Examiner* 49 (1850): 142.

[422] Certainly not all slaves came from "jungle" dwellers, but that is how their prior state in African was commonly depicted.

[423] Nott and Gliddon, *Types of Mankind*, 79. See also pp. 52 and 410.

[424] Victor Shea and William Whitla, eds., *Essays and Review: The 1860 Text and Its Reading* (Charlottesville: University Press of Virginia, 2000) contains an annotated critical edition of *Essays and Reviews* and essays on the book, its authors, and its impact. On Colenso's work see, Ronald L. Numbers,

Science and Christianity in Pulpit and Pew (Oxford: Oxford University Press, 2007), 113-118, and Colin Kidd, *The Forging of the Races: Race Scripture in the Protestant Atlantic World, 1600-2000* (Cambridge: Cambridge University Press, 2006), 152-156.

[425] Stephen S. Kim calls Tyndall's philosophical position "transcendental materialism" in which "matter is the ultimate reality" yet has "vital capacity," *John Tyndall's Transcendental Materialism and the Conflict between Religion and Science in Victorian England* (Lewiston, N. Y.: Edwin Mellin Press, 1996), 43. Huxley resisted all such labels until he invented one of his own: agnostic, Adrian Desmond, *Huxley: the Devil's Disciple* (London: Michael Joseph, 1994), 372-375. Later in life he became more of a determinist, which served his reputation in the religious press no better than charges of materialism, Adrian Desmond, *Huxley: Evolution's High Priest* (London: Michael Joseph, 1997), 58-9. On Huxley and Tyndall see also Jon H. Roberts, *Darwinism and the Divine: Protestant Intellectuals and Organic Evolution, 1859-1900* (Madison: University of Wisconsin Press, 1988), 67-75; and Frank M. Turner, "The Victorian Conflict between Science and Religion: A Professional Dimension," in *Contesting Cultural Authority: Essays in Victorian Intellectual Life* (Cambridge: Cambridge University Press, 1993).

[426] William Stanton, *The Leopard's Spots: Scientific Attitudes toward Race in America, 1815-59* (Chicago: University of Chicago Press, 1960), 180-1.

[427] Reginald Horsman, *Josiah Nott of Mobile: Southerner, Physician, and Racial Theorist* (Baton Rouge: Louisiana State University Press, 1987), 164, 276, 283-5.

[428] "The Relation and Duty of the Church to the Colored People," *South-Western Presbyterian*, 31 October 1872. Other examples include, Beta, "The Unity of the Human Race," *Nashville Christian Advocate*, 5 July 1873; Rev. E. L. Perkins, "Unity of the Human Family," *Raleigh Christian Advocate*, 11 May 1870; "The Origin of Man" *Lutheran Observer*, 6 February 1874; "Dr. John Bachman," *Lutheran Observer*, 20 March 1874; "Was Adam the First Man?" *National* Baptist, 2 and 9 May 1872.

[429] "Darwin shattered the work of the American school," according to Reginald Horsman, *Race and Manifest Destiny: The Origins of American Racial Anglo-Saxonism* (Cambridge, MA.: Harvard University Press, 1981), 125. William J. Astore credits both Darwinism and the Civil War, "Gentle

skeptics? American Catholic Encounters with Polygenism, Geology, and Evolutionary Theories from 1845 to 1875," *Catholic Historical Review* 82 (1996): 40-76; as does Donald A. Swan, "The American School of Ethnology" *The Mankind Quarterly* 12 (1971): 78-98.

[430] David N. Livingstone, *Adam's Ancestors: Race, Religion, and the Politics of Human Origins* (Baltimore, Maryland: The Johns Hopkins University Press, 2008), 186-200, 214-218.

[431] Charles Darwin, *The Origin of Species by Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (London: Penguin Books, 1968), 454-5, 458.

[432] Bernard Lightman, "Unbelief," in *Science and Religion around the World*, ed. by John Hedley Brooke and Ronald L. Numbers (Oxford: Oxford University Press, 2011), 263.

[433] Peter J. Bowler, *The Non-Darwinian Revolution: Reinterpreting a Historical Myth* (Baltimore, Maryland: The Johns Hopkins University Press, 1988).

