# THE SCIENTIFIC ALLEGORY OF JOHN AUGUSTINE ZAHM: ZAHM'S THEOLOGICAL METHOD WITH INSIGHT FROM MARIE-JOSEPH LAGRANGE

*by Hans Moscicke*

*Abstract.* Catholic modernist John Augustine Zahm is best known for his attempt to reconcile the theory of evolution with the Christian scriptures. However, Zahm's theological method—the underlying principles and procedures in his effort to reconcile faith and science—remains largely unexamined. In this article, I analyze Zahm's theological method and submit that it is an attempt to harmonize scientific knowledge and Christian scripture through a "scientific allegory" of the bible, which takes into account the human and divine meanings of scripture, the exegesis of the church fathers, and the dogmatic constitutions of the Catholic church. I compare Zahm's method with that of pioneering Catholic bible critic Marie-Joseph Lagrange, and his conception of biblical inspiration and the supra-literal sense of scripture. Through this historical investigation, I hope to contribute to the question of the relationship between modern science and Christian hermeneutics.

*Keywords:* Catholic modernism; hermeneutics; Marie-Joseph Lagrange; science; scientific allegory; scripture and science; John Augustine Zahm

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John Augustine Zahm (1851–1921) was a priest, scholar, scientist, educator, administrator, feminist, and explorer (cf. O'Connor 1951; Weber 1961; Burrell 2009a). His legacy is one that will endure. Zahm is perhaps best known for championing the theory of evolution and for his attempt to reconcile evolution with the Christian faith. His writings and lectures eventually embroiled him in the Catholic modernist controversy around the turn of the century, resulting in the Roman Curia placing his work *Evolution and Dogma* (1896) on the *Index of Forbidden Books* in 1898, although this decree was never officially published. Several months later, Pope Leo XIII would issue *Testem Benevolentiae Nostrae* (1899),

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condemning what he called "Americanism" (cf. Appleby 1987, 483–90). While most literature on Zahm treats either his life as a biographical whole, his role in the modernist controversy, or his views on evolution (cf. Sloan 2009), Zahm's own theological method—that is, the underlying principles and procedures in his attempt to reconcile Christian faith and science—remains largely unexamined. In fact, there is no in-depth analysis of his theological method to date. Such an undertaking would indeed be beneficial, given that much of nineteenth-century Catholic intellectual history remains underinvestigated, and since those engaged in theology and science today face similar problems and puzzles regarding the interaction of the two disciplines. Therefore, those interested in the intersection of religion and science could benefit from studying the thought of figures from the modern era such as John Zahm.

In this essay, I wish to set forward that Zahm's theological method is an attempt to harmonize scientific knowledge and Christian doctrine through a "scientific allegory" of the bible that takes into account the human and divine meanings of scripture, the exegesis of the church fathers, and the dogmatic constitutions of the Church. I hope to demonstrate that Zahm's approach was more than a superficial attempt to "save" Christian faith from science, but was a coherent and sophisticated theological method (whether or not one agrees with him). To proceed, I set Zahm in his intellectual milieu, relay his theological presuppositions and method in some detail, and then analyze this method in *Bible, Science, and Faith* (1894) and *Evolution and Dogma* (1896), as these two books comprise Zahm's most substantial theological-scientific works (cf. O'Connor 1951, 439–40). I have chosen to compare Zahm's perspective with that of Marie-Joseph Lagrange (1855–1938) throughout the article, because Lagrange in many respects represents Zahm's counterpart in the realm of historical-biblical criticism (cf. Burrell 2009b, 9). In the late nineteenth century, biblical criticism was understood as a burgeoning science (e.g., Lagrange 1905, 37–39), and Catholic exegetes were faced with the same challenges that Catholic natural scientists encountered. Lagrange's position also developed out of his own reflection on the relationship of scripture and the natural sciences. From the latter's work, it will become clear how a Catholic biblical critic handled many of the same difficulties pertaining to faith and reason that Zahm sought to solve. Through this interaction of ideas, I hope to shed light on Zahm's methodology and offer a heuristic framework for future investigations of this kind.

## Overview of Hermeneutical Approaches to the Scripture–Science Question

Before proceeding, it will be beneficial first to provide a very brief overview of the development of hermeneutical approaches to the scripture–science

question since the events of the modernist controversy, which escalated in the condemnation of modernism in Pope Pius X's encyclical *Pascendi dominici gregis* in 1907. This will provide a broad framework in which we can evaluate the approaches of Zahm and Lagrange in the "Conclusion" section of this article.

Ian G. Barbour, in his *Religion in an Age of Science* (1990), has relayed a widely accepted typology of modern approaches to the religion–science problematic. Barbour's four principal categories, expanded in his *Religion and Science* (1997; cf. Haught 1995, 9–25), can also be applied to the field of hermeneutics.

The "conflict" model has developed among biblical literalists who understood certain scientific theories, such as evolution, to be entirely irreconcilable with scripture. This hermeneutic grew, in part, out of the Christian fundamentalist movement of the early 1900s. It undergirded the infamous Scopes trial of 1925 (cf. Lienesch 2007, 8–33), as well as the Young Earth Creationist movement, which, beginning in the 1960s, rejected many modern conclusions of science and looked to scripture as a primary source of scientific knowledge (Fowler and Kuebler 2007, 191–236).

The "independence" model avoids any potential conflict between religion and science by emphasizing the distinct nature of each. The hermeneutic of Karl Barth (1886–1968) and the neo-orthodoxy school fall within this model, which recognized an insurmountable, epistemological gap between natural human knowledge and divine revelation (Yandell 1986, 450–51). Another relevant example is Rudolph Bultmann (1884–1976), whose existentialist, demythologizing hermeneutic drew firm distinctions between the Christian kerygma and scientific criticism. Postliberal theologian George Lindbeck may also be placed here; his cultural-linguistic hermeneutic understands the language game of Christian doctrine to have little relation to the language game of science (Barbour 1997, 87–89). More recently, evangelical bible scholars such as John H. Walton argue that scripture and its ancient cosmology can in no way speak to modern science (Walton 2009, 16–18).

Certain theologians have pursued a "dialogue" model, finding loose correspondences between science and faith. In addition to Ernan McMullin and David Tracy, Barbour offers Karl Rahner's (1904–1984) transcendental Thomism as an example. In the human being's desire to know, "there is a drive beyond every limited object toward the Absolute" (Barbour 1997, 92).

Integration models posit a more defined and direct relationship between Christian doctrine and science. Certain Old Earth Creationists represent this model, such as Hugh Ross, whose hermeneutic allows scripture to teach modern scientific knowledge and principles such as evolution (2001, 9–10). A more robust integrationist approach is that of Arthur Peacocke, who took an "independent" stance toward scripture, allowing it to speak

in its ancient context, but reinterpreted basic Christian doctrine in light of modern science, thereby allowing both scripture and science to have a symbiotic relationship in theological formulation (cf. Barbour 1997, 101). On the whole, ever since the Roman Catholic church has increasingly opened itself to other philosophical positions outside the neo-scholastic tradition, as initiated at Vatican II (1962–1965), there have been numerous efforts by Catholics to develop dialogue and integration approaches to the scienCe–scripture problematic (cf. Hess and Allen 2008, 117–48).

