

**God, Scripture, and the Rise of Modern Science (1200 – 1700)**

**Notes in the Margin of Harrison's Hypothesis**

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## 1. HARRISON'S HYPOTHESIS

Something as complex as natural science could not have emerged unless many conditions were fulfilled. Most important among them, Peter Harrison has proposed, was a new conception of the natural order that emerged between the 12<sup>th</sup> and the 17<sup>th</sup> centuries. In it symbolic relations between things were replaced with causal relations. As Huizinga (1924) observes: "The symbolic mentality was an obstacle to the development of causal thought, as causal and genetic relations must needs look insignificant by the side of symbolic connexions."<sup>1</sup> In this chapter we assume, with Huizinga and Harrison, that the symbolic view of nature diverted attention away from nature to God and that the rise of modern science required a focus on nature for its own sake. Within this framework, however, we question his explanation of why and when this decline of nature symbolism occurred.

To understand why Harrison thinks the turn from symbolic to causal thought was an important condition for the rise of modern science we need to sketch some details of nature symbolism. In the symbolic or emblematic view of the world things, like words, have meaning. As Augustine says, God speaks not only the language of words, but also the language of things. This contribution from early Christianity merged with the neoplatonic tradition originating in Alexandria. Its guiding idea was that God brings about material things, events and persons as symbols pointing to eternal spiritual realities. In describing the legacy of the hermeneutics of Augustine to the medieval world Harrison writes:

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<sup>1</sup>Huizinga 1924, 204-05. The idea that nature symbolism diverts attention away from nature for its own sake has been also been suggested by Gilson 1944, Ch. 5; Eco 1986, 53 and Eco 1988, 140-41.

... physical objects themselves came increasingly to be obscured by those transcendental truths which they were supposed to represent. [ ] if the meaning of nature was determined by the meaning of scripture, the symbols which were to be found in the physical world could not of themselves constitute any intelligible pattern. Their ordering principles lay beyond them, embedded in the eternal truths of the spiritual or intelligible world.”<sup>2</sup>

After the twelfth century this ‘vertical’ orientation of symbolism was complemented by a growing emphasis on ‘horizontal’ similarities between objects of nature signalling an increasing attention for nature.

Up until now resemblances had served in the main to connect material entities with eternal verities. [ ] Now, while material things still signify transcendental realities, they have a new significance which arises out of their relatedness to other things. [ ] [F]or the first time in the Christian era, this world was to be invested with its own patterns of order, patterns which were based on similitudes perceived to exist among material things themselves.” [Yet,] “Absent from these assumed connexions [ ] is any sustained treatment of the resemblances which can be found amongst physical things themselves. It is not that these are completely denied, [ ]. However, such resemblances were not explored for their own sakes, but used in an instrumental fashion to serve the purposes of theological or moral edification.”<sup>3</sup>

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<sup>2</sup>Harrison 1998, 31, 32.

<sup>3</sup>Ibid., 41-42, 43.

Thus Harrison suggests that despite the new 'horizontal' relationships, nature continued to be contemplated not for itself, but for God's sake. This blocked the development of science.

Moreover, the polysemy of things continued to render the meaning of scripture texts indeterminate.

The removal of this block, which Harrison has proposed as a condition for the rise of modern science, started with a reformation of scripture interpretation.

The most direct challenge to the powerful symbolic universe was to come not from new discoveries in the empirical world, but from a new approach to the interpretation of texts, one which would lead to an irrevocable divide between [ ] words and things.<sup>4</sup>

The problem for the Protestant reformers, Harrison argues, was the indeterminacy of meaning of texts in scripture that came with the symbolic worldview. A word in scripture can refer unequivocally to a material object (literal sense). But in a symbolic worldview an object in scripture refers to another object which may represent a spiritual or a non-spiritual reality (allegorical or symbolic sense). As a result a word in scripture had at least two meanings – a literal meaning as well as an allegorical or spiritual one.<sup>5</sup> There were several kinds of spiritual

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<sup>4</sup>Ibid., 92.

<sup>5</sup>In the literature terminological chaos reigns. In the language of things 'allegory' refers to all three spiritual meanings of things together as well as to one of the three spiritual senses (what you believe in). We define these two as allegory in the broad sense and allegory in the strict sense. Allegory or spiritual meaning broadly speaking thus comprises the three spiritual senses that things, events and persons can have. Since each of the three non-literal senses is concerned with the spiritual meaning of things a simple distinction between literal and spiritual sense is frequently used in the literature and we will follow this usage as much as possible.

meaning corresponding with different kinds of spiritual realities. Applied to the interpretation of scripture by the Church Fathers this eventually resulted in the so-called *Quadrigena*, the principle that each word or text in scripture has a fourfold meaning: the literal sense and three spiritual senses. For instance, the word Jerusalem is understood literally as the city of the Jews (literal-historical sense). Spiritually, Jerusalem is understood as the church of Christ (allegorical sense), as the heavenly city (anagogical sense), and as the individual soul (tropological sense). The literal sense refers to what exists in nature and history. The spiritual sense refers to three spiritual realities: what you believe in (allegorical sense), what you hope for (anagogical sense), and what you ought to do (tropological or moral sense). The four senses apply to both scripture and nature because scripture as well as nature are interpreted in terms of vertical similitudes between material and spiritual realities. In characterizing the medieval *Quadrigena*, Harrison observes:

The medieval assertion that the literal sense was the foundation of all interpretation was thus consistent with the view that biblical texts were equivocal. Over all, evidence from medieval commentaries supports Chenu's assertion that throughout the Middle Ages systematic allegorisation had universally destroyed the literal text of scripture. By way of contrast, when the reformers championed the literal sense their concern was to deny the indeterminacy of meaning of canonical texts, and thus to insist that each passage of scripture had but a single, fixed meaning.<sup>6</sup>

Thus the problem for the Protestant reformers, as Harrison sees it, lay in the indeterminacy of meaning of the text of scripture. But Harrison notes that the ambiguity of scripture texts is due to

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<sup>6</sup>Harrison 1998, 111.

the indeterminacy of nature as text. In other words, it is not the ambiguity of language, but the ambiguity of things of nature that is the problem. As Harrison explains,

According to Augustine, multiplicity of meaning is a function of things, and not words. There exist different layers of meaning in scripture not because the *words* used are equivocal, but because the *things* to which the words refer bear multiple meanings. Origen's scheme of interpretation was thus recast: the literal sense of scripture is to be found in the univocal meaning of the words; the spiritual sense, in the various meanings of the objects to which the words refer. This conception of the multiple meanings of scripture was universally received in the Middle Ages. As Aquinas was later to express it: 'These various readings do not set up ambiguity or any other kind of mixture of meanings, because, as we have explained, they are many, not because one term may signify many things, but because the things signified by the terms can themselves be the signs of other things.'<sup>7</sup>

Harrison concludes:

Multiple meanings emerge from allegorical readings of texts because the things to which the words literally refer have themselves further multiple references. ...The multiplicity of meanings which arises out of allegorical readings is thus a function of the reader's view of the nature of objects.<sup>8</sup>

Thus indeterminacy of meaning does not lie in the text, but in the things the text refers to because

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<sup>7</sup>Ibid., 28.

<sup>8</sup>Harrison 1998, 28-29, 114; see also Harrison 1998, 4, 113, 123; Chenu 1968, 136.

these things symbolize other things. Hence Harrison's conclusions that a rejection of nature symbolism not only solved the Protestant reformers' problem of ambiguous scripture texts, but also allowed attention for nature without it being diverted to God. This attention for nature made room for a non-symbolic conception of the order of nature.

Harrison proposes that the Protestant reformers instigated this rejection of nature symbolism:

...when the reformers championed the literal sense their concern was to deny the indeterminacy of meaning of canonical texts, and thus to insist that each passage of scripture had but a single, fixed meaning. [ ] It was always possible that [ ] the single sense of some biblical passage was not, strictly, its literal sense, as for example in the parables of Jesus, or the prophecies of Revelation. Protestant 'literalism' thus needs to be broadly conceived as an assertion of the determinacy of meaning of biblical texts, a meaning which usually, though not invariably, lay with the literal sense.