[434] Robert Kenny, "From the Curse of Ham to the Curse of Nature; The Influence of Natural Selection on the Debate on Human Unity Before The Publication of *The Descent of Man*," *British Journal for the History of Science* 40 (2007): 367-388.

[435] Donald K. Grayson, *The Establishment of Human Antiquity* (New York: Academic Press, 1983); and A. BowdoinVan Riper, *Men among the Mammoths: Victorian Science and the Discovery of Human Prehistory* (Chicago: University of Chicago Press, 1993) especially chapters 3 and 4.

[436] "The Controversy upon the Unity and Plurality of the Human Species," *Biblical Recorder*, 7 December 1850.

[437] "The Origin of Species," *Christian Recorder*, 9 May 1863. These statements lend further support to Eric D. Anderson's argument that African Americas were far more concerned about polygenism than evolution. See his "Black Response to Darwinism, 1859-1915," in Ronald L. Numbers and John Stenhouse, eds., *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender* (Cambridge University Press, 1999).

[438] "Theories of Science," *Watchman and Reflector*, 18 May 1871. This was probably Dr. Edmund Otis Hovey, an educator and geologist who would become the secretary of the geological section of the New York Academy of Sciences.

[439] Auriga, "The Prospects of Infidelity," *South-Western Presbyterian*, 6 July 1871.

[440] "Causes of the Phenomena of Organic Nature—Origin of Species," *Western Christian Advocate*, 13 May 1863; and H. R. P. Hamilton, "Genesis and the 'The Descent of Man,'" *Churchman*, 23 September 1871. See also "Darwin on the Origin of Species," *New York Evangelist*, 15 March 1860; and Beta, "The Unity of the Human Race," *Nashville Christian Advocate*, 5 July 1873, who rejected evolution but affirmed that Darwin, Huxley, and Spencer established beyond question the common origin of the human family.

[441] "Darwin on the Origin of Species," *New York Evangelist*, 15 March 1860; and review of *The Origin of Species: or, The Causes of the Phenomena of Organic Nature*, by Thomas H. Huxley, *New York Evangelist*, 19 April 1863.

[442] "Science Correcting Its Own Errors," *New York Evangelist*, 26 July 1860. The same point was made later, 19 April 1863, in a review of Huxley's lectures to workingmen, *The Origin of Species.*

[443] "Darwin's New Theory," *New York Observer*, 29 March 1860. The notion that polygenism and Darwinism cancel each other out also appeared in Auriga, "The Prospects of Infidelity," *South-Western Presbyterian*, 6 July 1871, and in "Theories of Science," *Watchman and Reflector*, 18 May 1871.

[444] Auriga, "The Prospects of Infidelity," *South-Western Presbyterian*, July 6, 1871.

[445] "The Origin of Man," *Lutheran Observer*, 6 February 1874. Quotation is from Christlieb, *Modern Infidelity and the Best Methods of Counteracting It*, trans. Herbert U. Weitbrecht, rev. ed. (London: 1874), Google Books: http://books.google.com.

[446] Review of, *Origin of Species*, by Charles Darwin, *Congregationalist*, 10 February 1860.

[447] "Darwin's Origin of Species," *Christian Watchman and Reflector*, 6 December 1860.

[448] Review of *Origin of Species*, by Charles Darwin, *Western Christian Advocate*, 8 February 1860; and "Mr. Darwin's Theory of Development," *Christian Recorder*, 28 December 1861.

[449] "The Question of Lake-Dwellings," *New York Evangelist*, 31 December 1868.

[450] F., "The Negro and the White Man. - - - Origin of Races, etc.," *Texas Baptist Herald*, 15 October 1874. I have not been able to view the *Religious Herald* for this period.

[451] "The Unity of the Race," *Christian Advocate* (New York), 8 October, 1863.

[452] Charles Darwin, *Origin of Species*, ch. 14.

[453] T. H. Huxley, *Man's Place in Nature* (New York: Modern Library, 2001), 67.

[454] Review of *Evidences as to Man's Place in Nature*, by Thomas H. Huxley, *Catholic Mirror*, 6 June 1863.

[455] "Man's Place in Nature," *New York Evangelist*, 21 May 1863; and "Man's Place in Nature," *New York Observer*, 21 May 1863.

