

# The Two Books Prior to the Scientific Revolution

G. Tanzella-Nitti

*The relationship between the revelation of God through nature and through Scripture is here studied,<sup>1</sup> by focusing on the metaphor of “the Two Books” as it was used from the Fathers of the Church up to the seventeenth century. According to the majority of the Fathers, the book of nature is as universal as the book of Scripture, and the content of each is to some extent equivalent. The authors of the Middle Ages emphasize that the capability of human reason to recognize God through the book of nature has been weakened by sin. Thus, it becomes necessary the reading of a “third” book, the book of the Cross. The work of Raymond Sebond plays an important role to understand the historical evolution the metaphor underwent during the Renaissance and the Modern Age. The autonomy of the book of nature with respect to the book of Scripture will increase accordingly, including the possibility to have access to an image of God different from that conveyed by sacred Scripture. The way in which the metaphor is used during the Renaissance will pave the way to deism in the eighteenth century and to naturalism in the nineteenth century.*

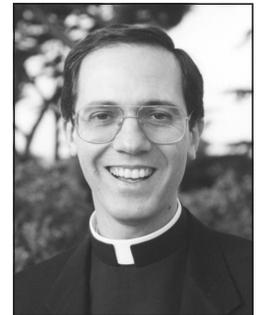
*Omnis mundi creatura  
quasi librum et pictura  
nobis est et speculum*

— Alan of Lille (twelfth century)  
*Hymn (PL 210, 579)*

**T**he contemporary debate between science and theology often speaks of a comparison between the “Book of Nature” and the “Book of Scripture.” There are basically two ways in which this metaphor can be used. In the more general way, it refers to the comparison between the knowledge of nature achieved by science and the one we achieve reading the Judeo-Christian revelation, and thus understanding nature as creation. In this case, it is nothing but a different way of looking at the broad topic known as “Religion and Science.” However, there is a second, and more intriguing way, to use it. We actually can refer to the term “book” in a specific and definite manner; that is, as a document written by someone and addressed to someone else; a document that is intended to convey an intelligible content; a text that might require a certain effort to be properly interpreted and explained according to its author’s original and genuine meaning. But, we ask, how could this second way of understanding the metaphor be truly mean-

ingful? In fact, if it is clear to everyone what we mean when we speak of the book of Scripture, it might be less clear what we mean when we speak of the universe as a “book.” It is obviously a metaphor, but its usage admits various degrees and nuances: up to what point are we allowed to consider nature a “book”? How was such a metaphor, that originated in a religious context, employed throughout history?

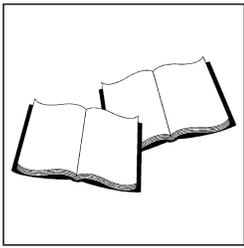
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what happened from the seventeenth century onward, that is, from the epoch in which the so-called “scientific revolution” began to question some relevant belief owned by the theological establishment. It was in that context when we began to speak of a “conflict” between the two books. Prior to that epoch, the use of the metaphor might seem less significant, and the whole subject lacking in interest. In reality, the image of the book had a wide literary usage well before the century of Galileo and Kepler.

In this paper, I will focus precisely on what happened before the scientific revolution and try to shed light on three major questions: (1) How were the “Two Books” mutually related and how was their content considered of some relevance to a better understanding of each other? (2) How did the leading philosophical ideas concerning the two books evolve through history? and (3) What epistemological consequences are entailed when we accept that nature is a real and true book? While the first two questions include a historical perspective, the third one appeals to contemporary philosophy of science.<sup>2</sup> However, a complete answer to this last question is beyond the aims of this paper. For this reason, I will confine myself to offer only a few hints about it, asking the reader to refer to the abundant literature existing on the topic.

### Is Nature Seen as a “Book” through the Pages of the Holy Scripture?

It is well known that the Holy Scripture introduces the created world as an effect of the Word of God: “Then God said, ‘Let there be light,’ and there was light ...” (Gen. 1:3). This relationship between the world and the Word is strengthened in the New Testament, which affirms the dependence of the entire universe on the Word made flesh: “In these last days, he spoke to us through a son, whom he made heir of all things and through whom he created the universe ... and who sustains all things by his mighty word” (Heb. 1:2-3). With this biblical basis, theological and philosophical literature apply to the created universe metaphors which deal with the Word as such. By words we narrate a text, we pray hymns, or sing a song. Com-

paring the creatures to the letters of a book, or to the voices of a choir, is thus in accordance with a theology of creation centered on the Word-*Logos*. It is worth noting that when using other images, for instance, stating that natural things are like the footprint, the traces, or the mirror of God the Creator, such a link with the Word is less clear, or even absent. The metaphor of nature as a book, therefore, seems particularly consistent with a Christian theology of creation.

Turning our attention now to the way in which sacred Scriptures imagine or describe the aspect of the cosmos, especially the appearance of the sky, we first of all find the metaphor of a tent or a curtain. The heavens are spread out, or even stretched out, like a tent over the Earth, as we read in many passages from the Psalms and the books of Job and Isaiah.<sup>3</sup> The verbs here used correspond (Heb. *natâ*) to the action of pitching and fixing a tent or, rarely, to the action of extending a cloth.<sup>4</sup>

In a limited number of cases, and in the apocalyptic context of God’s final judgment, we find an interesting expression. We read in Isaiah: “The heavens shall be rolled up like a scroll, and all their host shall wither away. As the leaf wilts on the vine, or as the fig withers on the tree” (34:4). An almost parallel passage is presented in Revelation: “Then the sky was divided like a torn scroll curling up, and every mountain and island was moved from its place” (6:14). These passages seem to indicate that, within the metaphor of the stretched curtain, the curtain is like a scroll; so the action opposite to that of laying out (or also of creating) the heavens is that of curling or rolling them back, similar to a scroll. Since “scroll” is nothing but the name used by the Bible to indicate a book, we have perhaps some indication that the heavens may be seen as both a curtain and a scroll. These are stretched out when God lays out the heavens and will be rolled up, in future times, in a new creation. From a merely philological point of view, we do not have enough data to conclude that the Holy Scripture sees nature as a book, but the reading of some of these passages are at least inspiring in this respect.