In contrast, Harrison points out, medieval exegesis used the literal meaning as the structural basis for other meanings, and the latter were more important spiritually than the former. Protestant exegetes, he claims, rejected meanings other than the literal meaning because they were concerned with denying indeterminacy of meaning. The literal meaning favoured by the Protestant reformers, Harrison indicates, was the quadrilateral literal sense: "the principle adopted by the reformers – that only the literal sense of scripture was of use in matters of theological disputation – had been a long-standing rule in the Roman Church...."<sup>9</sup>

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<sup>9</sup>Harrison 1998, 110-11.

Given that Harrison defines allegory as a symbolic relationship between things, rejection of allegory entails rejection of the symbolic view of things in the world. This limited, Harrison believes, the allocation of meanings to words:

“To insist ... that texts be read literally was to cut short a potentially endless chain of references in which words referred to things, and things in turn referred to other things. A literal reading of scripture was one in which the previously open-ended process of deriving a series of references from a single word was terminated once a word had performed its basic task of referring to a thing.”<sup>10</sup>

Harrison argues that this ended the plurality of interpretations of scripture sustained by the symbolism of things. He draws out, as an unintended byproduct of this change, that things in the world no longer referred to God, which meant that they could be explored for their own sake. Note that this rejection of allegory does not concern literary allegory, but applies only to factual allegory.<sup>11</sup> Harrison believes that the literal reading of scripture affected natural philosophy, natural history and anatomy.<sup>12</sup>

The assertion of the primacy of literal reading ... entailed a new, non-symbolic conception of the nature of things. No longer were objects in the natural world

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<sup>10</sup>Ibid., 114.

<sup>11</sup>Allegory is a category both in the language of words (literary or verbal allegory) and in the language of things (factual allegory). In a literary allegory a word refers to an imaginary thing, event or person – it is part of the literal sense. In contrast, in a factual allegory a real corporeal thing, event or person refers to or symbolizes a spiritual reality. Since Harrison's hypothesis concerns the language of things we do not refer to literary allegory.

<sup>12</sup>Ibid., 4, 53.

linked to each other by sets of resemblances. As an inevitable consequence of this way of reading texts nature would lose its meaning, and the vacuum created by this loss of intelligibility was gradually to be occupied by alternative accounts of the significance of natural things – those explanations which we regard as scientific. In the new scheme of things, objects were related mathematically, mechanically, causally, or ordered and classified according to categories other than those of resemblance.<sup>13</sup>

In sum, according to Harrison the problem for the Protestant reformers was the indeterminacy of meaning of scripture texts caused by the symbolism of things, events and persons in scripture. A rejection of indeterminacy of meaning of scripture (ambiguity) required a rejection of symbolism of things, events and persons in scripture. The latter led to a rejection of symbolism of things, events and persons in nature because nature was studied to understand scripture and the interpretation of both was a unified endeavour.<sup>14</sup> Protestant reformers, Harrison argues, differed from Roman Catholic scripture interpreters in that they rejected the allegorical meaning of scripture as understood in the *Quadrige*. They restricted themselves mostly but not entirely to the quadrige literal meaning of scripture. In contrast, Roman Catholics are implied to have continued using all four levels of interpretation of the *Quadrige*, with the literal meaning continuing as a foundation for the three spiritual meanings.

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<sup>13</sup>Ibid., 114-115.

<sup>14</sup>Ibid., 114.

In contrast, we propose that the decline in the symbolism of nature did not depend on the fate of symbolic, i.e., spiritual interpretation of scripture. First, with Harrison we see the reason for the literal turn in the humanist realization that texts have a history and that the focus ought to be on “what an author had originally written and meant to communicate.”<sup>15</sup> But we show that the focus on discerning divine authorial intent began with religious reformers in the Middle Ages rather than in the Protestant reformation. Secondly, we ask how an appeal to divine authority<sup>16</sup> can entail the rejection of the symbolism of things if, as Augustine held, God also spoke through things, events and persons? We show that strategies were developed to reject only unauthorized symbolic interpretation of scripture, but to accept divinely authorized symbolic interpretation. As a result of the focus on divine authorial intent, late medieval religious reformers replaced the literal sense of the *Quadrige* with a new literal sense that included authorized symbolic interpretation in it. This new literal sense was the sense adopted and developed by the Protestant reformers showing that they did not reject allegory. Finally, the overall reduction of unauthorized spiritual interpretation of scripture uncovered linguistic ambiguity as another source of disagreement about the interpretation of scripture. This caused natural philosophers to turn to nature as a clearer source of knowledge of God.

## 2. TRANSFORMATION OF THE LITERAL SENSE OF SCRIPTURE

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<sup>15</sup>Ibid., 113.

<sup>16</sup>Ibid., 113.

If the problem for the Protestant reformers was indeterminacy of meaning of scripture texts and this was seen as the result of factual allegory, then the solution would have been the rejection of indeterminacy of meaning (allegory). We now review how starting in the late Middle Ages the interpretation of scripture increasingly focussed on understanding divine authorial intent. As a result factual allegory was accepted when intended by the divine author and rejected when contributed by the human interpreter. The latter reduced arbitrary speculation. Further, factual allegory became part of a new literal sense that emerged before the Protestant reformation.<sup>17</sup>

These developments are at odds with Harrison's hypothesis.

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Attempts to reduce multiple meanings of scripture are perhaps the most enduring feature of the history of scripture interpretation. Well into the Middle Ages, nature and scripture were read for the same purpose – to know God – using the same strategies of interpretation. These strategies were underwritten by Augustine's idea that God spoke the language of words as well as the language of things. Hence the metaphor of the two books.<sup>18</sup> Augustine held that if God's intention was not clear from the text, the rule of charity limits plurality of meaning. This meant that "the meaning of any part cannot contradict the meaning of the whole." This was a strategy within which many imaginative readings of scripture remained possible.<sup>19</sup> But the church fathers had additional strategies for reducing multiple meanings. They took scripture as their main

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<sup>17</sup>Between the 12<sup>th</sup> and the 16<sup>th</sup> century several developments encouraged a literal interpretation of scripture: Bray 1996, 151-154; Farley 1995, 70; McGrath 1987, 154-55.

<sup>18</sup>Augustine explicitly reifies nature as a book: see *Confessiones*, Book XIII, 15, 16-18; *Contra Faustum*, XXXII, 20; *Enarrationes in Psalmos* 45, 7; *Sermones*, 68, V, 6.

<sup>19</sup>Markus 1996, 16-22.

source for determining the symbolic meanings of objects of nature. This restrained ambiguity in two ways. It reduced the number of symbols to those authorized by scripture and it reduced ambiguity because the meaning intended by the divine author was usually ascertainable. This reduction of ambiguity also applied to the interpretation of nature to the extent that its spiritual meaning was derived from scripture as is the case in the *Physiologus* and the bestiaries.

The thirteenth century saw further efforts to limit multiple meanings in the interpretation of scripture by referring to the role of the divine author. Taking God as the principal author of scripture, Albert the Great (ca. 1200-1280) and Thomas Aquinas (ca. 1225-1274) practised a distinction in which the meaning of words is attributed to the human author while the meaning of things and events is given by God.<sup>20</sup> Words constitute the literal (historical, grammatical) meaning. Things, events and persons then have spiritual (factual allegorical) meanings, as intended by God. This non-literal meaning is threefold because the things, events and persons to which words in scripture refer can have three different kinds of spiritual meanings.<sup>21</sup> Thus Aquinas tried to limit spiritual meanings of the text of scripture to those intended by the divine author. Significantly, things, events and persons not mentioned in scripture are denied symbolic meaning. "Strictly speaking, every science which has been invented by human industry yields a

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<sup>20</sup>Lubac 1964, 304; Reyero 1971, 76-77, 120; Copeland 1993, 3-11; Smalley 1964, 298-300.