[456] "Moral Science," *Western Christian Advocate*, 3 June 1863(lawyer); and "Pre-Adamite Flints in the Drift," *Western Christian Advocate*, 10 June 1863 (wait and see). Other articles that display a "wait-and-see" attitude on human antiquity include "Antiquity of Man," *Lutheran Observer*, 9 November 1860; "The Antiquity of Man," *New York Evangelist*, 3 September 1868; J. A. B., "The Antiquity of Man," *Religious Herald*, 22 October 1868; "Man and the Mastodon," *New York Evangelist*, 17 June 1875; and a review of *Early Man in Europe*, by Charles Rau, *Christian Advocate* (New York), 6 July 1876.

[457] Review of *Religion and Chemistry*, by Josiah P. Cooke, Jr., *Christian Advocate* (New York), 3 November 1864.

[458] "Darwinism and Skepticism," *Christian Advocate* (New York), 5 May 1870.

[459] Review of *A New Theory of the Origin of Species*, by B. G. Ferris, *Christian Advocate* (New York), 9 April 1874; and Mrs. S. B. Thomas, "Thoughts on Modern Science," *Christian Advocate* (New York), 27 August 1874.

[460] Wright would later abandon his Christian Darwinism to become a determined opponent of evolutionary ideas, Ronald L. Numbers, *The Creationists: The Evolution of Scientific Creationism* (New York: Alfred A. Knopf, 1992), ch. 2.

[461] Darwin, *Origin*, 454. On his regrets see Darwin's letter to Joseph Hooker, 29 March, 1863, in Francis Darwin, *The Life and Letters of Charles Darwin*, 3rd. ed. (London: 1887), 3:17-18, *Darwin Online:* http://darwin-http://darwin-online.org.uk/content/frameset?pageseq=30&itemID=F1452.3&viewtype=sidenline.org.uk/content/frameset?pageseq=30&itemID=F1452.3&viewtype=side.

[462] "How to Refute Tyndall and the Scientists," *Western Christian Advocate*, 7 October 1874.

[463] John Tyndall, "Address Delivered Before the British Association Assembled at Belfast, With Additions," http://www.victorianweb.org/science/science_texts/belfast.html, accessed 08/08/11; "Darwin Of The Origin Of Species." *Westminster Review*, (1860): 541-70. *ProQuest.* Web. 1 Sep. 2013. "Hercules" quotation, 556.

[464] Frank M. Turner, "The Victorian conflict between science and religion'". On Huxley's writings for the popular press in service of his cultural goals, see Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (Chicago: University of Chicago Press, 2007), ch. 7; also Desmond, *Huxley: From Devil's Disciple to Evolution's High Priest*, 23, 58, 254-6.

[465] Review of *Heat Considered as a Mode of Motion*¸ by John Tyndall, *New York Evangelist*, 13 August 1863. See also "The Conflagration of the World a Scientific Possibility," *New York Evangelist*, 28 April 1864; and "New Views in Physics," *Lutheran Observer*, 14 April 1865.

[466] Review of *Scientific Addresses*¸ by John Tyndall, *Lutheran Observer*, 17 February 1871.

[467] On the "Prayer Test" see Robert B. Mullin, "Science, Miracles, and the Prayer-Gauge Debate," in *The Physical Basis of Life*, in David C. Lindberg and Ronald Numbers, eds., *When Science and Christianity Meet* (Chicago: University of Chicago Press, 2003). Huxley's "On the Physical Basis of Life," began as a popular lecture delivered in Edinburgh in 1868 and was published in the *Fortnightly Review* May 1865-June 1934 5.26 (1869): 129-45. ProQuest. Web. 2 Nov. 2013. Both the lecture and the article were a sensation, Desmond, *Huxley: The Devil's Disciple*¸ 367.

[468] "Prof. Tyndall's Last," *Congregationalist*, 10 September 1874.

[469] "Prof. Huxley Also," *Congregationalist*, 17 September 1874.

[470] "Prof. Tyndall's Speech," *Congregationalist*, 24 September 1874. The *Lutheran Observer* gave special attention to Tyndall's bombshell: "Prof. Tyndall a Materialist," *Lutheran Observer*, 11 September 1874; "Prof. Tyndall and Materialism," 25 September 1874; "Tyndall Reviewed," 23 October 1874; and "Tyndall's Address," 9 October 1874.