## Background and Overview of Zahm's Intellectual Milieu

Catholicism in the United States during the second half of the nineteenth century was largely "a working-class phenomenon, a religion of immigrants struggling to make their way in a foreign land" (Appleby 1999, 177). Generally speaking, Catholic prelates and priests in America were either progressive or conservative in their stance toward Darwinism and advancements in science. The former, infamously labeled "Americanists" (cf. McAvoy 1957, 261–302), were a minority who wanted to keep the growing Catholic middle class abreast of scientific advances, whereas the latter feared that exposure to such knowledge would devastate the faith of the people (Appleby 1999, 174–75).

Among the founders of progressivism in America was Isaac Hecker (1819–1888), who felt that the Holy Spirit was leading the Church to meet the widespread liberty and education proffered in the United States (McAvoy 1957, 157–63). John Ireland (1838–1918) echoed Hecker's enthusiasm and optimism, heralding that "[between] reason and revelation there [can] never be a contradiction" and that "the Church has no fear of natural truth" but is called to promote "its onward growth with all her might, with all her light" (1896, 98). John Lancaster Spalding (1840–1916) represented a more radical voice, requesting that the papacy not interfere in matters of science, and insisting that the Church must move beyond "outdated" Thomistic notions of natural knowledge and "assume new attitudes in the face of new conditions" (Appleby 1999, 181–82). Although some progressives such as Augustine F. Hewit (1820–1897), George M. Searle (1839–1918), and Thomas Dwight (1843–1911) would try to keep Catholic scientific investigation distinguished and unmingled from church politics, John Gmeiner (1847–1915) did not (Appleby 1999, 183–84). The notion of theistic evolution gained significant headway in his 1884 *Modern Scientific Views and Christian Doctrines Compared*. Like most progressives, he posited that faith and science necessarily cannot conflict, since both have God as their author (Gmeiner 1884, 16). Anticipating Zahm, he stressed that "the Bible does not intend to teach any purely profane or scientific truths, but only incidentally uses popular phrases that are at least relatively, or in a certain sense, true" (1884, 13). Gmeiner also pointed to

Augustine and Thomas Aquinas as church fathers who viewed God's act of creation as one denoting the *potential* creation of matter, flora, fauna, and so on, figuratively calling Darwin a veritable "disciple" of St. Augustine (1884, 158–59). Zahm will echo these and numerous other themes to a greater or lesser extent.[1]

The prolific British scientist George Jackson Mivart (1827–1900) exerted a strong influence on Zahm, who was styled "the Mivart of America" (Weber 1961, 57). In his *On the Genesis of Species* (1871), Mivart cursorily asserted that evolutionary theory was compatible with the protological interpretations of Augustine and Aquinas and other scholastics. He wrote: "It is then evident that ancient and most venerable theological authorities distinctly assert *derivative* creation, and thus harmonize with all that modern science can possibly require" (Mivart 1871, 281–83). He also made the distinction between God the "Cosmic Watchmaker"—a mechanistic God, virtually conceived as part of the universe—and the God of Christian faith, one who operates via primary and secondary causation, the two of which are not mutually exclusive (Sloan 2009, 198–99). Mivart stated, for instance: "Now, much confusion has arisen from not keeping clearly in view this distinction between *absolute* creation and *derivative* creation. With the first, physical science has plainly nothing whatever to do, and is impotent to prove or to refute it. . . . Derivative creation is not a supernatural act, but is simply the Divine action by and through natural laws" (1871, 270, 278). Both Zahm and Mivart also found a teleological interpretation of evolution viable, remaining steadfast to Aristotelian and scholastic notions of final causes (Sloan 2009, 199).

In sum, it is within this intellectual milieu, of which space only allows a brief sketch, that we situate Zahm. On the whole, many of his ideas are not original or unique, but Zahm's voice deserves to be heard, since he stands at the end of a relatively long line of progressive Catholic thinkers, and since he in many ways summarizes that conversation. For instance, John L. Morrison states that "virtually everything in it [i.e., *Evolution and Dogma*] had been said many times before by other Christians. In some respects, Fr. Zahm was a bit more cautious in his views than, say Mivart or Seton. He simply stated current, if not commonly held, Catholic theories more fully, provokingly, and vigorously than any American had yet succeeded in doing" (Morrison 1951, 206). Unlike some of his predecessors, Zahm avoided simplistic notions that the church fathers "taught" the results of modern science (cf., e.g., Zahm 1896, 312–13), and he displayed great respect for the Christian tradition and teaching offices of the Church. As R. Scott Appleby remarks, Zahm was "the perfect person to demonstrate the harmony between the conclusions of science and of theology, for he respected each method in its integrity while appreciating the implications of one for the other" (1999, 187). David Burrell states: "a remarkably competent philosophical and theological education equipped him to focus on the

interface between science and his religious faith, where he proved unwilling to court either simple opposition or facile juxtapositions" (2009b, 6).

On the other side of the Atlantic, Marie-Joseph Lagrange (1855–1938) is considered one of the founders of modern Catholic biblical criticism (cf. Braun 1943; Lagrange 1967; Montagnes 2005). He was a founder of the École Pratique d'Études Bibliques in Jerusalem (1890) and of the Catholic periodical, *Revue biblique* (1892). Lagrange also became entangled in the Americanist controversy, and shortly after the publication of *Testem Benevolentiae Nostrae* in 1899 he was ordered that "every article to be published in the *Revue biblique* be first submitted to Rome to be read by censors" (Fogarty 1989, 71). Zahm and Lagrange had an opportunity to meet in 1897 at the fourth International Catholic Scientific Congress held in Fribourg, Switzerland, although it is uncertain that they ever did meet. Like Zahm, Lagrange was a strong supporter of Catholic teaching and tradition, and a champion of Aquinas (O'Connell 1994, 123). The French scholar also "used criticism to challenge the modernists on their own playing field," much as Zahm challenged the secular scientists of his day (Baird 2003, 384). But perhaps the strongest link between these two thinkers is their desire to maintain continuity between faith and reason, theology and science. This stands in contrast to those of the ilk of Alfred Loisy, whose "whole purpose was to drive a wedge between theology and history" (O'Connell 1994, 127). I will expatiate upon the various ways in which Zahm and Lagrange attempted to maintain this continuity.

## John Zahm's Theological Assumptions and Method

The reason for identifying Zahm's method of reconciling Christian religion and science as "theological" is because he conceives theology to be the instrument that brings the two together. For instance, he concludes in *Catholic Science and Catholic Scientists*, "We have seen how intimately the inductive sciences are connected with philosophy and revelation, and how a successful cultivation of the former depends on the light and assistance afforded by the latter" (Zahm 1893, 215). This is one of several important presuppositions of Zahm's method that benefits from explication.