<sup>21</sup>Lubac 1964, 273-274, 277, 291; Reyero, *ibid.*; Funkenstein 1986, 55-56; Copeland 1993; Minnis 2000, 231-256. There is disagreement about Aquinas' grounds for the unity of literal and spiritual meaning. Some locate the ground in the unity of body and soul (Bray 1996, 152-54). Others refer to authorial intent. There is also disagreement about why the literal sense became dominant. Some find the reason in Aristotle's theory of interpretation with its emphasis on univocity. Others believe that precise language was required by the development of a rational theology under the influence of Aristotle.

literal meaning only.” Thereby Aquinas provided a theoretical basis for the decline of nature symbolism.<sup>22</sup>

While literal meaning became more prominent its boundaries moved. For instance, Andrew of St. Victor (ca. 1110-1175) states that Nathan's prophecy about the future of the house of David applied to the time that Solomon reigned. But Nicholas of Lyra (ca. 1270-1349) applies Nathan's prophecy also to Christ. As Lyra explains, “if we understand the prophetic meaning as something intended by the speaker himself, then the meaning belongs to the literal sense.” Not only was the literal meaning of the text now defined as the one intended by the divine author, but it also included the spiritual meaning which was constituted by the symbolic reference of Solomon to Christ. Lyra applies the same expanded literal sense in his exegesis of the books of II Samuel and Genesis 1-3.<sup>23</sup> He interprets Aquinas's distinction between the literal and the spiritual sense as a double literal sense: the divine and human sense are both literal senses.<sup>24</sup> A similar distinction was developed by the Spanish bishop Paul of Burgos (ca. 1351-1435).

The relationship of the double literal sense to authorial intent may be understood in terms of the medieval distinction between the person responsible for a text and the person writing the text. While this distinction applied to any book, in the case of the Bible it helped to distinguish between the divine author, who is responsible for what is asserted in the text, and the human

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<sup>22</sup>Thomas Aquinas. *Quaestiones Quodlibetales*, VII, 6, 3c.

<sup>23</sup>van Liere 2000, 73; Patton 2000, 39.

<sup>24</sup>Minnis 1975, 4-5.

author, who is responsible for reporting what is asserted. On this basis, Lyra distinguishes between a literal-historical sense, which is intended by both the human and the divine author, and the literal-allegorical sense intended only by the divine author. This allowed Lyra to say that God intends both literal senses of Nathan's prophecy, but the reporter intends and understands only the literal-historical sense.<sup>25</sup>

Others conceived of the two literal senses as a single literal sense. A gradual adoption of the three spiritual meanings as part of the literal meaning spanning the thirteenth to the sixteenth centuries has been revealed in a comparison by David Steinmetz of interpretations of Jacob's ladder in Genesis 28. Hugh of St. Cher (1200-1263), Nicholas of Lyra (c. 1270-1349), Denis the Carthusian (1402/3-1471) and Martin Luther (1483-1547) agree that the ladder symbolizes Christ. Hugh sees this as its spiritual meaning while Nicholas and Denis subsume this under the literal meaning of the text. Luther gives the ladder a literal meaning as well as a tropological and an allegorical one (strict sense).<sup>26</sup> A similar migration is revealed in a comparison of the interpretation of Jacob's struggle with the angel on the banks of the Jabbok. Denis and Luther agree that the angel who fights Jacob is God. For Denis this is the spiritual sense of the text, but Luther subsumes it under the literal-historical meaning. Luther and Calvin (1509-1564) agree that Jacob is an example for all faithful and tested believers. For Luther this is the spiritual sense, but for Calvin it is an application of a literal-historical reality.<sup>27</sup> In sum, the literal meaning of the

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<sup>25</sup>Ibid., 11-13, 19.

<sup>26</sup>Steinmetz 2002, 143-155.

<sup>27</sup>Steinmetz 2002, 156-167.

ladder for Nicholas and Denis is that it symbolizes Christ. Likewise, for Calvin the literal sense of Jacob is that he symbolizes the community of tested believers, the church, while Luther refers to this interpretation as the spiritual sense (Denis keeps the two senses separate). The three spiritual senses of the fourfold sense have migrated into the domain of the literal sense. As a result the literal sense of the *Quadrige* is transformed into a new literal sense.

Richard Fitzralph (ca.1295-1360) and John Wyclif (ca. 1328 - 1384) also employ this new literal sense, but they could not be included in the comparison because they did not comment on the texts compared. However, for them as well as for Lyra information is available showing that each in his own way justifies this transformation explicitly in terms of authorial intent.<sup>28</sup> Thus we see a dawning realization across Europe that the literal interpretation of a text can have a spiritual meaning. This realization becomes first explicit in Wyclif. In Spain Alfonso de Madrigal (ca. 1410-1455) also absorbed a spiritual sense (typology) into the literal sense.<sup>29</sup> Thus the new literal sense emerged before it was later adopted by the Protestant reformers, and it did not entail a rejection of factual allegory, i.e., of nature symbolism.

In the first decades of the sixteenth century the Catholic Parisian master Lefèvre d'Étaples (ca. 1455-1536) interpreted scripture according to a two-fold literal sense. One historian remarks that

Lefèvre's *Evangelical Commentary* (1522) and French *New Testament* (1523) bear unmistakable signs of the influence of the historical and grammatical exegesis of

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<sup>28</sup>Minnis 1975, 8-13, 25; Copeland 1993, 15-16.

<sup>29</sup>Minnis 2000, 244-247.

Erasmus' great work. On the other hand, a better understanding of the literal sense of scripture was never an end in itself for Lefèvre but always a means toward a purer understanding of its Christological significance.<sup>30</sup>

Lefèvre's exegetical stance thus also made space for two senses in scripture: the literal-historical (events), and the literal-prophetic (Christocentric meaning of events).<sup>31</sup>

First and second generation Protestant reformers Ulrich Zwingli (1484-1531), Luther, Philipp Melanchthon (1497-1560), Heinrich Bullinger (1504-1575) and Calvin continued to resort to authorial intent to reduce speculation. Their strategies were diverse, but the result was much the same. We highlight three aspects of it. Firstly, the recognition that the spiritual senses properly belong to the literal sense became tradition among the Protestants. As Lyra and Burgos had done before, Luther, Melanchthon, William Tyndale (ca. 1492-1536) and Calvin absorbed the spiritual senses into one single literal sense.<sup>32</sup> Zwingli's use of both the concept and the term allegory is too broad to discern whether it is part of the new literal sense.<sup>33</sup> There were differences in the categorization of the three spiritual senses, and on their relative importance. Luther stressed the Christological sense – a kind of typological sense in which texts in the Old Testament not only apply to that time (the literal-historical sense), but also to Christ (the literal-prophetic sense). The

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<sup>30</sup>Heller 1972, 55.

<sup>31</sup>Bedouelle 1978, 133-43.

<sup>32</sup>McGrath 1987, 157 (Lefèvre d'Étaples), 159 (Luther); Sick 1959, 25 (Melanchthon); Davis 1972, 31 (Tyndale); Thompson 2000, 31-53 (Calvin); Thompson 2004, 58-73 (Calvin); Hansen 1998, 235 (Calvin); Blacketer 1999 (Luther, Calvin).

<sup>33</sup>McGrath 1987, 169-71.

view of the new literal sense held by Melanchthon and Calvin is broader than that of Lefèvre because it includes all possible spiritual senses, not just the Christological sense. These and other differences reflect how the new literal sense included meanings intended by the divine author, rather than mere reader-imposed interpretations. Luther is the exception because he combines the two literal senses of Lefèvre d'Étaples with the four medieval senses to produce no less than eight senses.<sup>34</sup> He is also arbitrary in his designation of the sense of a text.<sup>35</sup>

The second aspect of attempts to reduce speculation by focussing on the divine author was that the symbolic meaning of things was respected if it was given by the divine author of the text, but unauthorized symbolism was rejected. Lefèvre d'Étaples, Luther, Melanchthon and Calvin all justified spiritual interpretation by reference to the guidance of the Holy Spirit.<sup>36</sup> This was a stronger emphasis in Lefèvre d'Étaples,

Without altogether giving up the use of tropologies, analogies, and anagogues, Lefèvre nevertheless was able to curb the indiscriminate use of these devices which tended to isolate passages of scripture from their context.<sup>37</sup>

Luther introduced authorial intent explicitly to limit the many meanings that were authorized by Augustine's theory of interpretation, but not curbed by his rule of charity:

The Holy Spirit is the simplest writer and speaker in heaven and on earth. This is

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<sup>34</sup>McGrath 1987, 158.