[471] For example, "The Age of the World," *Nashville Christian Advocate*, 13 September 1871; H. "The Aim of Modern Infidelity," *Raleigh Christian Advocate*, 17 April 1872; and E., "Prof. Tyndall," *Christian Index*, 12 December 1872.

[472] John Tyndall, "Address Delivered Before the British Association Assembled at Belfast, With Additions, 1874," http://www.victorianweb.org/science/science_texts/belfast.html, *The Victorian Web*, accessed 08/08/11.

[473] "Prof. Tyndall in a Nutshell," *North Carolina Presbyterian*, 15 August 1877; *Trumpet and Universalist*, 12 December 1874; *Texas Baptist Herald*, 13 May 1875; and *Zion's Herald*, 3 December 1874.

[474] "At the opening session of the [BAAS]," *Western Christian Advocate*, 9 September 1874; "Professor Huxley's Address," 16 September 1874; and N. E., "Professor Tyndall's Address," 23 September 1874.

[475] "Professor Huxley Reviewed," *Western Christian Advocate*, 14 October 1874; See also Rev. Davis W. Clark, "How to Refute Tyndall and the Scientists," 7 October 1874.

[476] James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret authorship of* Vestiges of the Natural History of Creation (Chicago: University of Chicago Press, 2000), 510.

[477] Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (New York: Penguin, 2004), 210 (unity debate), 230 (selection) 230.

[478] Adrian Desmond and James Moore recently argued that Darwin's abolitionist sentiments were the primary motivation throughout his work on evolution, *Darwin's Sacred Cause: How a Hatred of Slavery Shaped Darwin's Views on Human Evolution* (Boston: Houghton, Mifflin, Harcourt, 2009). They

have documented the long-standing and passion racial egalitarianism of his family on both the Darwin and the Wedgwood sides. While their thesis clearly applies to *Descent of Man*, I find it less convincing when applied to *Origin of Species*.

[479] "The American Association for the Advancement of Science," *Congregationalist and Boston Recorder*, 2 September 1869 (quotation); and "Dr. Hodge's Theology," *Congregationalist*, 15 February 1872.

[480] Rev. R. H. Howard, "Louis Agassiz—His Moral and Religious Character," *Christian Advocate* (New York), 22 January 1874.

[481] Rev. J. M. Pendleton, "Denying the Unity of the Race: Is it not Infidelity?" 10 October 1867. Mentioned in "Theories of Science," 18 May 1871; Rev. Pharcellus Church, "Religion and Science," 19 October 1871; and "Scientific Department," 22 January 1874.

[482] "Dr. Hodge's Theology," *New York Observer*, 18 January 1872; and "Amalgamation," *New York Observer*, 14 November 1878.

[483] "Prof. Agassiz and the Colored Race," *New York Evangelist*, 22 May 1873.

[484] "Brethren of One Blood," *National Baptist*, 23 November 1871. I have not been able to view the *Religious Herald* for this period.

[485] Rev. E. L. Perkins, "Unity of the Human Family," 11 May 1870; Ben Ellet, "Ethnology," 15 June 1870; and Rev. E. L Perkins, "Equality of the Human Family," 29 June 1870 (quotation).

[486] Jon H. Roberts, "Louis Agassiz on Scientific Method, Polygenism, and Transmutation: A Reassessment," *Algamest: International Journal for the History of Scientific Ideas* 2 (2011): 95-6; Ronald L. Numbers, *The Creationists: The Evolution of Scientific Creationism* (New York: Alfred A. Knopf, 1992), 8; Edward Lurie, *Louis Agassiz: A Life in Science* (Baltimore, Maryland: The Johns Hopkins University Press, 1988), 358; and Mary P. Winsor, *Reading the Shape of Nature: Comparative Zoology at the Agassiz* Museum, (Chicago: University of Chicago Press, 1991),41-42.

[487] Jon H. Robert, "Louise Agassiz on Scientific Method, Polygenism, and Transmutation: A Reassessment," *Almagest* 2 (2011): 76-99.

[488] Rev. R. H. Howard, "Louis Agassiz—His Moral and Religious Character," *Christian Advocate* (New York), 22 January 1874.

[489] Rev. R. Weiser, "Ethnological: Prof. Agassiz's Lectures in New York," *Lutheran Observer*, 3 May 1867; and, approvingly, "Agassiz and Darwinism," 13 December 1872, and "Agassiz on Evolution," 22 August 1873.