It is also worth mentioning that in the Holy Scripture, particularly in Revelation (cf. Rev. 20:12), we find two more meta-

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phors: the book of Life and the book of History. In chapter 5, we find the solemn vision of a mysterious scroll which had writing on both sides, that is outside and inside (cf. Rev. 5:1; cf. also Ezek. 2:9). An angel then proclaims in a loud voice: "Who is worthy to open the scroll and break its seals?" (Rev. 5:2). After the Lamb of God appears and receives this mysterious scroll from the hand of the Most High who sits on the throne, the angels and the elders finally cry out in a loud voice: "Worthy is the Lamb that was slain to receive power and riches, wisdom and strength, honor and glory and blessing" (Rev. 5:12). We will come back to the meaning of this scene at the end of this paper. For the moment, it is sufficient to emphasize that the literary association between "nature as creation" and "nature as a book" relies upon the clear association existing between the world and the Word, a relationship that is remarkably theological in character. God creates by his Increated Word and the world conveys a divine *logos*, i.e., contains and expresses the words of God.

## The Fathers of the Church and the Early Christian Writers until Scotus Eriugena

The number of authors who have spoken of the book of nature is very high. The proposal of a philosophical path to recognize a provident Creator starting from the observation of his works, and the view that through these works he speaks to us, are ideas which belong to the entire history of human culture, from the very beginning up until today. It seems that the attitude of looking at nature as if it were a book first began to be recorded clearly in the early Christian literature. Although we cannot exclude that it was present in previous cultures, for writing techniques were spread throughout the Mediterranean area from 3500 BC, it certainly arises within a religious context. The Fathers of the Church employ it in two main ambits: (1) the so-called cosmological argument, by which they invited others to acknowledge a provident God-Creator starting from the observation of the order and beauty of the creatures, and (2) the cosmic dimension of liturgy, for God had to be celebrated and praised in his glory, also in the context of nature.

The words of Anthony the Abbot (third century) probably give the first example of hermitage: "My book is the created nature, a one always at my disposal whenever I want to read God's words."<sup>5</sup> As pointed out a bit later by Isaac of Nineveh, nature was given to human beings prior to them receiving the sacred Scriptures.<sup>6</sup> Among the Fathers of the Church, explicit references to the book of nature can be found in St. Basil, St. Gregory of Nyssa, St. Augustine, John Cassian, St. John Chrysostom, St. Ephrem the Syrian, and Maximus the Confessor. If we also include those authors who implicitly refer to the book of nature, for example, those who said that God "speaks to us through

creation," the list would become much larger and quite uncontrollable.<sup>7</sup> It is enough, for our purposes, to offer here some quotes and afterward to try to summarize some leading ideas.

The Greek father, St. Basil of Cesarea (329-379), wrote:

We were made in the image and likeness of our Creator, endowed with intellect and reason, so that our nature was complete and we could know God. In this way, continuously contemplating the beauty of creatures, through them as if they were letters and words, we could read God's wisdom and providence over all things.<sup>8</sup>

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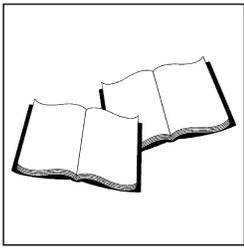
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Among the Latin Fathers, it is St. Augustine (354-430) who, despite his preference for apologetic arguments based on an anthropological, rather than on a cosmological path, dedicates various passages to the book of nature. These often involve interesting comparisons with the book of Scriptures. For example, St. Augustine wrote:

It is the divine page that you must listen to; it is the book of the universe that you must observe. The pages of Scripture can only be read by those who know how to read and write, while everyone, even the illiterate, can read the book of the universe.<sup>9</sup>

Some people in order to discover God, read a book. But there is a great book: the very appearance of created things. Look above and below, note, read. God whom you want to discover, did not make the letters with ink; he put in front of your eyes the very things that he made. Can you ask for a louder voice than that?<sup>10</sup>

In a page of his *Confessions*, chap. XIII, the metaphor of heaven as a book is combined with the biblical image of the starry sky stretched over us like a skin. God clothed our naked first parents with a skin just after they sinned, thus showing his mercy for us; likewise the heavens are a skin which also shows God's mercy, because, reading them as in a book, human beings can know the will of God and behave in a virtuous and honest way.<sup>11</sup> Referring to creation, Augustine says: "For we know no other books which so destroy pride, which so destroy the enemy, who resists your reconciliation by defending his own sins."<sup>12</sup>



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Commenting on Christ's transfiguration in his *Ambigua*, Maximus compares nature and Scripture to two clothes with which the Incarnated Logos was endowed: (1) the natural law being his humanity; and (2) the divine law revealed by Scripture, his divinity. These two laws were presented to us by means of two different books, nature and Scripture.

In contrast to human beings, the angels do not need to read the heavens, for they always behold God's face and perfectly know God's will; indeed, God himself is their *book*.<sup>13</sup>

Over the centuries that followed, especially during the Middle Ages, Maximus the Confessor (580–662) exerted a remarkable influence. Commenting on Christ's transfiguration in his *Ambigua*, Maximus compares nature and Scripture to two clothes with which the Incarnated *Logos* was endowed: (1) the natural law being his humanity; and (2) the divine law revealed by Scripture, his divinity. These two laws were presented to us by means of two different books, nature and Scripture. They veil and reveal the same *Logos*; they have the same dignity, and teach the same things. Maximus is even more explicit: the two books have more or less the same content, and he who wants to know and carry out God's will needs them both.<sup>14</sup> In reading the book of nature, the deep mystery of the *Logos* does not vanish nor is it destroyed. Maximus writes:

The natural law, as if it were a book, holds and sustains the harmony of the whole of the universe. Material bodies are like the book's characters and syllables; they are like the first basic elements nearer to us, but allow only a partial knowledge. Yet such a book has also more general and universal words, more distant from us, whose knowledge is more subtle and difficult to reach. The same divine *Logos* who wrote these words with wisdom, is like embodied in them in an ineffable and inexpressible way. He reveals himself completely through these words; but after their careful reading, we can only reach the knowledge that he is, because he is none of those particular things. It is gathering with reverence all these different manifestations of his, that we are led toward a unique and coherent representation of the truth, and he makes himself known to us as Creator, by analogy from the visible, created world.<sup>15</sup>

It is worthwhile to mention the great—and I would add the critical—equilibrium of Maximus the Confessor. On one hand, he affirms the need to know the natural law, and maintains that all that is contained in the

Holy Scriptures is also contained in nature (a statement which some centuries later would bring about some problems, as we will see later). On the other hand, faithful to the Greek tradition, he is aware that the knowledge of God through the book of nature remains veiled, deficient, and certainly inferior to that provided by the Bible.