In addition to viewing theology as the instrument of religious and scientific synthesis, Zahm assumes that the truths of revelation and the natural world cannot conflict, since God is the author of both (1894, 7). At the same time, he asserts that "both [faith and science] belong to different categories" (Zahm 1894, 7). Zahm is clear on the point that science as a discipline is limited because it cannot make metaphysical, or for that matter theological, truth claims. He writes: "it is not always an easy matter to keep the scientific theory separated from the philosophical system. Hence, naturalists and philosophers are continually intruding on each other's territory. The naturalist philosophizes, and the philosopher, if

I may give a meaning to an old word, naturalizes" (Zahm 1896, 69; cf. Burrell 2009a, 17–18). Only scripture, philosophy, and dogma can make claims of this sort, for which reason the Christian scientist is "more free" than the atheist or agnostic in her scientific endeavors. In this regard, a guiding metaphor for Zahm is that of the lighthouse: "And as the mariner's progress is not impeded by the number of lighthouses along his course, but rather assisted, so likewise is the man of science materially aided in his search after scientific truth by the beacon-lights of faith which point out to him in no unmistakable manner the true and safe realms of science and philosophy" (1894, 7). The Christian scientist, in other words, is astutely aware that she cannot enlist scientific data into unwarranted services such as metaphysics and theology, which "frees" her to speculate as far as Christian dogma allows. This central presupposition of Zahm's should be seen as a relative statement, not an absolute one. He does not mean to assert that atheistic scientists, for example, are not as capable of scientific investigation. Zahm observed nonreligious scientists making unwarranted metaphysical conclusions, and so he adroitly indicates that the Christian scientist does not "need" to do this. Zahm writes that dogmas "save the Catholic scientist from many errors into which those who are not guided by religious truth inevitably fall . . . and enable him to steer clear both of the Scylla of ignorance and superstition on the one hand and the Charybdis of agnosticism and materialism on the other" (1894, 42). Burrell comments on this notion, stating that, for Zahm, dogma saves the Catholic "from baldly confronting scriptural texts with scientific theories, to which the *sola scriptura* ethos tended to regulate Protestant reflections on these matters" (2009a, 21). The inverse of this position is that scripture is rarely, if ever, a source of scientific insight or knowledge, an axiom that Zahm also firmly upholds.

These presuppositions are crucial for grasping Zahm's theological method. One important caveat is that Zahm does not himself articulate in any detail his method as I seek to do in this article. This, of course, does not mean he did not have a method. The following is my attempt to put into words Zahm's theological method, which can now be summarized as follows. Zahm reconciles *prima facie* contradictions between scripture and science by proffering a sort of "scientific allegory" of the bible, which finds scientific congruity in scripture at the level of the God-breathed text (not the human author's intent), utilizes certain theological categories from church fathers, and has as its "control" the dogmas of the Church. The following is an in-depth analysis of this method.

## Analysis of John Zahm's Theological Method

Although his work is apologetic and sometimes rhetorically charged, given that most of it was originally prepared as lectures and then later revised

for publication (O'Connor 1951, 439), one must not underestimate the sophistication of Zahm's thought. The impressive depth and scope of his work warrants an approach that reads sympathetically with Zahm and resists the urge to write off aspects of his work as merely apologetic or rhetorical. That being said, the aim of this section is not to examine in detail the *content* of Zahm's theological-scientific apologetic, but to investigate the *method* of his harmonizing project. To proceed, I exam three large segments in Zahm's work that display his theological method at work, drawing comparisons with Lagrange in each section.

## The Mosaic Hexaemeron and Zahm's "Scientific Allegory"

In the first part of *Bible, Science, and Faith* (1894), Zahm indicates several *prima facie* tensions between the Genesis creation account and modern science, stating that "no one chapter in the Bible contains so many and so great difficulties as does the first chapter of Genesis" (1894, 38). Zahm compares the Mosaic Hexaemeron with other ancient cosmogonies and highlights unique aspects of the Genesis account, such as creation *ex nihilo*, the lack of involved intermediary deities, and the absolute freedom of God's creative act (granted, some modern exegetes have doubted these aspects of the Genesis account; we take Zahm on the historical-critical terms with which he was acquainted). Zahm identifies the aim and intention of the biblical writer which, he states, "like that of all revelation, was a religious one" (1894, 33). In support of this proposition, he quotes Augustine and Leo XIII's encyclical *Providentissimus Deus* (1893), and then writes: "[The Mosaic account's] purport is not to teach geology, physics, zoology, or astronomy, but to affirm in the most simple and direct manner the creative act of God and His sovereignty over all creatures. Its object is not to anticipate any of the truths of science or philosophy, but to guard the chosen people of God against the pernicious errors and idolatrous practices which were then everywhere prevalent" (Zahm 1894, 34). This insight is rather astonishing given that Zahm's apologetic aim was to demonstrate the harmony of Christian faith with science. He states that it is "very rarely the case . . . when a certain and incontrovertible statement of fact in matters of science is made by the Sacred Text itself," remarking more strongly that "it is a grave mistake, therefore, to regard the Bible, especially the first two chapters of Genesis, as a compendium of science, as so many have done" (Zahm 1894, 40). Judging from these statements, it appears that Zahm is rather settled on the premise that the intent of the human authors of scripture was almost never to teach science. That Zahm has in mind the *human* authors of scripture is clear from passages that state (for example), "*Moses* wished to impress upon their minds that neither the sun, nor the moon, nor the stars . . . are God" (1894, 33, emphasis added; cf. 159). In fact, the conclusion that the intent of the human authors of scripture

was not to teach science was reached a year earlier in *Providentissimus Deus*, which related that the writers of scripture "did not seek to penetrate the secrets of nature" (Leo XIII, 1893).

Yet we see an apparent tension in what follows. Having relayed several aspects of the Hexaemeron account that *prima facie* appear to align with modern science, Zahm declares: "[here] we have in a few lines a résumé of some of the most important conclusions of modern science respecting the origin of the earth and its inhabitants" (1894, 35). He notes, for example, that the Genesis account begins with the creation of nebulous matter (Gen 1:1–2), which God, after an indefinite period of time, fashioned into organic and inorganic forms; plant life precedes animal life; the waters are inhabited before the ground is peopled; and the culmination of creation are human beings. According to Zahm, the words of Genesis relay scientifically congruent statements, which ancient Near Eastern people could not have known (1894, 36). How does this apparent attempt at concordism square with Zahm's aforementioned position that the human intent of scripture is not to teach science? Why is Zahm unable to let stand the apparent "contradictions" between scripture and science and adopt a model of "independence," allowing both scripture and science to speak their own respective languages?