[490] "Death of Professor Agassiz," *Lutheran Observer*, 19 December 1873. Similar sentiments appeared in "Louis Agassiz," 26 December 1873 (taken from the *New York Times*); and "Science and Health: Agassiz's Last Work," 2 January 1874

[491] "Agassiz and Children," *Lutheran Observer*, 23 January 1874. See also "Science and Health: Agassiz on Animal Life," 21 August 1874; and "Agassiz and the Spiritualist," 5 September 1879.

[492] "Prof. Tyndall a Materialist," *Lutheran Observer*, 11 September 1874; "Prof. Tyndall and Materialism," 25 September 1874; review of *The Geographical Distribution of Animals*, by Alfred R. Wallace, 22 December 1876; and "Ernest Haeckel and Evolution," 10 October 1879.

[493] Facsimiles of Buckner Payne's pamphlet and others from the "Ariel" controversy are found in John David Smith, ed. *Anti-Black Thought, 1863-1925*, 11 vols. (New York: Garland, 1993), vols. 5 and 6. The latest contribution that I have located is Henry Parker Eastman, *The Negro, His Origin, History and Destiny, Containing a Reply to "The Negro a Beast"* (Boston: Eastern Publishing Co., 1905).

[494] Smith, *Anti-Black Thought*, 5:30, 47-48.

[495] Ariel, *The Negro: What is His Ethnological Status: is he the progeny of Ham? is he a descendent of Adam and Eve? has he a soul? or is he a beast in God's nomenclature? what is his status as fixed by God in creation? what is his relation to the white races?* in Smith, *Anti-Black Thought*, vol. 5. The first edition, published during the war, had little impact.

[496] See M.S., *The Adamic Race*, in Smith, *Anti-Black Thought*, 5:161, 166-67.

[497] Louis Agassiz to B. Payne, Aug. 29, 1877, Agassiz Copybook, Houghton Library, Harvard University. The Christian press largely ignored Payne's pamphlets, but for an elegant demolition of his argument see the review by B. W. Whilden in the *Baptist Quarterly* 2 (1868), 382-84.

[498] *The Negro: A Reply to Ariel*, in Smith, *Anti*-Black Thought, 5: 77.

[499] "B," "'Ariel' Reviewed," 5 February 1868, "Further Strictures on Ariel," 12 February 1868, "Strictures on Ariel: Chap. III," 19 February 1868, "Review of Ariel: Chap. IV," 26 February 1868, and "Further Strictures on Ariel: Chapter V," 4 March 1868.

[500] Review of *The Adamic Race: A Reply to 'Ariel,'* by M. S., *Christian Index*, 2 July 1868. Other writers in the *Christian Index* expressed similar sentiments; Easy Convert, "The Negro," 22 October 1868; and review of *The Negro*, by Ariel, 12 September 1872.

[501] Review of "A Short Notice of 'Ariel,'" by R. B. A., *North Carolina Presbyterian*, 4 March 1868; and E.F.R., "A Nut for Ariel's Disciples," *North Carolina Presbyterian*, 26 March 1868.

[502] JAK's original series, "Unity of the Human Race," ran from 24 April to 12 June 1867 in the *Texas Baptist Herald*. His sparing with "G" ran from 4 March to 4 November 1868, under various titles such as "Unity of the Human Race," "Are all Men Brothers?" and "The Negro—is he Man or Beast?"

[503] David N. Livingstone, *Adam's Ancestors*, ch. 8.

[504] The Rev. George Dana Boardman, "The Creative Week," *National Baptist*, 31 January to 11 April 1878, later published as *Studies in the Creative Week*, (New York: 1886).

[505] Boardman, "The Creative Week," 21 March 1878.

[506] L[ouis] A[gassiz], "The Diversity of the Origin of the Human Races," *Christian Examiner* 49 (1850): 119-120.

[507] See Lurie, Louie Agassiz, ch. 2, on Agassiz's education and the influence of Cuvier and Oken.

[508] Boardman, *Studies in the Creative Week*, 168.

[509] Boardman, "The Creative Week," 28 February (evolution) and 31 January (panorama) 1878.

[510] Ibid., 7 February 1878.