In the ninth century, John Scotus Eriugena (about 810–877) recalled Maximus' image of the transfigured Christ-*Logos*, recommending that we comprehend the human clothes of Jesus, which indicate the material creatures.<sup>16</sup> At the very beginning of the history of salvation, Scotus Eriugena says, Abraham was invited to recognize God not by looking at the Scriptures that did not exist yet, but by looking up at the starry sky.<sup>17</sup> In the works of this Celtic theologian, the idea that God reveals himself through the two books is also present. Nature and Scripture can be both considered as God's theophanies. He writes:

The eternal light manifests it to the world in two ways, through Scripture and through creatures. In no other way the knowledge of God is renewed in us but in the characters (Lat. *apices*) of Scripture and in the forms (Lat. *species*) of creatures.<sup>18</sup>

In addition to the above quotations, if we also take into account how the relationship between faith and reason was formulated by the majority of the authors of this same period, the following general conclusions can be drawn:

1. The Fathers of the Church employ the cosmological argument (to infer the *Logos*-God or the divine from nature), one already known to the Platonic, Aristotelian, and Stoic philosophical traditions, and use it to ascend from created being to the Creator. The metaphor of nature as one of God's books is clearly present. When creatures are not compared to letters or words which make up a book written by God, it is nevertheless certain that God speaks to us through nature. The cue is often taken from passages of the Holy Scripture which offered a sound basis to endorse the practicability of such a path.<sup>19</sup>
2. The book of nature is as universal as the book of Scripture, and the content of each is to some extent equivalent. At times it transpires that the book of nature is even more universal and more comprehensible

than the book of Scripture. Creation is before everyone's eyes, as a source for a moral and spiritual appeal.

3. The knowledge of the book of nature seems to be relevant, and for some authors even necessary, to correctly understand the book of Scripture, for the knowledge acquired by observing and studying natural things precedes the knowledge of God's revealed words.<sup>20</sup>

4. With regard to moral and ethical dimensions, there is a strong analogy between natural law (i.e., those moral commandments that are particular to human nature as such) and the revealed divine law. The first is written by God in the world of created beings and in human conscience; the second is written by the same God in the Scriptures.

### Authors of the Middle Ages: The Case of Hugh of St. Victor and St. Bonaventure

The metaphor of the two books also survives during the Middle Ages; with theology continuing to inquire about the relationship existing between them.<sup>21</sup> References to the book of nature can be found, with different nuances and to different degrees in St. Bernard of Clairvaux (1090–1153), Hugh of St. Victor (1096–1141), St. Bonaventure (1217–1274), St. Thomas Aquinas (1224–1274), Thomas of Chobham (about 1255–1327), Dante Alighieri (1265–1321), Thomas of Kempis (1380–1471) and Raymond of Sebond (about 1385–1436), the subject of the next section.

In the Middle Ages, two authors deserve more room for discussion: Hugh of St. Victor and St. Bonaventure.<sup>22</sup> Each emphasizes that the universal comprehension of the book of nature is weakened by the reality of human sin. The book of Scripture exerts a kind of "healing action" over the book of nature: after the original fall, and because of our sins, to recognize God in the spectacle of nature is not an easy task to accomplish. Thus a "third" book comes forth, the *book of the Cross*. Christ himself, his Incarnation and his redemption, is compared with a great book, whose reading is necessary to the proper understanding of the other two books. To this respect, Jesus Christ seems to play quite an interesting, twofold role. He acts like a hinge between the two books. When considered as increated Wisdom, he shows a special relationship with the book of Scripture; when considered as the Incarnated Word, he is mainly associated with creation.

Hugh of St. Victor points out that to read the book of nature properly, one needs to have a spiritual, not merely a natural (that is material) attitude. He says:

For this whole visible world is a book written by the finger of God, that is, created by divine power; and the individual creatures are as figures in it, not derived by human will but instituted by divine authority to show forth the wisdom of the invisible things of God. But just as some illiterate man who

sees an open book looks at the figures but does not recognize the letters: just so the foolish natural man who does not perceive what pertains to the Spirit of God [cf. 1 Cor. 2:14]. He sees the form and the beauty outside creatures without understanding their inner meaning. On the contrary, the spiritual person can judge everything, and when looking at the beauty of the works, he soon realizes how the Creator's wisdom has to be much more admired.<sup>23</sup>

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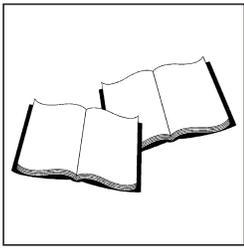
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According to this medieval Master, God's wisdom is also a unique book, written inside (Holy Scripture) and outside (the works of creation). Nature is compared to a first scripture, the Bible to a second scripture. The Incarnation of the Word is a third scripture, which is seen as a book that also has an inner and an outer side, the first because of his invisible divinity, the second because of his visible humanity.<sup>24</sup> All of these images recall that book *written on both sides* which both the prophet Ezekiel and St. John's Book of Revelation speak of.<sup>25</sup> In a work titled *De Arca Noe Morali*, Hugh of St. Victor speaks of three books or of three words, but with a different meaning. The first book or word is all of what is made by human activity; the second book or word is creation made by God; and the third book or word is Wisdom himself, that is, the Incarnated Word. In this case, Jesus Christ, as Incarnated Wisdom, plays the role of sacred Scripture, of which he is the fulfilment.<sup>26</sup>

In the works of St. Bonaventure, the metaphor of the book is widely used, so that expressions such as *liber naturae*, *liber mundi*, and *liber creaturae* are synonyms for nature, world, creation.<sup>27</sup> At the same time, the necessity to know God through sacred Scripture and not only through nature, and the demand for a third book, that of Christ Redeemer, is nevertheless explicit. Here are two outstanding texts:

Before sin, man had the knowledge of created things and through their images he was led to know God, to praise, to worship and to love him. The purpose for which living beings exist, is to lead us to God. When human beings fell because of sin, they lost such