<sup>35</sup>Steinmetz 2002, 143-55, 156-67.

<sup>36</sup>McGrath 1987, 157; Thompson 2004, 58-73; Schneider 1990, 153, 179; Hansen 1998, 115-83, 307-45.

<sup>37</sup>Heller 1972, 54.

why his words can have no more than the one simplest meaning which we call the written one, or the literal meaning of the tongue.<sup>38</sup>

Luther's Christological emphasis changed the quadrigal spiritual senses of scripture: the allegorical sense came to refer to God's acts in the church and the tropological sense to God's acts in the individual believer.<sup>39</sup>

If authorial intent is the criterion for filtering out human speculation, then it becomes important to establish what God meant in ways that are not speculative. One strategy prominent in Lefèvre d'Étaples, Melanchthon and Calvin was the use of rhetorical analysis to establish the spiritual meaning intended by the divine author.<sup>40</sup> Another strategy was comparison of a text with other texts and with the larger context. To see how this works we look at Calvin's interpretation of the burning bush in Exodus 3: 2 as a symbol for the trials of Israel – an interpretation not given by the text itself. Yet he identifies the allegory as the one intended by God using two rules: he requires the interpretation to be supported by a comparison with another narrative that has similarities, and the symbolism must be implied in the literal sense of the other text. Thus the bush, the flame, and the survival all correspond with the larger narrative of Exodus with the bush pointing to the people of Israel, the flame to its trials and the survival of the bush to the endurance of the Israelites. This symbolic meaning is the literal meaning of Genesis 15: 7-17

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<sup>38</sup>Luther 1970, vol. 39, 178-179.

<sup>39</sup>McGrath 1987, 162, 164.

<sup>40</sup>McGrath 1987, 157; Thompson 2004, 58-73; Schneider 1990, 153, 179; Hansen 1998, 115-83, 307-45.

(God's people would go into slavery and God would help them), and of Psalm 46: 5 (God helps his people in times of trial). Thus allegory is legitimate when underwritten by authorial intent, and this intent is determined by comparison between a text and other texts as well as the larger context.<sup>41</sup> In such cases the text is allegorical and its interpretation literal.

Thirdly, in attempting to keep scripture interpretation within the bounds of divine intent, Luther, Melancthon, Tyndale, Calvin and the Geneva-born biblical scholar Jean Le Clerc (1657-1736) explicitly locate the problem with allegorical interpretation in its arbitrary, speculative character rather than in allegory itself. This point received general acceptance. Accordingly, Zwingli, Luther, Melancthon, Martin Bucer (1491-1551), Tyndale and Calvin continued to use the symbolism of things, events and persons if intended by the author of the text, but criticised allegory imposed by interpreters.<sup>42</sup> In the words of Le Clerc, "... Allegory [ ] wholly depends upon the Fancy of the Interpreter."<sup>43</sup> Calvin's continued use of the symbolism of things as part of the literal sense has escaped attention because the strategic nuances in his attitude toward allegory have been overlooked. This is because when Calvin accepts allegory he calls it anything but allegory to avoid association with speculation. Thus he refers to the symbolism of things,

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<sup>41</sup>Hansen 1998, 227-37.

<sup>42</sup>McGrath 1987, 169-71 (Zwingli, Bucer); Davis 1972, 30-31 (Tyndale), 35 (Luther), 40-41 (Calvin); Schneider 1990, 82-83, 154 (Melancthon's acceptance of allegory), 32, 46n43, 78, 79, 82-84, 120 (Melancthon's scepticism about allegory); Greene-McCreight 1999, 101-102 (Calvin); Zachman 2007, 167-8 (Calvin);Thompson 2000, 51 (Calvin); Hansen 1998, 1, 197-200, 204-13, 217, 227-37 (Calvin).

<sup>43</sup>Le Clerc 1696, 143f., cited from Harrison 1998, 109n171.

events and persons as types, examples, pictures, analogies, similitudes, shadows etc.<sup>44</sup> Sometimes he redefines allegory.<sup>45</sup> His categorization is founded more in polemic concern than in any real difference in how he views the mechanics of typology or allegory; for Calvin, it frequently appears, a bad reading was allegory, while a good reading was typology or 'literal anagogy.'<sup>46</sup> Finally, contrary to the received view of Calvin's distaste for visual images, he uses them extensively.<sup>47</sup> In these images, things, events and persons have symbolic meaning, i.e., they function as allegories. Calvin's self-presentation as the enemy of allegory continues to obscure that this enmity was directed at symbolic interpretation, not at symbolic texts.

D R A F T

In sum, not only was the revaluation of the medieval practice of fourfold exegesis more complex than a rejection of all but the literal-historical meaning of texts, it also preceded the Protestant reformation. Religious reformers before, during and after the Protestant reformation shared a desire to understand divine truth and eliminate arbitrariness from the interpretation of scripture. This passion drove the gradual recovery of the importance of the intentions of the divine author which we reviewed beginning with Aquinas. There was a move from reader-oriented interpretation which was a source of speculation to author-oriented interpretation which was restrained by a desire to understand divine authorial intent. We note two consequences. Firstly, the focus on the divine author meant that the symbolic meaning of things was respected if it was

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<sup>44</sup>Greene-McCreight 1999, 98; Thompson 2000, 35, 46; Balke 2003, 119-120.

<sup>45</sup>Thompson, 2000: 34-35.

<sup>46</sup>Green-McCreight 1999, 98; Also: Thompson 2000, 35; Blacketer 1999, 40..

<sup>47</sup>Zachman 2007.

intended by the text's author, but unauthorized symbolism was rejected. As a result, allegorical interpretation of texts which was imposed by the reader was slowly replaced with interpretation of allegorical texts that originate with the divine author. This reduced the overall frequency of allegorical interpretation which is compatible with Harrison's weaker claim that determinacy of meaning was the goal of the Protestant reformers.

Secondly, the three spiritual meanings of the medieval *Quadrige* were gradually subsumed under a new literal sense.<sup>48</sup> Divinely authorized symbolism was not rejected – the meaning of symbols in scripture can be unambiguous when the intentions of the author are clear, and there were ways of establishing the meaning intended by God. Harrison misses this point when he develops the role of authorial intent.<sup>49</sup> Thus, historically the strong claim that the allegorical sense was rejected by the Protestant reformers is incorrect. Rather, allegory was subsumed under the literal sense. Theologically, the Protestant reformers could not have rejected allegory because this would have entailed the rejection of all symbolic relations and anthropomorphic descriptions of God in scripture without which Christian theology could not exist. This new literal sense cannot be equated with the literal meaning in the *Quadrige* because the former includes allegory while the latter excludes it.<sup>50</sup>

To conclude, the Protestant reformers did not reject allegory, but included it in their literal sense,

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<sup>48</sup>Steinmetz 2002, 148.

<sup>49</sup>Harrison 1998, 113-14.

<sup>50</sup>Steinmetz 1997; 2002, 143-55, 156-67; 2006, 285.

this inclusion started before the Protestant reformation, and was driven by a passion to understand divine truth. The gradual absorption of spiritual meanings within a new single literal meaning parallels the return to authorial intent. In fact, the former may be seen as a result of the latter because the new literal sense was authorized by the divine author's intent. As Jon Whitman states,

In the development of scholastic interpretation from the late Middle Ages to the Reformation, for example, the repeated emphasis on an underlying authorial 'intention' and the frequent identification of the 'literal' sense with it tends gradually to blur the very distinction between the 'literal' sense of a text and its divinely 'intended' meaning, its 'spiritual' sense; at times, the 'letter' virtually modulates into the 'spirit.'<sup>51</sup>

Likewise, Joseph Goering states,

one finds increasingly, after 1300, that the spiritual senses of scripture are derived from the "letter" (i.e., the text and its context) rather than from the "things" that the letter signifies, as in the older interpreters. The result of this shift is a gradual reduction in importance of the spiritual senses, as they come to be seen as mere rhetorical ornaments rather than as the bearers of the heart and soul of biblical revelation.<sup>52</sup>

As a result the new literal sense gained prominence in the pew as well as in the pulpit and in academic theology. We conclude with Harrison that indeterminacy of meaning was the problem

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<sup>51</sup>Whitman 2000a, 56 with additional references.