[511] Ibid., 21 March 1878.

[512] Ibid.

[513] T. B. Neely, "Philadelphia Letter," *Christian Advocate* (1866-1905), no. 10 (7 March 1878): 153. http://search.proquest.com.ezproxy.library.wisc.edu/docview/125925487?accountid=465; "Literature:

The Creative Week," *The Independent ...Devoted to the Consideration of Politics, Social and Economic Tendencies, History, Literature, and the Arts* (1848-1921) 30, no. 1556 (26 September 1878): 11. http://search.proquest.com.ezproxy.library.wisc.edu/docview/90276117?accountid=465.

[514] L[ouis] A[gassiz], ""Contemplations of God in the Kosmos," *Christian Examiner*, 50 (1851): 1-17.

[515] Alexander Winchell, *Preadamites: or a Demonstration of the Existence of Men before Adam; A Study of Their Condition, Antiquity, Racial Affinities, and Progressive Dispersion over the Earth* (Chicago: S. C. Griggs and Co, 1880), 184 note.

[516] Review of *The Doctrine of Evolution*¸ by Alexander Winchell, *Christian Advocate* (New York) 28 May 1874.

[517] Livingstone, *Adam's Ancestors*, 141.

[518] David N. Livingstone, *Darwin's Forgotten Defenders: The Encounter Between Evangelical Theology and Evolutionary Thought* (Grand Rapids, MI: Wm. B. Eerdmans and Edinburgh: Scottish Academic Press, 1987: Reprint, Vancouver: Regent College Publishing, 1997), 85-7.

[519] Review of *Sketches of Creation*, by Alexander Winchell, *New York Evangelist* 5 May 1870.

[520] Winchell, *Preadamites*, 419.

[521] Ibid, 354.

[522] Ibid, 354, 83-5, 178-80.

[523] Ibid, 87.

[524] Ibid, 383.

[525] Ibid, 17-18, 207, 201, 315, and184 note (defended).

[526] Ibid, 17-18.

[527] Ibid, 2.

[528] Ibid, 4-5 (flood), 11(names), 132(biblical writers), and 106 (unchronological). The argument is fully developed in chs. 7-8.

[529] Ibid, 2.

[530] Ibid, 456.

[531] Ibid, 457.

[532] Ibid, 454.

[533] Ibid, 458-460.

[534] Ibid, 285-292.

[535] Review of *Preadamites*, by Alexander Winchell, *National Baptist*, 10 June 1880. See also "Preadamites," *Western Christian Advocate*, 29 September 1880; and R. Wheatley, "Letter From New York," *Zion's Herald*, 31 July 1879.

[536] Review of *Preadamites*, by Alexander Winchell, *National Baptist*, 10 June 1880; and "Winchell's Pre-Adamites," *Buffalo Christian Advocate*, 21April 1881.

[537] Review of *Preadamites*, by Alexander Winchell, *Christian Union*, 16 June 1880, 558. http://www.proquest.com.ezproxy.library.wisc.edu/ (accessed June 10, 2008). See also: review of *Preadamites: or A Demonstration of the Existence of Men before Adam*, by Alexander Winchell, *Lutheran Observer*, 2 July 1880; and no title, *Zion's Herald*, April 18, 1878, http://www.proquest.com.ezproxy.library.wisc.edu/ (accessed June 18, 2008); review of *PreAdamites*, by Alexander Winchell, *California Christian Advocate*, 16 June 1880; and review of *PreAdamites*, by Alexander Winchell, *California Christian Advocate*, 3 November 1880.

[538] Livingstone, "The Preadamite Theory," 52-53, 60-64. See also David N. Livingstone and Mark A. Noll, "B. B. Warfield (1851-1921): A Biblical Inerrantist as Evolutionist," *Isis* 91 (2000): 283-304.

[539] Josiah Nott, "The Negro Race," in John David Smith, ed., *Racial Determinism and the Fear of Miscegenation, Pre-1900: Race and "The Negro Problem,"* (New York: Garland, 1993). See also Stanton, *Leopard's Spots*, 186-7; and Horsman, *Nott*, 297-299.

[540] David N. Livingstone, *Adam's Ancestors: Race, Religion, and the Politics of Human Origins* (Baltimore: Johns Hopkins University Press, 2008), ch. 8.