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knowledge and so there was no one who could bring all things back to God. Thus this book, that is the world, seemed dead and destroyed. Therefore, there was a need for another book through which the previous book had to be enlightened, in order to acknowledge the true meaning of things. This book is nothing but Sacred Scripture, which contains metaphors, images and teachings about the book of the world. In this way, the book of Scripture restores the whole world, and allows the latter again to lead us to know, to praise and to love God.<sup>28</sup>

If we want to contemplate spiritual things, we need to take up the cross as if it were a book ... Christ himself is this book of wisdom, who is written inside by the Father, as he comes from the power of God, and outside, when he took on a bodily form. However, this book was open on the cross, and it is this book that we have to read in order to understand the depths of God's wisdom.<sup>29</sup>

Although these texts allow different interpretations, for instance, whether our intellect was mainly wounded by original sin, or if our knowledge of God is also weakened by our personal sins, the underlying doctrine is clear enough. The book of Scripture and the book of the Cross have a kind of priority with respect to the book of nature, at least with regard to our ability to clearly recognize God. At the same time, St. Bonaventure cannot deny a chronological priority of the book of nature over that of Scripture, as shown by this quote from the *Breviloquium*:

The first Principle is made known to us through Scriptures and creatures. By the book of nature shows itself as the principle of power; by the book of Scripture as the principle of restoring. And since the restoring principle cannot be known without first knowing the principle of power, though the Bible tells us mainly about the work of redemption, it must also tell us about the work of creation.

Despite the fact that we are dealing here with a knowledge of nature *through* the pages of Scriptures, it is clear that such a knowledge calls for a comparison with the natural knowledge acquired by reason.<sup>30</sup>

Other passages of the Franciscan master recall the image of the book written both inside and outside, an image that works at different levels. All things are like a book written outside, insofar as we confine ourselves to read them as merely effects of God's power. Here is the step where natural philosophers seem to stop. Yet creatures are written inside, when we recognize them as traces or images (Lat. *vestigia*) of God. On a second level, material and irrational things are a book written outside, while rational and spiritual creatures, like humans and angels, are a book written inside, in the depth of their conscience. Finally, Scripture too turns out to be a twofold written book. The outer writings refer to those meanings of Scriptures which are explicit and clear, while inner writings represent those implicit senses and more obscure understandings.<sup>31</sup>

The metaphor of the book is used by other medieval masters, among them Thomas Aquinas. He seems to use it explicitly quite a few times, although it is difficult to pick out a complete set of quotes if our research is confined to expressions such as *liber naturae* or *liber creaturarum*, since the full context is always needed.<sup>32</sup> Nevertheless, it is worthwhile recalling that Aquinas provided a synthetic formulation of the relationship between the knowledge of God we acquire by looking at nature, and the one we are taught by reading the Scriptures. With a sentence that will be quoted down through the centuries by many documents of the Church, he affirmed that human natural reason is able to reach a certain knowledge about spiritual realities, such as the existence of God, the immortality of the human soul, the existence of a moral responsibility before a provident Creator, and so on; however, God himself also wanted to reveal these same truths by the pages of the Holy Scripture, so that in this present condition of the human race, they can be readily known by all, with firm certitude and with no admixture of error.<sup>33</sup>

To summarize, we can say that the Middle Ages introduced a certain *theological realism* in the question of the two books. Human reason is able to read the book of nature to ascend to God, but we have to take into account the wounds suffered by our intellect because of sin. This great book continues to bind us to our Creator,<sup>34</sup> but a

spiritual and clear sight is required to recognize such a link.<sup>35</sup> Authors of the Middle Ages do not lose optimism, but seem to gain realism. Actually we could say, by using the words of John Abbot of Ford (d. 1220): “*Est enim liber creaturae et est liber scripturae et est liber gratiae*—there is the book of creatures, the book of Scripture and the book of Grace.”<sup>36</sup> The book of nature does not lose its universality, but is framed within a strong Christological perspective, and so demands other theological categories, such as Incarnation and redemption, fall and grace. Medieval masters thus extend the metaphor of the book to Christ and to God. God himself, according to the beautiful verses of Dante’s *Comedia*, is the book, the volume, whose pages are scattered throughout the world, and which also allows creation to be a book in itself:

In its depth I saw ingathered, bound by love in one single volume, that which is dispersed in leaves throughout the universe: substances and accidents and their relations, as though fused together in such a way that what I tell is but a simple light.<sup>37</sup>

## The First Renaissance: The Case of Raymond of Sebond

A work deserving specific attention is the *Theologia Naturalis seu Liber Creaturarum* (1436) written by Raimundo de Sebunde (Raymond of Sebond, ca. 1385–1436), a Catalan born scholar, Doctor in Medicine and Theology, who was a professor at Toulouse and its president from 1428 to 1435. The title of Sebond’s treatise changes a bit depending on the manuscripts existing in different European libraries: *Liber Naturae sive Creaturarum* (Paris), *Scientia Libri creaturarum seu Naturae et de Homine* (Toulouse), *Liber Creaturarum sive de Homine* (Clermond-Ferrand), and so forth. The subtitle *Theologia naturalis* was added by the publishers, starting from its second printing in 1485. This book was remarkably successful. It had sixteen editions and many translations, including a French one by Michel de Montaigne in 1569. Until the beginning of the eighteenth century, various editors also rearranged and reorganized the content of the book for different purposes.<sup>38</sup>

The aim of the work is clear and explicit in the author’s *Prologue*: the knowledge of the book of nature allows us to understand, in a true and infallible way, and without much effort, all truths about created things, man, and God. The book of nature tells us all that is necessary for our perfection and moral fulfilment, so that, by reading this book, we can achieve our eternal salvation. Moreover, Sebond adds, it is thanks to the knowledge of the book of nature that we can understand without error what is contained in the book of Scripture.<sup>39</sup> In the book of nature, each creature is nothing but a byte and a letter written by the finger of God, such that all these letters and words together form a kind of manuscript, in which the human creature constitutes the most important word.<sup>40</sup>

The relationship between the two books is explained in detail but in a way that deviates, at least on some matters, from the teachings of the medieval masters. Both books were given to us by the same unique God; we received the first one from the creation of the world, while the second one was written thereafter. The book of nature seems to have a certain priority, for it is said that our knowledge of it precedes and confirms the book of Scripture; it is like a door to enter the Bible and a light to illuminate its words.<sup>41</sup> The knowledge of the book of nature is available to everyone, while the book of Scripture can be read only by the clerics. Nevertheless, the book of Scripture was inspired and written to help us read the book of creatures properly, since we were like the blind<sup>42</sup>—a consideration that certainly refers to human sins and brings Sebond closer to the theologians of the Middle Ages.