<sup>52</sup>Goering 2003, 200.

scripture interpreters faced, but that it was due to reader-imposed speculation and not to symbolism-associated indeterminacy. Thus the solution was not the rejection of nature symbolism.

### 3. AMBIGUITY OF NATURE IN THE MIDDLE AGES

According to Harrison indeterminacy in the interpretation of scripture originates in indeterminacy in the interpretation of nature because as symbols things, events and persons in nature are polysemous, and the interpretation of nature and scripture was a unified endeavour. To see whether indeterminacy of meaning of nature was the problem we review the significance of indeterminacy in the interpretation of nature in the Middle Ages as found in the *Physiologus*, the bestiaries and the sermons based on them. For this purpose ambiguity or indeterminacy of meaning is understood as a property not only of language, but also of things understood symbolically as language. While definitions of ambiguity of language vary in detail, they agree that ambiguity arises when there is not enough information to choose between multiple nonequivalent meanings of a word or sentence.<sup>53</sup> We will see that while in the symbolic world view a thing can have multiple meanings, a single meaning is fixed by the context in which a thing occurs.

The reason for ambiguity in the Middle Ages has been seen in the symbolic mode of thought. In

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<sup>53</sup>Tuggy 1993; Geeraerts 1993; Dušková 1995; Monz 1999; Dunbar 2001.

it two things are linked not by cause and effect, but because they share an essential property. For instance, the lion symbolizes the Christ because they share the property of kingship. But the lion also symbolizes Satan because both are predators. Satan in turn is symbolized by the serpent which also symbolizes the spiritually prudent man in that both undergo purification by fasting followed by the replacement of the old skin with a new one. But the serpent also symbolizes the Christ in that both were raised high on a tree, a copper serpent by Moses in the desert and the Christ on a cross. This illustrates and partly explains how a network of meaning relations was woven in the symbolic mind of medieval people. Further, “[e]ach thing may denote a number of distinct ideas by its different special qualities, and a quality may also have several symbolic meanings.”<sup>54</sup> For instance, the lion is described as having three characteristics. He covers his tracks upon smelling a hunter, he sleeps with open eyes, and a lion cub rises from the dead upon hearing the father’s roar. These three characteristics are three allegories. Just as the lion hides his tracks, Christ hides his divinity by assuming a human form (Incarnation). Just as the lion sleeps with his eyes open, Christ’s body may sleep, but he is ever watchful in his divinity (Death). Just as the father lion arouses the lion cub with his roar, the omnipotent Father revived Christ (Resurrection). These three allegories illustrate that a single thing can have multiple meanings. Finally,

Christ and His divinity were symbolised by a vast number and variety of creatures, each signifying His presence in a different place – in heaven, on mountain tops, in the fields, the forests, and the seas. The symbols used included the lamb, the dove, the peacock, the ram, the gryphon, the rooster, the lynx, the palm-tree, even a

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<sup>54</sup>Ibid.

bunch of grapes: a polyphony of images.

Other symbols of Christ include the unicorn and the pelican.<sup>55</sup> As Huizinga (1924) observes, “Symbolist thought permits an infinity of relations between things.”<sup>56</sup> Ambiguity, Huizinga and Harrison agree, is due to the polysemy of things.<sup>57</sup>

The potential ambiguity of things as symbols arises from the realistic nature of this network. Consider that a similarity between two things has symbolic meaning only if the middle-term connecting the two terms of the symbolic concept expresses an essentiality common to both. For instance, to say that the lion and Satan are both predators is based on the essence of the symbolic concept of the predator that is found in a biological predator – the lion – and in a spiritual predator – Satan. Likewise, the symbolic concept of purity has an essence found in the snake which does not eat before it sheds its physical skin as well as in the person who fasts in order to shed the sinful nature. In the Platonic realism of the Middle Ages, symbolic concepts such as predator and purity were conceived as essences, that is as realities, and as abstract realities they were connected to concrete realities in the cosmos such as the serpent and the Christ. Without this Platonic realism the concepts that express essential commonalities between things would disappear and the network would unravel.

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<sup>55</sup>Eco 1986, 55-56.

<sup>56</sup>Huizinga 1924, 198.

<sup>57</sup>Huizinga 1924, 198; Harrison 1998, 4, 28, 113, 123. In the words of Dante Alighieri, the allegorical significance of the animals was polysemous (*Letter to Con Grande*, quoted in Armistead 2001, 11; Other examples of animal and plant symbolism and polysemy in Crowther-Heyck 2003; on ambiguity see Harrison, 1998: 4, 28, 113, 123 and Chenu 1968, 136.

To combat ambiguity in scripture interpretation, Harrison has proposed, the Protestant reformers rejected the allegorical sense that depends upon the polysemy of things, that is on the symbolism of things. But we question Harrison's assertion that the symbolism of things led to ambiguity in the contexts in which symbolism is found. For instance, the meaning of the symbols in the *Physiologus* and the bestiary tradition are not indeterminate. Some animals have a single meaning. The phoenix, for instance, is a symbol of the death and resurrection of Christ.<sup>58</sup> The meaning of other animals such as the lion and the serpent has been considered ambiguous either because a single animal has several meanings in a given edition or because the meaning of a kind of animal shifts between versions or redactors.<sup>59</sup> But in all the editions of the *Physiologus* and the bestiaries the spiritual meaning of each of the more than ten animals symbolizing the Christ is explained unambiguously often in a section designated for that purpose and entitled *Significacio*. These features established a tradition of unambiguous moral and spiritual meanings for every animal that figured in an allegory.

The history of preaching confirms that such meanings were widely disseminated and stable through time. Preaching was a means of spreading knowledge about nature symbolism among the uneducated masses. Bestiaries were used for education including that of preachers who used animals in sermons<sup>60</sup> assuming familiarity with the symbolism. Stability of meaning was

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<sup>58</sup>Mermier 1989.

<sup>59</sup>Armistead 2001, 5-6

<sup>60</sup>White 1954, 26; Owst 1961, 188, 197-204; Clark and McMunn 1989, 3, 6; Baxter 1998, 62, 188, 190, 209.

encouraged by the use of sermon manuals from which preachers got their examples.<sup>61</sup> These examples came from the *Physiologus* and the bestiaries, but also from other sources. For instance, the ship as symbol of the church lasted from the eleventh to the fourteenth century.<sup>62</sup> The castle symbolized the church from the eleventh to the fifteenth century.<sup>63</sup> The meaning of animals and artefacts were so familiar through stories and sermons that it needed no explanation.

Furthermore, moving to the different context of manuals, medieval herbals contradict the notion that ambiguity pervaded the interpretation of nature because plants did not have symbolic meaning and did not suffer polysemy. Medieval herbalists described plants in specific literal-natural terms which included their causal power of healing specific illnesses. Medieval manuals for hunters, fishermen, farmers and veterinary doctors show detailed non-symbolic knowledge of animals.<sup>64</sup> Whether or not such sources were based on direct observation or copied from ancient authorities, indeterminacy was not the problem. And while later Renaissance herbals could add a spiritual interpretation to the natural one this did not introduce ambiguity.<sup>65</sup>

In sum, Harrison sees the problem for the Protestant reformers in the indeterminacy of meaning of texts in scripture that came with the medieval symbolic worldview. But we found that

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<sup>61</sup>Owst 1961, 87.

<sup>62</sup>Ibid., 68-70.

<sup>63</sup>Ibid., 77-85.

<sup>64</sup>Stannard 1978, 429-460, esp. 432-443 on animals and 443-449 on plants.