To answer this, one must consider Zahm's position regarding exegetical methodology in chapter 4 of the work. He writes: "one of the principles of interpretation which they [i.e., Catholic exegetes] never lose sight of . . . is that we must submit certain questions of Scripture to the examination of both reason and science" (Zahm 1894, 85). This explains for Zahm why such a vast range of interpretations of the Mosaic Hexaemeron have been offered throughout the ages—because scientific conclusions have constantly changed. Zahm wants to follow in the steps of the church fathers, whom he understands to practice a kind of "exegesis in light of science" or, as we might call it, a "scientific allegory." We see this idea unfold in Zahm's treatment of the Alexandrian and Antiochene "schools" of exegesis and their interpretations of the word "day" in the Genesis creation account. Those of the "allegorical school" interpreted "day" figuratively, arriving at the theory of "simultaneous creation." The Alexandrians were amiss according to Zahm because the science of their time was flawed and so their allegory grew excessive (1894, 45–51). On the other hand, those of the "literal school" rejected figurative readings of the Hexaemeron, understanding the "days" to be literal twenty-four hour days, according to Zahm. The Antiochenes were amiss because they refused to read scripture figuratively when the text seemed to require allegory (Zahm 1894, 52–59). For Zahm, Gregory of Nyssa's exegesis embodies a *via media* between the two "schools": "His method is more critical, and he acknowledges on all occasions the service that profane science may render to scriptural exegesis" (1894, 65). According to Zahm, Gregory offers a scientific exegesis that

avoids excessive allegory and rigid literalism. The Cappadocian basically reads Gen 1:1 as the *ex nihilo* creation of nebulous matter which comes into formation and actuality over a succession of time (viz., Gen 1:3–31), a view in agreement with the scientific cosmogony of Zahm's own day (cf. Gregory of Nyssa, *An Apology for the Hexaemeron*).[2] Zahm appreciates Gregory's position, which allows science to guide his reading of a scriptural text.

While Zahm demonstrates respect for both exegetical "schools," he betrays favor for the allegorical school, which consciously utilized science and philosophy in its hermeneutic. It becomes implicitly evident that Zahm views his own project as following in this tradition of "scientific allegory," which attempts to offer "a logical answer to the [scientific] difficulties raised" by the scriptural text (1894, 68). By "allegorical" I mean the kind of reading strategy that takes a thing as its starting point (e.g., Christ, the rule of faith, a scientific principle) and "finds" manifestations of that thing in a text. Here, I broadly rely on Henri de Lubac's understanding of allegory (1967; 1989). Zahm's scientific allegory is analogous to the "spiritual sense" of the so-called "fourfold sense of Scripture" (i.e., literal, allegory, tropology, anagogy; cf. Wood 1998, 25–46) in that it looks for meaning in the scriptural text not at the level of the literal sense, but from a higher perspective and through a very particular lens. In the case of Zahm's scientific allegory, the higher perspective and lens is science. It does not so much try to extract scientific principles *from* the inspired text as it imposes a scientific framework *onto* the text and perceives scientific principles in the text retrospectively. This imposition is justified for Zahm because God is author of both scripture and nature (1894, 7). Returning to his discussion of the "impressive résumé" of scientific truths in Genesis 1, Zahm writes: "There is something in Genesis above man—something supernatural, something divine. In a word, Moses was inspired" (1894, 36). Scientific knowledge, then, is located in scripture at the level of the divine author, just as Christian proponents of allegorical reading strategies understand Christ to be present in the Old Testament because of scripture's divine, not human, author.

This mysterious understanding of scientific allegory, then, explains why Zahm is unable to let stand in total separation the human meaning of scripture and the results of modern science, since he views the Sacred Text as endowed with scientific meaning at the level of the divine author. Zahm maintains that, had the Alexandrians existed today, they would engage in a similar kind of scientific exegesis: "But suppose their [i.e., Clement and Origen's] environment to have been different—suppose them to be living in our day. We may be certain that the Clements and the Origens would hail with gladness the discoveries of geology, because they would not be obliged to change any of their *fundamental principles* regarding the accordance of science and faith. All that would be necessary would be to give

these principles a different application" (Zahm 1894, 51, emphasis mine). Zahm thus understands his approach to be in accord with the "fundamental principles" of the early fathers who used such allegorical modes of exegesis. He explicitly defended an allegorical reading of Genesis at the fourth International Scientific Congress of Catholics in 1897, commenting that "many exegetes of distinction declare that [the narrative of Genesis] must be understood not literally but allegorically" (Zahm 1898, 405, translation mine; cf. Artigas, Glick, and Martínez 2006, 140). It is important to note that Zahm's approach differs from highly embellished forms of Christian allegory that elaborate their spiritual readings at length; Zahm's scientific allegorizations are conservative and minimalistic. They read nothing more into the text than what science has already revealed to contemporary society.

One further example of Zahm's scientific-allegorical approach is exhibited in his discussion of matter and light. According to Genesis 1, God created light on the first day of creation and the sun on the fourth day, which is ostensibly problematic in light of modern science. However, if we start from our knowledge of how the universe was formed and read this knowledge back into the text, there is no contradiction, according to Zahm: "long before the nebulous mass from which the sun was evolved was sufficiently condensed to form the brilliant luminary which we now behold, the revolving cosmic mass had, in virtue of its condensation and contraction, begun to emit light" (Zahm 1894, 89). Zahm concludes that there is no discrepancy between the "data of science and the words of Genesis" regarding the creation of light (1894, 90). Here, we note Zahm's reference to the *words* of Genesis and, earlier, the "Genesiac narrative." He is not under the illusion that the human author of Genesis knew any of this. Rather, it is the "Inspired Record" that contains this scientific knowledge (Zahm 1894, 90). I will discuss more examples of Zahm's scientific readings below. To summarize, Zahm posits that scientific knowledge can be perceived in scripture not at the level of the human author, but the divine author. This knowledge can be accessed through a kind of scientific allegorization of the Sacred Text.

Zahm's attempt to defuse the tension between science and scripture finds certain resonance and dissonance in Lagrange's methodology. In an article read at the fourth International Scientific Congress of Catholics in 1897, the French scholar isolates the religious meaning of scripture from its "accidental forms." Lagrange writes: "[We] rightly cling to the veracity of the Bible even in details. Yet where these details are not important in themselves, we are free to ask whether God really willed to teach them to us, or whether He has not utilized them as material elements of a higher teaching . . . there is an historical subject-matter, taught by means of accidental forms which the author does not give as true in themselves, but as a formula more or less precise of the truth" (1898, 121–22). So, for instance, God does not intend to teach such things as "historic and

chronological details," but things that "concern salvation" (Lagrange 1898, 122).[3] Like Zahm, the French biblical critic is able to affirm the inerrancy of scripture in light of its scientific and historical "inaccuracies" by making this distinction (cf. Fogarty 1989, 44–57). Lagrange is more explicit in his work *Historical Criticism and the Old Testament*, stating that "the Bible contains no scientific teaching" (1905, 141). He is wary of attempts to harmonize science and scripture, writing that "scientific exegesis must absolutely give way to historical exegesis" (Lagrange 1905, 145; cf. 132).