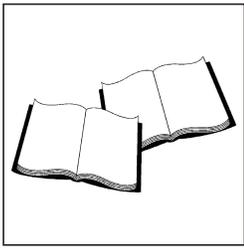
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*Sebond says that we cannot falsify or misinterpret the book of nature, adding that, when studying it, there is no room for heretics or heresies.*

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With an epistemological optimism that would have amazed many contemporary philosophers of science, Sebond says that we cannot falsify or misinterpret the book of nature, adding that, when studying it, there is no room for heretics or heresies. Contrary to Scripture, nature cannot be deleted nor lost.<sup>43</sup> We need both books and they do not contradict each other. They do not differ in their content: all that is present in the first, we also find in the second. They differ with regard to the way in which such content is taught and proved: the book of Creatures teaches by means of a rational demonstration (*per modum probationis*), while the Holy Scriptures are based on God’s authority and they teach us by means of prescriptions, commands, and exhortations (*per modum praecepti, mandati, monitionis et exhortationis*).<sup>44</sup>

Sebond strives to keep his balance, but the matter is delicate and somewhat critical. The risk of over-evaluating the book of nature at the expense of the sacred Scripture is real; one could think, for example, that all of what is contained in the Bible can be known simply by looking at the creatures. It is true that he emphasizes in many places that the book of Scripture is “greater and higher” than that of nature, because to speak with the authority of God is superior than demonstrating something by human reason. However, some of the arguments brought about by Sebond are precarious, and at times ambiguous. Trying to



## Article

### *The Two Books Prior to the Scientific Revolution*

*There is no doubt that the content of the Liber Creaturarum differs somewhat from the theological perspective held during the Middle Ages. For the first time – and probably beyond the intentions of [Sebond] – we find an attempt to read a moral doctrine in nature in such a way that, in principle, the consideration of the sacred Scriptures could be left out.*

summarize his thought, we could say that from a cognitive point of view, the book of nature is primary and more fundamental; its knowledge is more universal and connatural to us, that is, tailor-made for the human mind.<sup>45</sup> From the point of view of dignity, the book of Scripture has a higher value, because of the authority on which words contained therein are based.<sup>46</sup> Yet, the priority of nature serves the Scriptures, because it is directed to the knowledge of the latter. Thus all matter is counter-balanced once again, and Sebond finds his way once more.<sup>47</sup>

It is no surprise that the doctrine of the *Liber Creaturarum* was interpreted and judged in different and sometimes contrasting ways. Some scholars saw in it the danger of reducing the significance of Scripture and weakening the authority of the Church to interpret it. Others saw in the work of Sebond a nice example of natural theology, in tune with the Christian philosophy of the early centuries and the Middle Ages.<sup>48</sup> It was because of the implicit problems it contained that in 1559 the book was included by Pope Paul IV into the Index of the forbidden books. But a few years later, in 1564, Pope Pius IV limited the prohibition to the *Prologue* only, asking that a note of theological clarification be inserted in all the later publications.

Beyond the course of events and opinions related to the work of Sebond, there is no doubt that the content of the *Liber Creaturarum* differs somewhat from the theological perspective held during the Middle Ages. For the first time—and probably beyond the intentions of its author—we find an attempt to read a *moral* doctrine in nature in such a way that, in principle, the consideration of the sacred Scriptures *could be left out*. Now the book of nature can be seen as a book autonomous in itself. It is probably from this point, I guess, that the road is open for a “modern religion of nature” capable of conveying moral and spiritual values without a necessary reference to the revealed religion based on the Bible. This will give rise to a couple of philosophical lines of thought.

The first is a kind of “lay sacralization” of nature (we mean here something very different from those other sacred views of nature, utterly Christian in character, highlighted by Scotus Eriugena, the Celtic Christianity, Hildegard of Bingen or Franciscus of Assisi).

A new natural lay religion emerges, having its own rites, prayers, and moral prescriptions, which can easily and dangerously meet the practice of magic and esoteric customs. It will coalesce in the Renaissance, giving rise to a pseudo-philosophy which lasts until our days through some of the manifold expressions of the New Age. The second line of thought is that related to the Deism of the Enlightenment, a religion of reason and nature which leaves aside, and often criticizes, all the *revealed* religions. The latter were considered controversial, that is, as sources of intolerance and division, while a natural religion based on reason was, in the program of the Enlightenment, the only one capable of reuniting in a peaceful way all humankind.

Notwithstanding the fact that the work of Sebond could have nourished these philosophical roots, his ideas deserve to be studied in more depth. His proposal possesses interesting suggestions that might help the development of the contemporary dialogue between religion and science, provided that the relationship between the two books is explained in a slightly more convincing way than that of Sebond.

### **At the Dawn of Science of the Modern Age: Who Can Read the Book of Nature?**

The transition to the Renaissance is, for our topic, particularly critical.<sup>49</sup> The Patristic Age and the Middle Ages do not know the idea of a dialectic opposition between the two books, as if their mutual comparison were a question to be solved. Authors are not concerned about showing or demonstrating their “harmony,” in the contemporary meaning of the word. Rather, they want to show their common dignity as divine revelation and their role to provide humankind with a true knowledge of the unique God. In light of a human history characterized by the Fall and redemption, their mutual gnoseological relationship (or subordination) is also determined and explained with different emphases, especially within a Christological perspective. The two books are discussed and compared without any need for healing or rectifying any conflict. A number of authors in the fifteenth and sixteenth centuries will continue to maintain that creatures are the

words or the book of God, using this metaphor for rhetoric or spiritual purposes, e.g., Nicholas of Cusa (1401–1464), Martin Luther (1483–1546) or Fray Luis of Granada (1504–1588), but far from any problem of clashing interests.<sup>50</sup>