<sup>65</sup>Crowther 2008, 21.

ambiguity or indeterminacy of meaning does not characterize nature symbolism in the contexts in which it manifests itself, that is in the *Physiologus*, the bestiaries and the sermons using them. In the monastic tradition and among the clergy there was no question about the meaning of animal symbols and this applied also to the general population who absorbed animal symbolism from them. The situation among the scholastics is more complex. Scholars at the universities were exposed to the fixed meanings of animal symbols by their preachers and teachers in the Cathedral schools because these instructors came from the monasteries. But among these scholars the existing causal mode of thought was reinforced by the emphasis on logic and causality that came with the rediscovery of Aristotle. We do not know how the co-existence of the symbolic and causal modes of thought played out. But in the sixteenth and seventeenth century there were plenty of scholars who practised both side by side which makes nature symbolism seem less of an impediment to modern science than suggested by Harrison.

We conclude that, while in the abstract the meaning of symbols may be inherently ambiguous, the symbolic meaning of things in nature is fixed by the context of the *Physiologus* and the bestiaries. In our examples, when the symbol is derived from scripture its meaning is fixed by divine authority. The meaning intended by God is either self-evident or derived from the context of scripture. In other cases it is fixed by human authority and the context of tradition. Therefore, the problem scripture interpreters had with indeterminate meaning did not originate in nature symbolism as such. The Protestant reformers recognized that ambiguity originated in speculation, not in nature symbolism. The cure was the rejection of speculation, not of nature symbolism. Thus, Harrison's explanation of the decline of nature symbolism fails because the symbols in

nature as text had determinate meaning. This is consistent with our earlier conclusion that an appeal to divine authority in scripture interpretation did not entail the rejection of nature symbolism. Harrison himself suggests as much when he writes that “Protestant ‘literalism’ thus needs to be broadly conceived as an assertion of the determinacy of meaning of biblical texts, a meaning which usually, though not invariably, will lie with the literal sense.”<sup>66</sup> This point, we suggest, is far more important than Harrison acknowledges.

#### 4. NATURE: A SUPERIOR SOURCE OF KNOWLEDGE OF GOD

There are two different phenomena to explain: the decline of nature symbolism and the rise of modern science. So far we have argued that nature symbolism did not decline on account of its rejection by late medieval and Protestant reformers because they did not reject nature symbolism. Here we describe one way in which scripture interpretation might have affected the rise of science directly and independently of the fate of nature symbolism. The strategies used to determine authorial intent in scripture not only excluded interpreter-imposed speculation, but also uncovered the ambiguity originating in verbal language. Linguistic ambiguity manifested itself in many disagreements on the meaning of scripture texts. We show that theological disagreements elicited a mixed reception of the Protestant reformation that was Europe-wide and that natural philosophers listed among the reasons for disagreement properties of language such as ambiguity and the corruption of an originally divine language of creation. This explains why

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<sup>66</sup>Harrison 1998, 111.

many turned to the study of nature as a source of knowledge of God superior to the text of scripture.

The Protestant reformers failed to achieve agreement on the interpretation of scripture texts on important theological issues. They could reach no consensus with the Roman Catholics while both could argue from the Fathers equally well. This was not surprising because there was no consensus among the patristic writers either. “[G]ood exegesis produced, as Catholic critics warned it might, competing theologies.”<sup>67</sup> In the fourteenth century, appeal to tradition often failed to determine authorial intent because the saints disagreed.<sup>68</sup> The rules of Aquinas and Calvin for finding authorial intent did exclude extra-scriptural symbolisms from scripture interpretation. But they did not eliminate multiple meanings within the confines of scripture. The approach to justifying allegory used by Augustine for the burning bush produced competing readings in Lyra and again in Calvin.<sup>69</sup> Protestants diverged between as well as within European nations and even within different national schools of thought.

Europe-wide, there were the controversies about the Lord's Supper, notably between Luther, Calvin and Zwingli. Later, the central theme of the Protestant Reformation, namely the inability to bring about one's own spiritual salvation gave rise to the controversy between Remonstrants

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<sup>67</sup>Steinmetz 1997; on interpretive disagreement within the Wittenberg reformation, see McGrath 1987, 166.

<sup>68</sup>Minnis 1975, 24.

<sup>69</sup>Hansen 1998, 238-48.

and Contra-Remonstrants. There were widespread attempts to restore the prelapsarian state.<sup>70</sup>

Arminians and Socinians used the same scripture as the Reformed Orthodox, but came to very different conclusions.<sup>71</sup> According to Harrison, typology is the only unambiguous form of symbolism in which Old Testament things, events and persons symbolize those in the New Testament. Therefore, he argues, it was not affected by attempts to reduce speculation and it could continue to function in scripture interpretation without creating ambiguity. But typology was also associated with ambiguity. For instance, interpreters could only speculate on what was foreshadowed by the beasts in the book of Daniel. Further, Harrison's view assumes that theologians had a clear distinction between the symbolism of typology and that of other spiritual senses. But, religious and secular interpreters from Zwingli to Jonathan Edwards (1703-1758) "habitually confuse typology with emblems, parables, signs, symbols, and hieroglyphs in their terminology." Moreover, the meaning of scriptural types was routinely applied beyond the bounds of scriptural history to one's own time and to the future. Arbitrary speculation reigned when Protestants said scripture foreshadowed contemporary situations, for instance, to denounce Roman opponents, or foreshadowed the future (millenarianism).<sup>72</sup>

In the Dutch Republic, disagreement about Copernicanism depended in part on matters of scripture interpretation. For instance, Philip Lansbergen (1561-1632), Gisbertus Voetius (1589-

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<sup>70</sup>Harrison 1998, 226.

<sup>71</sup>Trueman 2004, 225, 230.

<sup>72</sup>Sick 1959, 72-74; Frei 1974, 46-50; Korshin 1982, 6, 12, 31-37, 63-66; Lowance, Jr., Mason 1972, 222; McDermott 2003, 127-137.

1676), Johannes Coccejus (1603-1669), Christopher Wittichius (1625-1687), Balthasar Bekker (1634-1698) and Bernhardinus de Moor (1709-1780) all accepted that some scripture texts required a non-literal interpretation because they were accommodated to a limited human understanding. Voetius would characterize a text as accommodated only on scriptural-theological grounds while the others also accepted this characterization on scientific grounds. Accordingly, Voetius rejected Copernicanism because it contradicted scripture. Other Calvinists accepted Copernicanism, but for different reasons. For instance, Lansbergen and de Moor argued Copernicanism could be true astronomically because the Bible presents things from the perspective of unreflected observation. Coccejus was open to non-literal interpretation because he acknowledged historical progression in divine revelation with its associated typological, i.e., non-literal interpretation of texts in the Old Testament. Wittichius appealed to authorial intent – the Bible is a book of faith, not a source of science. Voetius did not have these options because to him the Word of God was timeless, universal and self-explanatory.<sup>73</sup> The Cartesian question also revealed disagreements between leading Calvinists such as Voetius and Bekker over scripture interpretation in part because they assigned different roles to reason and revelation.<sup>74</sup> Thus disagreement on scripture interpretation within Calvinism becomes intelligible in light of different views of the nature and authority of scripture as well as about the scope of the principle of accommodation and the conditions under which it can be applied. Failures to reach agreement in the Germanic realm have been attributed to the hermeneutic of Melancthon. It features a

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<sup>73</sup>Vermij 2002, 247-51; Goudriaan 2006, 133-41; Jorink 2006, 58, 60. For more examples, see: Vermij 2008.