At the bottom of Lagrange's approach is the distinction between "recording" and "teaching," as Francis Schroeder notes. The first purpose of inspiration is not to teach, but to produce a record. This record may contain errors, but it "allows the essential development of a gradual revelation, without being wedded to any particular stage of that development" (1958, 209; cf. Schroeder 1954, 12–23; cf., e.g., Lagrange 1905, 140–41). However, the final purpose of inspiration is to teach. The divine teaching must be carefully distinguished from the biblical record, read in context of the canon and tradition, and it contains no errors (Schroeder 1958, 210; cf. Burtchaell 1969, 139–40). This is why the science of historical criticism poses no threat to Lagrange's high view of scripture, but forms part of the solution (Schroeder 1954, 3). Joseph Chaine summarizes Lagrange on this point: "Inspiration extends to everything in the book, even to the words; but the inspired author is not always affirming. . . . The author does not always teach in the name of God" (1946, 15). The task of the exegete is to discern what is the *teaching* of the human author of scripture, which is tantamount to the teaching of its divine author (cf. Burtchaell 1969, 143–45).

These views of Lagrange grow organically out of his interaction with not only the science of biblical criticism, but the natural sciences as well. In a chapter entitled "Historical Criticism and Science," Lagrange states: "it would seem evident that there is only one course open to us—to leave on one side present-day scientific discoveries and interpret the Scriptures in the light of old-fashioned science. But would you really do so if that old-fashioned science were imperfect, insufficient, nay, absolutely wrong? If it imagines a solid vault separating the waters above from the waters below; if it looks upon the stars as little lights hanging from the vault. . . . Has all that to be made part of the divine teaching? Not at all. God did not teach that" (1905, 140–41). This approach verges toward the "independence" model laid out in the introduction. The teachings of scripture and the natural sciences have simply nothing to say to one another.

According to Lagrange, a key component for the exegete in deciphering scripture's "teaching" is the consideration of the "style of [the] literary production" of the biblical texts (1905, 182; cf. Schroeder 1958, 212). The first twelve books of Genesis, for example, are not a "real history," but a "primitive history," containing both historical and mythological elements

(Lagrange 1905, 201–02). The mythological elements serve as a horizon against which to view scripture's teaching, and the historical elements, which are only more or less based on fact, perform a similar function. For Lagrange, then, the study of scripture's genres is crucial to the study of its "teaching," which subsequently aids in exonerating it from accusations of errancy.

In sum, both Zahm and Lagrange in their own ways distinguish between the teaching and recording of scripture to mitigate its scientific and historical discordances. While Lagrange's approach is more "outward," working carefully to extract the precise teaching of the Sacred Text, Zahm's approach is more "inward," attempting to read back into the God-breathed text scientific truths that were already there, but inert. This is because, for Zahm, scientific meaning inertly resides in the Sacred Text at the level of the divine author, and must be "activated" with scientific knowledge obtained from present-day scientific methodology. For Lagrange, scientific meaning does not reside in scripture at all (aside from the human authors' flawed cosmologies reflected in their "recording").

## The Noachian Deluge, the Necessity of Scientific Allegory, and Dogmatic Control

Although Zahm is able to leverage the exegesis of the church fathers in support of a scientific exegesis that makes a kind of allegorical-scientific sense out of the Mosaic Hexaemeron, operating at the level of a "spiritual meaning" (viz., the Holy Spirit as author), he is unable to find the same patristic support for reading the Flood narrative in a scientifically viable way. This raises a crucial question in Zahm's methodology: namely, what are the theological controls of scientific exegesis? And when would a particular scientific reading be off limits?

In Part Two of *Bible, Science, and Faith*, Zahm raises the question of the universality of the Noachian Deluge, which had come under considerable scrutiny by scientists in his day. One objection to the Flood's universality, for instance, ran: how could "all high mountains" (Gen 7:19) be covered by the Flood when there could not be enough water on the planet to submerge peaks as high as Everest? After an overview of such scientific evidence and proofs, Zahm sounds his voice in the chorus: "In the light of science . . . the theory of a universal Deluge is untenable" (1894, 135). How then does one interpret the biblical language, the "*whole* earth," "*every* living creature," and "*all* men" in Genesis 7?

As in the previous segment, Zahm is able to exonerate scripture from the charge of contradicting science by appealing to the authorial intent of the human biblical writer. He insists that scripture must be read in its literary context and must be interpreted "according to the mind of the writer and according to the mind of those for whom the author speaks" (Zahm 1894,

139). He is well aware of the developments in source criticism and does not view them as problematic for the Christian reader of scripture (Zahm 1894, 114). Having surveyed scripture's use of the term "all," Zahm concludes that the term was quite relative and flexible in the Hebrew Bible (1894, 136). He posits that Moses made use of a written or oral tradition received from the descendants of the patriarchs, to whom the Flood *really did* seem like a universal event (Zahm 1894, 159). From the human author's standpoint, then, "all" the world really was subsumed by the Flood. Zahm advances that the authorial intent of the passage is to demonstrate God's preservation of the patriarchal line from Adam to Noah amidst God's mighty vengeance on a sinful humanity: "[Moses] was not writing a history of the world. He was tracing out a synopsis of the history of the Hebrew people, the chosen people of the Lord, the sons of God" (1894, 161; cf. O'Leary 2006, 9). Zahm thus keeps distinct what we might loosely call the "locution" (the words themselves, similar to "recording") and "illocution" (for our purposes, the "authorial intent," similar to "teaching") of the biblical text in terms of its human authorship (cf. Briggs 2005, 763–66). On the illocutionary level, there is no clash with science (cf. Burrell 2009a, 9).

Yet Zahm is not content to leave it here. That the term "all" can have such a flexible meaning is almost an *invitation* for Zahm to perform a scientific allegory: "We have seen that the absolute expressions 'all the earth,' *omnis terra*, and 'all flesh,' *omnis caro*, may be used in a restricted sense—that science demands it, that exegesis allows it" (1894, 154). And again: "[When] the results of scientific discovery proclaimed the *necessity* of revising the interpretations that had been in vogue regarding the total destruction of the race by the Deluge, it was found that there *was nothing in the Sacred Text that forbade such a revision*" (Zahm 1894, 159, emphasis added). Zahm sees scientific allegory as a necessary task and one which the very words of scripture (the locution) either encourage or at least allow. Again, this is because Zahm understands the Holy Spirit to be operative within the text as its primary author: "The Holy Ghost, having in view only the narrative of a prodigious inundation destined to punish the crimes of mankind, did not prevent the inspired writer from using these general expressions, inasmuch as these, when compared with similar expressions in other parts of the Bible, were susceptible of a more restricted sense" (1894, 159–60). It is as if Zahm understands the Holy Spirit's role in inspiration to be one that guides the human author's *words* in such a way that, as scientific knowledge advances, they may be harmonized with science.