In contrast, it is the line of thought emphasized by Philippus Paracelsus (1493–1541) which gives rise to a different state of affairs. Following a peculiar interpretation of the work of Sebond, the book of nature now begins to permit a reading which seems to enter into conflict with the Holy Scripture. More than a conflict of contents, it seems to be a conflict of *readers* and *languages*. Against theologians and those scholars who based their studies on the Bible, Paracelsus affirms: “From the light of nature must enlightenment come, that the text *liber naturae* be understood, without which enlightenment no philosopher nor natural scientist may be.” And one of his students will add: “Let the others read their compendiums, while we study in the great picture book which God has opened for us outdoors.”<sup>51</sup>

The development of natural studies and experimental observations carried out in the late Renaissance introduced the idea that we can approach the world of the divine without the mediation of sacred Scripture, theology, or scholastic philosophy and, of course, without the mediation of any church. What is at stake is not the existence of God nor the choice of what is the best source (nature or Scripture) to understand who we are and where are we going. In fact, for the Renaissance scientists, it remains clear that God himself wrote the book of nature. The point is that now they can read it directly, praising and worshipping the Architect and the Maker of the world. The accordance between natural philosophy and theology, between nature and Scripture, between natural and revealed moral laws, an accord that was centered for a long time around the mystery of the two human and divine natures of the Incarnated *Logos*, is bound to be broken. A “spiritual” reading of the book of nature is still possible, but it is no longer *Christian*, as will be shown later on by the philosophy of Deism and the spirit of Romanticism. Born in a Christian context, the concept of the world as a book now becomes secularized and alienated from its theological origin.

The discussion of the position held by Galileo Galilei (1564–1642) in such historical process is beyond the aims of this paper.<sup>52</sup> However, I want to make a couple of comments because he uses the metaphor in a way that contributes to reducing the number of those who are allowed to read the book of the universe. It is true that, in contrast to Paracelsus and to what the deists will later maintain, for Galileo the Author of the two books is undoubtedly the unique God of the Judeo-Christian revelation, for “the Holy Scripture and nature equally proceed from the divine Word, the former as the dictation of the Holy Ghost and the latter as most observant executrix of God’s command,”<sup>53</sup> according to the well-known *Letter to Castelli* (1613). Nev-

ertheless, it is clear that “the great book of nature—as he wrote in the foreword of the *Dialogue on the two Chief World Systems* (1632)—is the proper object of natural philosophy,”<sup>54</sup> and that the reading of the book of nature is a matter for scientists, not for theologians.

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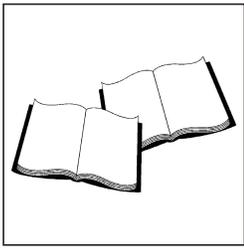
The famous page of the *Assayer* (1923) should be read, in my opinion, precisely in that light:

Philosophy is written in this grand book, the universe, which stands continually open to our gaze. But the book cannot be understood unless one first learns to comprehend the language and read the letters in which it is composed. It is written in the language of mathematics, and its characters are triangles, circles and others geometric figures without which it is humanly impossible to understand a single word of it; without these, one wanders about in a dark labyrinth.<sup>55</sup>

In 1641, in a letter addressed to Fortunio Liceti, the metaphor is clearly used against the cultural establishment of his time, whose books have now been surpassed, because

the book of philosophy is now that which stands perpetually open before our eyes; but because it is written in characters different from those of our alphabet, it cannot be read by everybody; and the characters of this book are triangles, squares, circles, spheres, cones, pyramids and other mathematical figures fittest for this sort of reading.<sup>56</sup>

It is worthwhile pointing out that since the epoch of the early Fathers of the Church, the meaning of the metaphor is now surprisingly overturned. If St. Augustine could state that “everyone, even the illiterate, can read the book of the universe,” in Galileo’s view, people who are qualified to read it belong to a much narrower circle. Sebond’s



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proposition that the knowledge of the book of nature is common to everyone, while the book of Scripture can be read only by the clerics, finds its mirror image here, but at the expense of the universality of the book of the world.

The position maintained by Johannes Kepler (1571–1630) seems, in this respect, a bit different. For the German astronomer, too, the book of nature required a rational interpretation, but he was able to clothe his rationality with a mantle of mysticism and spirituality. Astronomers are the high priests of the Most High God and the universe is precisely their book. But its content is more than mere geometry or mathematics, since it can be used like a missal to celebrate, pray, and worship God the Creator. Like Galileo, Kepler holds that nature is a book for scientists, not for theologians, but without giving it a solely “rationalistic” reading, according to the contemporary meaning we now give to this term.<sup>57</sup> The book of the universe is also suitable for praying to and worshiping, and so it recovers part of its universality.<sup>58</sup> The astronomer is not forbidden from becoming a theologian.

Thus, having these different and somewhat contradictory nuances, the metaphor of the two books will enter into the Modern Age. With regard to the book of nature, the “rationalistic” and the “spiritual” ways of reading it will survive, but in a new religious context, one that also will oblige scholars to distinguish carefully between different ways to read the Bible.

### **Reading Nature as a Book: Some Philosophical Perspectives**

Returning to the philosophical core of the image of the two books, and particularly to that of nature as a book, does the meaning of such an image entail any consequences for the work of theologians and scientists? The issue is broad, but it is worthy to be explored, at least in a schematic way.

In line with the Fathers of the Church and the authors mentioned above, the teachings of John Paul II (1920–2005) employ the metaphor of nature as a book.<sup>59</sup> In the encyclical *Fides et ratio* (1998), commenting on a passage of the Book of Wisdom that speaks of

the knowledge of God from his works by analogy, John Paul II states:

This is to recognize as a first stage of divine Revelation the marvelous “book of nature,” which, when read, with the proper tools of human reason, can lead to knowledge of the Creator (n. 19).<sup>60</sup>

Some years later, taking the cue from the commentary to Psalm 18, he will say:

For those who have attentive ears and open eyes, creation is like a first revelation that has its own eloquent language: it is almost another sacred book whose letters are represented by the multitude of created things present in the universe.<sup>61</sup>