<sup>74</sup>van Asselt, Pleizier, Rouwendal, Wisse 1998, 123-24.

factionalism that is associated with “any theory which presumes that ‘theologies’ can be proved both biblical and true through logical devices, that there is not a deeper epistemic mystery in interpretation that calls for greater subservience to tradition and ancient consensus.”<sup>75</sup> This deeper mystery is that multiple meanings arise not only in languages of things, but also in languages of words.<sup>76</sup>

Natural philosophers from the 16<sup>th</sup> to the 18<sup>th</sup> century understood that disagreement about the meaning of scripture texts was to blame for theological divisiveness. In Germany, Johannes Kepler (1571-1630) experienced it in connection with the Lord's Supper.<sup>77</sup> Copernicans in Protestant and Roman Europe knew about interpretative disagreements related to the motions of the planetary system.<sup>78</sup> In the Dutch Republic, René Descartes (1596-1650) was familiar with literal and metaphorical interpretations of the creation story in the book of Genesis.<sup>79</sup> In England, Isaac Newton (1642-1727) kept his theological studies private to avoid controversy about his anti-Trinitarian interpretations.<sup>80</sup> The failure of the Protestant reformers to impose determinacy of meaning on the interpretation of scripture was widely perceived among natural philosophers.

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<sup>75</sup>Schneider 1990, 108.

<sup>76</sup>For contemporary examples, see: Whitman 2000b, 262-63.

<sup>77</sup>Hübner 1975.

<sup>78</sup>Howell 2002.

<sup>79</sup>van Ruler 1995, 255-57.

<sup>80</sup>Snobelen 2001, 2008a.

Many seventeenth-century natural philosophers located the plurality of interpretations that produced the destructive religious controversies after the Reformation precisely at the misuse and misunderstanding of ordinary verbal language.<sup>81</sup> Galileo Galilei (1564-1642), arguing that scriptural language about nature conformed to ordinary spoken use, also wrote that passages of scripture “may have some different meaning beneath their words,” but “Nature, on the other hand, is inexorable and immutable.”<sup>82</sup> He drove this point home by offering two different literal interpretations of Joshua showing “that the very notion of literal interpretation is problematic, for verbal language is ambiguous by its very nature.”<sup>83</sup> Robert Hooke (1635-1702), another natural philosopher with an interest in language, wrote that,

“*Rabbins* find out *Caballisms*, and *Enigmas* in the figure, and placing of Letters, where no such thing lies hid; whereas in *Natural* forms there are some so small, and so curious, and their design'd business so far removed from the reach of our sight, that the more we do magnify the object, the more excellencies and mysteries do appear.”<sup>84</sup>

When Robert Hooke claims that the aim of the natural philosopher is to read the book of nature, this exercise is not to be performed with verbal skills.<sup>85</sup> A century later Noël Antoine Pluche (1688-1761) wrote of the book of nature that “we neither find Errors nor different Opinions, nor

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<sup>81</sup>Coudert 1978, 57-58, 98-99.

<sup>82</sup>Galilei 1957, 183. Cf. pp. 187, 199.

<sup>83</sup>Palmerino 2006, 32.

<sup>84</sup>Hooke 1665, 8. The same sentiments were expressed by Kepler 1938, Vol. I, p. 6.

<sup>85</sup>Hooke 1971 [xxxx], 338.

Controversy, nor Prejudice, not Contentions.”<sup>86</sup> As a result, nature came to be seen as a less ambiguous source of knowledge of God than scripture.<sup>87</sup>

Some theologians agreed with this assessment by the natural philosophers. For instance, John Sparrow (1615-1665) argued in the introduction to one of Jacob Boehme's works that the language of nature “doth show in every ones Mother tongue the Greatest Mysteries” while the meaning of scripture is “vayled by Doubtfull Interpretations, Expositions, Inferences and Conclusions.”<sup>88</sup> Natural philosophers and natural historians expected more clarity in the book of nature than in the book of scripture because it was not written in a verbal language. Thus, the ambiguities of scripture interpretation encouraged people to look towards nature as a less ambiguous source for the knowledge of God.

In conclusion, when strategies used to determine authorial intent in scripture reduced interpreter-imposed speculation, they also uncovered the ambiguity originating in verbal language. This linguistic ambiguity manifested itself in many disagreements on the meaning of scripture texts. By the seventeenth century many natural philosophers located the origin of the disagreements in the ambiguity of verbal language. In response, they turned to the study of nature as a source of knowledge of God superior to the text of scripture. By now most natural philosophers took the

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<sup>86</sup>Pluche 1770, Vol. III, 115.

<sup>87</sup>De Grazia 1980.

<sup>88</sup>Boehme 1648, Sig. A3r; Mandelbrote 2001; Sir Kenelm Digby, a theologian and a natural philosopher, based his attempts to heal the religious divide in natural philosophy: Janacek 2000, 116-17.

mode in which nature refers to God no longer to be symbolic so that the seventeenth-century flight from scripture to nature could become one of the causes of the rise of modern science.

## 6. DISCUSSION AND CONCLUSIONS

In this chapter we assume with Harrison that the symbolic view of nature diverted attention away from nature to God and that the rise of modern science required a focus on nature for its own sake. Within this framework we have questioned his explanation of when and how nature symbolism declined. Harrison has proposed that the rejection of symbolism in scripture interpretation by the Protestant reformers was the cause of the decline of nature symbolism more generally, and that the literal turn in scripture interpretation was the most important reason for the decline of nature symbolism. We found, however, that scripture interpreters did not turn from spiritual to literal interpretation, but from reader-imposed speculation to author-intended meaning. The latter included symbolism because the problem for religious reformers was not the symbolism of things, events and persons, but the multiple arbitrary meanings of the scripture text. To combat the latter unauthorized symbolism was rejected together with other products of human imagination, but divinely authorized symbolism was accepted. Since the symbolism of things was not the rationale for the rejection of allegory and was not rejected across the board, we conclude that it could not have been the primary cause of the decline of symbolism in the interpretation of nature.

Three observations underwrite our conclusion that religious reformers did not see the problem of indeterminacy of meaning in the symbolism of things, but in arbitrary speculation. Firstly, the literal sense of the *Quadrige* was not retained, but transformed to include all spiritual senses. Thus the allegorical sense was not rejected without further qualification. Secondly, although in the abstract things, events and persons found in scripture, the *Physiologus* and the bestiaries have multiple meanings, nevertheless within their respective contexts the symbolic meaning of things, events and persons is unequivocal because it is specified. In the case of scripture interpretation religious reformers explicitly identified the problem of ambiguity with arbitrary speculation characteristic of allegorical interpretation. They did not associate ambiguity with the symbolism of allegorical texts because in the context of scripture symbols had a specific meaning. This explains the third observation, namely that instead of a rejection of allegory across the board there has been a rejection of reader-imposed allegory, but an acceptance of divinely authorized allegory in scripture. As a side-effect the frequency of allegorical interpretation of scripture declined.

In bringing these observations to bear upon Harrison's hypothesis we have taken him to claim that the influence of the Protestant reformation was indirect, even diffuse in the sense that it created a condition for the rise of modern science<sup>89</sup> which needs to be complemented by direct causes for its explanation, but that among other conditions that paved the way for modern science, the literalist mentality introduced by the Protestant reformers was 'central,' 'a major

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<sup>89</sup>Harrison 1998, 5-8, 107, 113, 266.

catalyst,' and 'most significant.'<sup>90</sup> On balance, Harrison presents the condition created by the Protestant reformers as a pursuit of the quadrival literal meaning and a rejection of symbolic meaning of things, events and persons.<sup>91</sup> But there was no rejection of symbolism because the quadrival literal sense was transformed during the late Middle Ages and came to include authorized allegorical meaning.

Twice, however, Harrison makes the weaker claim that the Protestant reformers were pursuing determinacy of meaning primarily though not exclusively by means of literal interpretation.<sup>92</sup>

This implies that non-literal meanings were sometimes accepted provided they were determinate.

We have made the same observation in that the new literal sense included divinely authorized allegory. But while the pursuit of divine authorial intent reduced interpreter-imposed speculation, it also uncovered linguistic ambiguity as another unrelated source of multiple meanings of scripture texts. The religious reformers could not reduce the ambiguity of texts because it is in the nature of language. Once arbitrary interpretation was reduced by removing unauthorized allegory, the ambiguity of language itself became manifest in the interpretive disagreements unrelated to allegorical texts. This, we argue, was one of the causes that drove scholars to nature. They considered nature as God's clearest revelation because it did not have the ambiguity inherent in language.