However, since none of the church fathers endorse such an interpretation of a limited Noachian Deluge, how does Zahm justify this relatively new scientific reading? In other words, "are we to consider their [viz., the fathers'] consensus of opinion regarding the Flood as a part of the body of doctrine which cannot be impugned without scandal and danger to faith?" (cf. Zahm 1894, 140). This question is central for Zahm's overall

project and provides a glance into the inner chamber of his theological method. Zahm estimates that "not a single Scholastic, nor indeed any Catholic theologian of repute, has ever taught ... that the universality of the Deluge is of faith" (1894, 150). He interprets the decree of the Council of Trent (1545–1563), renewed by Vatican I (1869–1870)—which declared that in "matters of faith and morals pertaining to the building up of Christian doctrine ... it is forbidden to interpret Scripture contrary to the unanimous consent of the Fathers"[4]—as granting liberty to interpret scripture in a manner contrary to the fathers, insofar as it does not infringe on matters of faith and morals (Zahm 1894, 143). Thus, the door is open for Zahm to put forward a new scientific reading of the Flood account, which the text itself linguistically permits and even encourages. This scientific allegory is one which simply conforms the flexible "all"-terminology of the Flood narrative to modern science and reads these elements as geographically, zoologically, and anthropologically limited. Zahm writes: "This restricted sense, applied to the expressions used, would at a later date correct the inexact or false idea that had been entertained regarding the extent of the Deluge" (1894, 160). In other words, the divine author of scripture had the foresight to use language (i.e., "all") that could be interpreted at a later date so as to accord with the advancements of scientific knowledge. It is through a scientific-allegorical approach that these scientific truths can be accessed in the Sacred Text. We should not confuse this position with the view that the bible intends to teach science or is a "compendium of science." For Zahm, truths of the natural world are contained in scripture, but can only be accessed if the interpreter of scripture brings to the text the scientific knowledge which she has obtained through scientific methods of inquiry. Bearing this "lens" in hand, she can superimpose it over the God-breathed text to reveal and unlock hidden scientific meaning in the text. In this, Zahm's approach is quite distinct from the biblical literalism of the "conflict" model.

Neither is Lagrange defeated by the problems modern science poses for the Flood story. Noting that most anthropologists interpret the ancient Near Eastern flood narratives as referring to an actual event, more or less modified and limited, what concerns the French scholar is its "religious interpretation," which he states "has far surpassed its historical importance" (Lagrange 1905, 207). Again, biblical "history" is chiefly a backdrop or horizon that serves to elucidate a greater theological or religious purpose. Just as the Priestly Code conceives the history of the Pentateuch as a figurative framework in which to relay its law (Lagrange 1898, 122), such stories in Israel's primitive history form a mythical framework in that their primary purpose is not to convey historical but religious truths. Lagrange does not exclude the possibility of miracles *a priori*. For Lagrange, as for Zahm, God is both author of scripture and science, so that "scientific criticism can be adopted" with ease by the confessional critic (Baird 2003, 386).

But who is to determine what is mere record and what is divine teaching? Again, this is the task of the biblical exegete, which, if executed properly, will always result in absolving scripture from the charge of teaching error. But these conclusions must also be submitted to the traditions of the Church and its dogmatic constitutions as a theological control: "Indeed, we cannot, without temerity, contravene the dogmatic sense of Scripture generally held by theologians, or reject a tradition recognized by them generally as of importance to the faith. Where a tradition does not touch faith, even the unanimous consent of the Fathers does not . . . suffice to render it certain" (Lagrange 1898, 118). So there is liberty of interpretation insofar as one's interpretation does not violate a dogma or matter of faith deposited to and guarded by the Church (cf. Lagrange 1905, 126–30). Both Lagrange and Zahm share this position.

## Evolutionary Theory, and Theological Categories Applied to Scientific Allegory

Unlike *Bible, Science, and Faith*, in which he treats several disparate topics related to scripture's primal history, Zahm focuses his efforts on tackling the thorny topic of evolution in *Evolution and Dogma* (1896). A letter Zahm wrote in 1895 to Hewit before the publication of the work reveals the nature of the book: "My object is not to prove that the theories discussed are true but that they are tenable, that they are not the bugbear they are sometimes declared to be . . . to show . . . that there is no possibility of conflict between science and religion and that in controverted questions the Church allows her children the utmost liberty" ("Fr. John A. Zahm to Fr. Augstine F. Hewit, October 2, 1895," as quoted in Morrison 1951, 206). After providing a thorough overview of the theories of, evidences of, and objections to evolution in Part One of the work, Zahm concludes that "the fact of Evolution, as the evidence now stands, is scarcely any longer a matter for controversy" (1896, 201). In Part Two, having considered what, in his view, are erroneous philosophical interpretations of evolution (e.g., materialism, agnosticism, and so on), he turns to consider evolutionary theories in relation to Christian doctrine in chapters four to seven.

Zahm makes plain that evolution *per se* "is not opposed to the dogmas of the Church" (1896, 389). He states that "as a Catholic I am bound to no theory of Evolution or of special creation, except in so far as there may be positive evidence in behalf of such theory" (Zahm 1896, xxiv). He quotes at length the First Vatican Council's Dogmatic Constitution of the Catholic Faith regarding the doctrine of creation, noting its condemnation of atheistic, materialistic, and pantheistic interpretations of the doctrine, but no evolutionary notions (Zahm 1896, 221–23).[5] In short, Zahm does not perceive the theory of evolution—even the theory of humankind's simian origin—as a matter of dogma or faith (cf. Morrison 1951, 218), which frees

him to perform a scientific allegory of Genesis 1–2 that incorporates evolutionary theory. Hewit also recognized in a review of *Evolution and Dogma* in 1896 that Zahm's stance "did not contradict the dogma of creation or of man's immortal soul, and the only question was whether it was reconcilable with the Bible story of Adam and Eve" (Morrison 1951, 218–19).

In *Evolution and Dogma*, Zahm focuses his efforts on reconciling evolutionary theory with the church fathers' interpretation of Genesis 1–2. A revealing statement comes at the conclusion of his discussion on the animal origin of the first human: "We should be obliged to revise the interpretation that has usually been given to the words of Scripture which refer to the formation of Adam's body, and read these words in the sense which Evolution *demands*, a sense which, as we have seen, may be attributed to the *words* of the *inspired record*, without either distorting the meaning of terms or in any way doing violence to the *text*" (Zahm 1896, 364–65, emphasis added). Given what we know about his view of authorial intent, Zahm does not mean that we need to revise our historical-critical exegesis of Genesis 1–2. Rather, if the simian origins of man can scientifically be demonstrated, the Church must revise its scientific-allegorical reading of Genesis 1–2, according to Zahm. He refers to "the words of Scripture," "the words of the inspired record," and "the text," avoiding any such phrase as "Moses's meaning," suggesting that such a reading will find its scientific compatibility at the level of the *divine* locution and illocution of scripture. How does Zahm undergo such a seismic project? As he does in *Bible, Science, and Faith*, but even more pronounced here, Zahm finds the resources he needs in the church fathers, namely Augustine and Aquinas.