Thus, it is permissible, from a theological point of view, to present the material universe as part of God’s revelation. Until now, the magisterium of the Catholic church preferred to reserve the term “revelation” only to refer to the historical-supernatural Word of God. For instance, in the documents of the First (1870) and Second (1965) Vatican Councils, when speaking of “creation” or “nature” other attributes were used, such as “testimony,” “witnessing” or “manifestation” of God.<sup>62</sup> Conversely, the concept of revelation is used in the context of creation by the Catechism of the Catholic Church (1992, 1997) and in other speeches by John Paul II.<sup>63</sup>

If creation can be said to be a book which reveals something of God, then it must have the capacity to appeal to or to bear meaning to the Incarnate. Human beings must not limit the experience they have of creation to the aesthetic level, but must ask themselves about the Author of beauty.<sup>64</sup> A book, as a written text, is addressed to someone and contains a message; and it does it more explicitly than the simple view of a landscape. The theological basis to consider creation as the initial stage of divine revelation depends on its direct relationship with the Word-*Logos*, by which creation took place, and on that Christological dimension which permeates the created world as a whole, a world made through him and for him.<sup>65</sup>

Remarkable consequences also can be seen in the important field of the inter-religious dialogue. If the book of nature is in front of everyone and it manifests the revelation of the true God, then on the basis of this

common acknowledgment a meaningful dialogue can start, provided that the simply aesthetic dimension is complemented with a reliable philosophical framework which is respectful of all the requirements of human rationality. With regard to those who have not received any historical revelation of God, the "word of creation" can play the role of a truly salvific revelation, in the place of Scriptures or other kinds of spiritual mediation. It must be pointed out, however, that nature *alone* does not save anyone. The capability of creation to awaken and convert human hearts to the love of the Creator, closely depends on the link existing between the natural world and the salvific humanity of Christ, the center and the scope of all of creation.<sup>66</sup>

Finally, if theology is invited to open again the "Book of Nature"—a book that some suggested *closing* because it was too difficult to read, or because after Galileo and Darwin it became a source of trouble—it means that the result of natural sciences can be considered a source of positive speculation, so that they truly can help theology to better understand the Word of God.<sup>67</sup>

When seen from the point of view of the activity of scientists, the metaphor of the "book" can be easily connected with the idea of an intelligible and rational universe, fit to be "read" by experiments as well as by theories. The question of the ultimate reason for the intelligibility of the world is indeed present in the contemporary interdisciplinary debate, and many authors have pointed out that such interrogation remains meaningful.<sup>68</sup> To believe that the natural world has the *logic* of a book, ordered and nonchaotic, written by God and containing a rational message, could influence the "spirit" with which a scientist carries out his or her activity. The following quote by Georges Lemaître seems, in this respect, quite impressive:

Both of them, (the believing scientist and the non-believing scientist) endeavor to decipher the palimpsest of nature, in which the traces of the various stages of the long evolution of the world are overlaid on one another and confused. The believer has perhaps the advantage of knowing that the enigma has a solution, that the underlying writing is, when all is said and done, the work of an intelligent being, therefore that the problem raised by nature has been raised in order to be solved, and that its difficulty is doubtless proportionate to the present or future capacity of mankind. That will not give him, perhaps, new resources in his investigation, but it will contribute to maintaining in him a healthy optimism without which a sustained effort cannot be kept up for long.<sup>69</sup>

There are scientists who speak of their research activity as a sort of "dialogue" between people and nature, and of their discoveries as an experience of "revelation." According to John Polkinghorne:

Physicists laboriously master mathematical techniques because experience has shown that they provide the best, indeed the only, way to understand the physical world. We choose that language because it is the one that is being "spoken" to us by the cosmos.<sup>70</sup>

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*Nature seems to continue to be seen as a book, despite the passing of the centuries and the change of philosophical paradigms.*

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Nature is understood as a mystic, appealing partner that appears before the scientist. E. Hubble says:

Sometimes, through a strong, compelling experience of mystical insight, a man knows beyond the shadow of doubt that he has been in touch with a reality that lies behind mere phenomena. He himself is completely convinced, but he cannot communicate the certainty. It is a private revelation.<sup>71</sup>

Beyond the words employed to describe such feelings, these experiences are consistent, once again, with the idea that the world can be read, that it conveys a message, that the universe reveals a sort of "cosmic code"—an expression that has become common in popular science. In conclusion, nature seems to continue to be seen as a book, despite the passing of the centuries and the change of philosophical paradigms.

At the beginning of this paper, we mentioned that one of the most solemn visions described in Revelation shows the Lamb who receives from the throne of the Most High a book, the seals of which only he is worthy to open. In this vision, the opening of the scroll is praised not only by peoples of every tongue and nations, but also by all living beings: "Then I heard every creature in heaven and on earth and under the earth and in the sea, everything in the universe, cry out: 'To the one who sits on the throne and to the Lamb be blessing and honor, glory and might, forever and ever.'"<sup>72</sup> In other words, the Book of all History, of which the Lamb is judge and redeemer, and the book of all natural creation, seem to be summarized and contained in that unique book, the seals of which only the Incarnate Word is worthy of breaking. The Book of History and the book of nature belong to the same book, of which the Incarnated *Logos* is the first and last word, the beginning and end, the *alpha* and the *omega*.<sup>73</sup> ◆

### Notes

<sup>1</sup>This article has been published in the journal of our faculty of theology in Rome, *Annales Theologici* 18 (2004): 51-83 and is reprinted here with permission.

<sup>2</sup>For the historical perspective, see: D. C. Lindberg, R. L. Numbers, eds., *God and Nature: Historical Essays on the Encounter between Christianity and Science* (Berkeley, CA: University of California Press, 1986); J. Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991); J. J. Clarke, ed., *Nature in Question: An Anthology of Ideas and Arguments* (London: Earthscan, 1993); and A. C. Crombie, *Styles of Scientific Thinking in the European Tradition*, 3 vols. (London: Duckworth, 1994).

<sup>3</sup>He commands the sun, and it rises not; he seals up the stars. He alone stretches out the heavens and treads upon the crests of the sea. He made the Bear and Orion, the Pleiades and the constellations of the south" (Job 9:7-9). "I bless the Lord, my soul! Lord, my God, you are great indeed! You are clothed with majesty and glory, covered in light as with a cloak. You spread out the heavens like a tent; you raised your palace upon the waters. You make the clouds your chariot; you travel on the wings of the wind. You make the winds your messengers; flaming fire, your ministers" (Ps. 104:1-4). "It was I who made the earth and created mankind upon it; it was my hands that stretched out the heavens; I gave the order to all their host" (Isa. 45:12). "He who made the earth by his power, established the world by his wisdom, and stretched out the heavens by his skill" (Jer. 10:12; 51:15). Cf. also Isa. 44:24; Isa. 51:13; Zech. 12:1. A different verb, but having an analogous meaning, is that offered by Isa. 48:13: "Yes, my hand laid the foundations of the earth; my right hand spread out (Heb. *piel*) the heavens. When I call them, they stand forth at once."