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<sup>90</sup>Ibid., 5, 8.

<sup>91</sup>Ibid., 113, 114, 116-117, 122, 205, 208 (pursuing literal meaning), 122, 129, 185 (rejecting allegory).

<sup>92</sup>Ibid., 111, 113.

We propose, therefore, that primarily in scholarly circles the source of ambiguity was not seen in the symbolism of things, events and persons popular in late medieval and early modern society, but in rampant speculation and arbitrary interpretation. These fuelled a hunger for truth and reality. In the case of scripture this was a hunger for the empirical reality of the words and sentences, for “intellectual precision and clarity of speech.” In the case of nature this was the empirical reality of the stars in heaven and the animals on earth.<sup>93</sup> We offer this veridical stance as a working hypothesis that can make sense of the observations we have used to assess Harrison's hypothesis. For instance, a focus on truth and reality is not unique to the Protestant reformations, because it emerged late in the Middle Ages and persisted afterwards. Therefore, it can help understand the rise of science on both sides of the confessional divide between Protestants and Catholics. Also, since truth was identified with its divine source, a focus on truth can explain the acceptance of divinely authorized allegory and the rejection of unauthorized allegory. For the time being we limit our working hypothesis to the professional study of nature and scripture. A history of the long-term fate of nature symbolism outside of the professional study of nature remains to be written.

An emerging veridical stance can also explain that disagreement over the interpretation of scripture inspired a turn to nature for clarity in the knowledge of God. Whereas the veridical stance in scripture interpreters manifested itself in the attention shifting from allegorical interpretation to the text itself, interpreters of nature made a parallel move from allegorical interpretations of nature to nature itself – a parallelism Harrison describes as recognized at the

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<sup>93</sup>Obermann, *The Dawn of the Reformation*, 195; Minnis 2000, 252.

time by Francis Bacon (1561-1626) and Thomas Sprat (1635-1713).<sup>94</sup> They turned to the causal mode of thought in which two things may be linked unambiguously as cause and effect. This turn to nature was possible because it had ceased to function as a symbol referring to God, but this did not depend on a rejection of nature symbolism by religious reformers.

Two other explanations have been offered for the decline of nature symbolism. "In the later Middle Ages," writes Huizinga,

the decline of [the symbolic] mode of thought had already long set in. [ ] Symbolism [ ] shows a tendency to become mechanical. [It became] a product, not of poetical enthusiasm only, but of subtle reasoning as well, [ ] causing it to degenerate.

Moreover, "The symbolic mentality was an obstacle to the development of causal thought, ..."which, Umberto Eco has pointed out, was part of a non-symbolic view of the natural order introduced with the rediscovery of Aristotelian science. "When the medievals began to discover the ontological and formal reality of things [ ] the symbolical universe lost something of its substance."<sup>95</sup> Thus among the forces that began the disintegration of the symbolic order of nature in scholars like Aquinas we find the rising importance of reason relative to imagination and of the causal order of nature relative to the symbolic order. But nature symbolism continued among the mystics.

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<sup>94</sup>Harrison 1998, 103-05.

<sup>95</sup>Huizinga 1924, 199, 204-05; Eco 1988, 140-41.

The pursuit of truth required that the reduction of arbitrary speculation in the interpretation of nature follow a different path than that of scripture because they have different truth criteria. Multiple meanings of scripture are reduced by rule-governed comparison of texts the outcome of which is taken to be the intent of the author which is fixed in creeds. Multiple meanings of nature are gradually confined by the development of a host of procedures now referred to as scientific methodology and that include a variety of theoretical strategies such as paradigms, research programs and theories. As Harrison has pointed out this development started with failed attempts to develop a perfect universal language of nature – an attempt that according to him “signifies an awareness of the absence of ordering principles in nature.”<sup>96</sup> Instead we believe that a comprehensive causal order of nature was available for whoever wanted to consider Aristotelian, Baconian or Cartesian strategies. However that may be, these strategies for the interpretation of nature changed with time and discipline and they left no room within the professional study of nature for the symbolic meaning of things in nature.<sup>97</sup> Their spiritual significance could not be part of these strategies because they were aimed at explaining nature in natural terms.

We offer the veridical stance as one among several influences that have inspired different ways of reading the book of scripture and the book of nature. Various forms of ‘mosaic philosophy’ also stimulated new and productive thought about nature.<sup>98</sup> Interpreters of scripture such as William of Conches (c.1080 – c.1154), Thierry of Chartres (c. 1100 – c. 1150) and Marin

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<sup>96</sup>Harrison 1998, 263.

<sup>97</sup>For a sketch of changing strategies, see Fisch 2008, XX

<sup>98</sup>Cf. Blair 2000.

Mersenne (1588-1648) applied the idea of a grammar of scripture to the other book. So did Robert Hooke.<sup>99</sup> After all the two books were written by the same author and could, therefore, be expected to follow rules even if they were different. This encouraged the study of the rules of nature even though the phenomena governed by these rules continued to be seen as “a tissue of figures and images which must be read like a literary text, ...”<sup>100</sup> A text that “involves and embodies a transcendent form of rhetoric.”<sup>101</sup> Further, as Harrison suggests, the use of accommodated language in scriptural references about nature made it obvious that truth about nature required investigation of nature itself.<sup>102</sup> This need to understand nature in order to determine the meaning of nature passages in scripture extended to non-accommodated passages as well.

There are two different phenomena to explain: the decline of nature symbolism and the rise of modern science. Their causes do not have to coincide. The former has been plausibly associated with the rediscovery of Aristotle. By the thirteenth century the works of Aristotle had fostered a scholarly climate in which literal meaning was preferred over allegorical sense. This applied both to the interpretation of scripture and to the interpretation of nature.<sup>103</sup> Developments in

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<sup>99</sup>Cited in Ormsby-Lennon 1988, 326-7.

<sup>100</sup>Wetherbee 2000, 221; on Mersenne: Bono 1995, 263.

<sup>101</sup>Cadden 1995, 10.

<sup>102</sup>Harrison 1998, 78-81, 137.

<sup>103</sup>Minnis, A. J. “Quadruplex sensus, multiplex modus: scriptural sense and mode in medieval scholastic exegesis,” p. 243 in: *Interpretation and allegory: antiquity to the modern period*, edited by Jon Whitman. Boston / Leiden: Brill. 2000, pp. 231-256 (interpretation of scripture); Funkenstein, Amos, *Theology and the Scientific Imagination from the Middle Ages to*

Aristotelianism reduced interest in neoplatonism and its symbolic language of things. Both recovered in fifteenth-century Florence and started another slide by the year 1600.<sup>104</sup> Aristotle emphasized that words are not intrinsically linked to objects, but are conventional and this undermines the symbolic view of nature.<sup>105</sup> Moreover, Aristotle had also provided a comprehensive causal order of nature. The influence of Aristotelianism on both natural philosophy and theology as well as its emergence before the Protestant reformation suggest that the decline of nature symbolism can be explained better by the rise of Aristotelianism and the decline of neoplatonism than by a turn to literalism in scripture interpretation.

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As for the rise of modern science, the combination of form and matter in Aristotelian substances drew attention to natural things for their own sake because they had meaning in themselves rather than in a spiritual realm. But while the rediscovery of Aristotle was one major contribution to the decline of nature symbolism while the rise of modern science had to wait until scholars moved from the study of what Aristotle had written about nature to exploring what Aristotle had explored – nature itself.

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*the Seventeenth Century*, Princeton, New Jersey: Princeton University Press, 1986, pp. 35-37 (interpretation of nature).

<sup>104</sup>Singer, Thomas C. "Hieroglyphs, real characters, and the idea of natural language in English seventeenth-century thought." *Journal of the History of Ideas* 50: 49-70 (1989), p. 51.

<sup>105</sup>Ashworth, Jr., William B. "Natural history and the emblematic worldview," p. 323 in: D. C. Lindberg and R. S. Westman (eds.) *Reappraisals of the Scientific Revolution*, Cambridge: Cambridge University Press, 1990: 303-332.

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