Like Gregory of Nyssa and the allegorical "school," Augustine and Aquinas were not timid in utilizing the science and philosophy of their day in their readings of scripture. According to Augustine, God first created primordial matter, and then through secondary causes he formed the particulars of creation. The theory of evolution via secondary causation, according to Zahm, "is in perfect harmony with the declarations of the opening chapter of Genesis" (1896, 290; cf. 280–84). For instance, Zahm's scientific allegory of Gen 1:11 ("Let the earth bring forth vegetation") follows Augustine in positing that the earth was given a "germinative power" to produce plants and vegetation on the third day, not that the earth actually produced plants and vegetation on the third day. This reading is encouraged by Gen 2:4–5: "In the day that the Lord God made the earth and the heavens*, when no plant of the field was yet in the earth and no herb of the field had yet sprung up . . .* " (Zahm 1896, 291–92, emphasis added). Zahm's reading of Gen 1:11 differs from that of Augustine, of course, in that Zahm consciously allows his knowledge of the theory of evolution to guide his reading of the text. Zahm also draws from Aquinas, who postulated that God first brought *materia prima* into existence, endowing it with various forms and seminal influences "so that out of them, as though from

certain seeds, natural entities might be produced and multiplied" (1896, 289). While he exaggerates and misreads Augustine and Aquinas, particularly on the mutability of species, "leaving himself open to the violent negative reactions of some of the Roman theologians" (Ernan McMullin, cited in personal communication with Burrell; Burrell 2009a, 35; cf. Zahm 1896, 313–17), Zahm is able to find theological resources and categories that broadly support the kind of scientific reading that would reconcile scripture and evolutionary theory. He is aware that in order to do this, some of the metaphysical assumptions of Aquinas, for example, would need revision, but he submits that Aquinas himself would not bind his disciples to any particular metaphysical, or for that matter, scientific formulae if more accurate ones were available (Zahm 1896, 314). Zahm also seems to assume that at least some of the scientific and philosophical principles undergirding his readings of Augustine and Aquinas possess continuity with modern science and philosophy.

In chapter six of Part Two of *Evolution and Dogma*, Zahm appeals to several of Aquinas's philosophical and theological categories to validate a scientific allegory of the creation of Adam that affirms the simian origins of humankind. He first draws on Aquinas's notion that angels were present and active in the "formation and preparation for the reception of its [viz., Adam's body's] informing principle, the rational soul" (Zahm 1896, 355). The notion of a mediatorial agent in the formation of the first human's body can smoothly be adapted to the concept of evolution. Second and third, he indicates that Aquinas's distinction between primary and secondary causes, and act and potency, can be appropriated. While God first created matter in the "absolute and primary" sense, and plants, animals, and humankind only existed in potentiality, these came to actuality by means of "secondary causes acting under the continued and uninterrupted guidance of the Divine administration" (Zahm 1896, 356–57). Fourth, Zahm relays a teaching of Aquinas that envisions the development of man as consisting of "an ascending succession of substantial forms" (i.e., vegetative and animal) in order to become "the receptacle of a rational soul" (1896, 357). Zahm, aware of his limitations in metaphysics and historical criticism, does not attempt to solve the philosophical and exegetical problems inherent in adopting these theological categories, but he is confident that such hurdles could be overcome, looking to others to whom he can pass the torch. This strategy of leveraging the fathers' theological categories to build a bridge from the findings of science to the God-breathed text characterizes Zahm's approach in *Evolution and Dogma.*

It is important to note that Zahm did not claim that Augustine and Aquinas theorized concerning evolution in the modern sense, but only that their ideas were compatible with and supported the theory of evolution in a broader sense (Artigas et al. 2006, 129). "Of course no one would think of maintaining that any of the Fathers or Doctors of the Church taught

Evolution in the sense in which it is now understood. . . . But they did all that was necessary fully to justify my present contention; they laid down principles which are perfectly compatible with theistic Evolution. They asserted . . . that God administers the material universe by natural laws, and not by constant miraculous interventions" (Zahm 1896, 312–13).

## Lagrange's Supra-Literal Meaning Compared with Zahm's Scientific Allegory

Although Lagrange obviously does not follow any such program of scientific reading of scripture, viewing the enterprise as "a series of ill-assured gropings, of ephemeral triumphs, of scarcely veiled retreats, and of unwilling concession" (1905, 135), he does recognize the presence of a "supra-literal" sense of scripture: "As long as we believe in the inspiration of the Scriptures we must admit that they contain more than the obvious and purely literal sense" (1900, 141, my translation; cf. Schroeder 1954, 23–27). Raymond Brown describes Lagrange's supra-literal sense as "a deeper meaning intended by God but not clearly intended by the human author, which is seen to exist in the words of a biblical text when they are studied in the light of further revelation or developed in the understanding of revelation" (Brown 1956, 52; cf. Brown 1955; Weisengoff 1956).

Lagrange's supra-literal sense shares several things in common with Zahm's scientific allegory. First, the supra-literal meaning, like Zahm's allegorical meaning, does not operate at the level of the human author, but at that of the divine author. Second, the deeper meaning seems to reside in the words, or thoughts (viz., *pensée*) of the scriptures themselves. In other words, the locution of scripture is seen as a "living organism" for both scholars. Third, one only arrives at the deeper meaning by the illumination of other sources of revelation. Lagrange's supra-literal sense is illumined by other scriptural passages and Church tradition, and Zahm's scientific allegory is illumined by "natural revelation," namely science. Fourth, the theological control of the interpretation of these deeper meanings is the Church and tradition (Schroeder 1954, 25–26). And fifth, both scholars assume God to be the author of multiple sources of revelation. Lagrange states: "The Revealer of the tradition is the same as the Author of Scripture"; the logical conclusion being that "the thought of the Scripture can therefore be guided by the truths of the Tradition" (1900, 141–42; translation mine). As we saw earlier, a similar logic buttresses Zahm's method and is what allows scientific knowledge to act as a lens through which to view scientific truths in the Sacred Text. Without this lens, such truths would be unknowable in scripture.

Given these commonalities between Lagrange's conception of the supra-literal sense and Zahm's notion of scientific allegory, it is surprising that Lagrange does not open his exegetical purview to scientific readings as

Zahm does. The French critic viewed such attempts as superficial endeavors, of which "[the] science of apologetics can only be ashamed" (Lagrange 1905, 136). Whether or not Lagrange was acquainted with Zahm's work is uncertain, and one can only wonder what his reaction would be to such a detailed analysis of Zahm's method as the one offered here.

## Conclusion

In this essay, I have offered an account of John Zahm's theological method, that is, the underlying principles and procedures of his attempt to reconcile Christian faith and science. I have argued that Zahm's theological method is an effort to harmonize scientific knowledge and Christian theology through a "scientific allegory" of the Bible that takes into account the human and divine meanings of scripture, the exegesis of the church fathers, and the dogmatic constitutions of the Church. In particular, Zahm reconciles *prima facie* contradictions between scripture and science by proffering a sort of scientific "allegory," which finds scientific congruity in scripture at the level of the God-breathed text (not the human author's intent), utilizes certain theological categories from church fathers, and has as its "control" the dogmas of the Church. I hope to have demonstrated in this essay that Zahm's method was more than a superficial attempt to "save" Christian faith from science, but was a coherent and sophisticated approach. On the whole, Zahm's method takes seriously the emphasis laid on the Holy Spirit's role as primary author of scripture and the bible's inerrancy as articulated in *Providentissmus Deus*: "For all the books which the Church receives as sacred and canonical, are written wholly and entirely, with all their parts, at the dictation of the Holy Ghost; and so far is it from being possible that any error can co-exist with inspiration, that inspiration not only is essentially incompatible with error, but excludes and rejects it as absolutely and necessarily as it is impossible that God Himself, the supreme Truth, can utter that which is not true" (Leo XIII 1893). In short, Zahm's project was an attempt to meet the challenges of modernism faithfully and creatively by showing that one could "plumb even [the] divine mysteries" of science through tradition and scripture (O'Connell 1994, 133; cf. 132–54). That the Congregation of the Index never officially published its condemnation of Zahm's *Evolution and Dogma* demonstrates that the Vatican was wary of eschewing Zahm's approach at least to some degree (Artigas et al. 2006, 156–58; cf. 201–02).

When Zahm's *modus operandi* is compared with that of Lagrange, several interesting methodological observations come to light. The following summarizes the primary points of contact between Zahm and Lagrange. First, both disarm the tension between the Sacred Text and science/history by distinguishing between the theological meaning/teaching of scripture and its accidental forms or appearances, which may contain scientific and

historical "inaccuracies." This initially places both authors in the "independence" model, as they both deny that the human authorial intent of scripture in any way speaks to matters of science or natural knowledge. Second, Zahm and Lagrange appeal to tradition and the teaching authority of the Church as a means of dogmatic control in their theological method. Finally, both acknowledge a deeper meaning in scripture that transcends the illocution of the human author. What is most interesting is that Lagrange does not consider science a source of revelation that has bearing on the deeper meanings of scripture as Zahm does. Yet it does not seem that Zahm's method is inherently opposed or incongruent with that of Lagrange. The two are fundamentally at odds with regard to the *kind of content* contained and revealed in scripture. Zahm maintains that the bible contains scientific truths (albeit inertly); Lagrange does not. Consequently, Zahm would maintain that the Church is *obligated* to perform such scientific allegorization of the Sacred Text (cf. section "The Noachian Deluge, the Necessity of Scientific Allegory, and Dogmatic Control" above). Therefore, while Lagrange maintains an "independence" model, Zahm was "not content to stay stuck in the safety of contrast" (Haught 1995, 203), moving into what appears to be an "integration" approach. Indeed, Zahm rightly recognized, in contrast to Lagrange, that God's revelation in scripture and nature must somehow be compatible and not quarantined to separate quarters.

Zahm's integrationist *modus operandi* has the benefit of demonstrating harmony between Christian scripture and science while avoiding any awkward postulations that scientific knowledge was divinely disclosed to the human authors of scripture. It is a noble attempt to preserve a unity of knowledge predicated on the assumption that God is author of both scripture and nature. It also has the benefit of being rooted in a reading strategy that has been widely utilized in the Christian tradition, namely, allegory, or the "spiritual sense," although Zahm's use of this strategy differed. Currently, there is a move toward reappropriating premodern modes of exegesis for contemporary theology among certain historical and biblical scholars and theologians (cf., e.g., Steinmetz 1980; O'Keefe and Reno 2005; Treier 2008). This hermeneutic has developed in response to a growing awareness of the inescapable role presuppositions play in interpretation. O'Keefe and Reno demonstrate that premodern reading strategies utilize a "hypothesis," such as the "rule of faith," which is "laid over the data to see if it will fit. It is necessarily extrinsic to the data, resident in the mind of the investigator as a strategy for bringing order to the evidence" (2005, 122). Zahm's scientific allegory certainly commends itself to such an approach. Of course, it remains to be determined whether "science" is a viable "hypothesis" to bring to the "data" of the Sacred Text (on Philo's and Origen's use of a "physical" or "cosmic sense" of scripture, cf. de Lubac 1959, 148–50).

While Zahm's approach seeks to maintain a kind of mystical congruity between science and scripture, it is very difficult to see how scientific

allegory *per se* can bring unity to scientific and theological principles in a constructive, comprehensive, and systematic way. Zahm's willingness to incorporate the theological insights of church fathers into his readings of the Genesis account demonstrates the openness of his approach, a true effort to find common ground between Christian doctrine and science, not only at the scriptural level. Thus, as Zahm himself seemed to recognize but was not able to accomplish fully, one will need to move beyond a mere scientific allegorization of scripture and incorporate other philosophical, theological, and scientific perspectives in order fully to furnish an adequate "dialogue" or "integrationist" model. Besides this, it is difficult to imagine how scripture could be compatible, at the level of the divine author, with so many different scientific conclusions throughout the ages. Does this mean that, as erroneous scientific theories are identified and corrected, the divine meaning(s) of scripture can be identified as erroneous as well? Are these congruities between science and scripture really there, or are we simply imagining them?

Whether or not one sees the need to bring scripture into harmony with science in the way Zahm proposed, his grand vision to see Christian scripture, tradition, and Church teaching brought into dialogue with modern science is one that granted both realms significant liberty to speak to and inform one another. It was one that began from the vantage point of faith and tried to meet the scholastic aim, *fides quaerens intellectum*, in a modern age.

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## Notes

1. On the interaction of Catholicism and Darwinian thought, see John L. Morrison (1951), John Rickards Betts (1959), John Lyon (1972), Robert Scott Appleby (1999), Don O'Leary (2006), and the collection of essays in Louis Caruana's edited volume *Darwin and Catholicism* (2009).
2. See Hubertus R. Drobner (2009). Zahm views Gregory as foreshadowing the nebular hypothesis as formulated by Immanuel Kant (1724–1804), Sir William Herschel (1738–1822), and Pierre–Simon Laplace (1749–1827).
3. For Lagrange on inspiration and the nature of scripture, see Francis J. Schroeder (1954) and James T. Burtchaell (1969, 132–47).
4. Council of Trent, Session 4, 8 April 1546, "Concerning the Edition and Use of the Sacred Books" (quoted in Zahm 1894, 141); cf. First Vatican Council, Session 3, 24 April 1870, Dogmatic Constitution on the Catholic Faith, chapter 2, "On Revelation."
5. He quotes from the First Vatican Council, Session 3, 24 April 1870, Dogmatic Constitution on the Catholic Faith, chapter 1, "On God the Creator of All Things"; and ibid., Canons, "On God the Creator of All Things."

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