<sup>4</sup>Cf. G. J. Botterweck, H. Ringgren, H. J. Fabry, *Theological Dictionary of the Old Testament* IX (Grand Rapids, MI: Eerdmans, 1998), 381-7.

<sup>5</sup>Reported by Socrates Scholasticus, *Historia Ecclesiastica* IV, 23, (PG 67, 518).

<sup>6</sup>"Nature was the first book God gave to us, rational beings; ink-written teachings were given after human transgression" (Isaac of Nineveh, *Sermones Ascetici* V).

<sup>7</sup>See, for example, St. Athanasius, *Expositio in Psalmum XVII*, n. 4, (PG 27, 124C); St. John Chrysostomus, *Homilia ad populum antiochenum* IX, 2 (PG 49, 105).

<sup>8</sup>*Homilia de gratiarum actione* 2 (PG 31, 221C-224A).

<sup>9</sup>*Enarrationes in Psalmos* 45, 7 (PL 36, 518).

<sup>10</sup>*Sermones* 68, 6 (PLS 2, 505).

<sup>11</sup>"For heaven shall be folded up like a scroll; and now is it stretched over us like a skin. For your Divine Scripture is of more eminent authority, since those mortals by whom Thou dispenses it unto us, underwent mortality. And you know, Lord, you know, how you with skins did clothe men, when they by sin became mortal. Whence you have like a skin stretched out the firmament of your book, that is, your harmonizing words, by the ministry of mortal men," *Confessiones* XIII, 15, 16.

On the moral value of the book of nature, see also *Reply to Faustus the Manichaeum*: "But had you begun with looking at the book of nature as the production of the Creator of all, and had you believed that your own finite understanding might be at fault wherever anything seemed to be amiss, instead of venturing to find fault with the works of God, you would not have been led into these impious follies and blasphemous fancies with which, in your ignorance of what evil really is, you heap all evils upon God," *Contra Faustum* XXXII, 20.

<sup>12</sup>*Confessiones* XIII, 15, 17.

<sup>13</sup>"Let them praise your name, let them praise you, the supercelestial people, your angels, who have no need to gaze up at this firmament, nor to read it to know your Word. For they always behold your face, and there read without any syllables in time, what will your eternal will ... Their book is never closed, nor their scroll folded up; you are indeed their book, and you are this to them eternally," *Confessiones* XIII, 15, 18.

<sup>14</sup>"In the sacred Scriptures, the Word is veiled as *Logos*; in the created world, he is veiled as Maker and Creator. Thus I state that both

are needed by he who wants to turn to God judiciously. He needs the spiritual reading of Scripture and the spiritual contemplation of natural creatures. And so the natural law and the written law have the same dignity and teach the same things, in a way that one of them has nothing more, nothing less than the other," *Ambigua* 10 (PG 91, 1128 C).

<sup>15</sup>*Ambigua* 10 (PG 91, 1129 A).

<sup>16</sup>See on this author, J. Scotus Eriugena, *The Voice of the Eagle. The Heart of Celtic Christianity* (Great Barrington, MA: Lindisfarne Books, 2000).

<sup>17</sup>Cfr. *De divisione naturae*, PL 122, 723-4.

<sup>18</sup>*Homilia in prologum S. Evangelii secundum Johannem*, chap. XI (SC 151, 254).

<sup>19</sup>Cf. Prov. 13:1-9; Rom. 1:18-20; Acts 14:13-18; 17:22-27. It must be emphasized that such a philosophical path does not necessarily rely on a strong metaphysical apparatus, as it will do, for instance, in mediaeval theology. The Fathers of the Church appeal to common sense, to the notion of Providence, to aesthetical and moral arguments. In addition, the *cosmological* path is often associated with the *anthropological* path, that is, they appeal to the capability the pagans had to recognize God in moral imperatives of conscience and in the human search for happiness and love.

<sup>20</sup>This doctrine is openly affirmed by, among others, St. Basil:

Which is first: knowledge or faith? We say that, on the whole, in the case of sciences, faith precedes knowledge, but in our teaching, even if anyone says that knowledge begins before faith, we do not disagree—but, a knowledge commensurate with human comprehension. In the case of sciences, we must believe first that alpha is so called, and afterwards, having learned the letters and their pronunciation, gain also an accurate notion of the force of the letter. But in our faith concerning God the thought that God exists goes before, and this we gather from his works. We recognize by observation his wisdom and power and goodness and all his invisible attributes from the creation of the world (*Epistula*, 235, 1 [PG 32, 872B]).

On the same subject, Tertullian says:

We state that first we know God through nature and after we recognize him in the doctrines. Knowledge through nature comes from His works; knowledge through doctrines, from preaching (*Adversus Marcionem* I, 18 [PL 2, 266]).

It is worthwhile noting that the same teaching is recalled, using similar words, by John Paul II's encyclical *Fides et ratio*:

The Acts of the Apostles provides evidence that Christian proclamation was engaged from the very first with the philosophical currents of the time. In Athens, we read, Saint Paul entered into discussion with "certain Epicurean and Stoic philosophers" (17:18); and exegetical analysis of his speech at the Areopagus has revealed frequent allusions to popular beliefs deriving for the most part from Stoicism. This is by no means accidental. If pagans were to understand them, the first Christians could not refer only to "Moses and the prophets" when they spoke. They also had to point to the natural knowledge of God and to the voice of conscience in every human being (cf. Rom. 1:19-21; 2:14-15; Acts 14:6-17) (n. 36).

<sup>21</sup>The consideration of the Islamic tradition is beyond my analysis.

However, an overall look at the content of the Koran shows that the term "book" never refers explicitly to nature, but is always used to indicate the same Koran and its laws that are seen as the book *par excellence*. Some Islamic authors have noted that the Koranic verses are called *ayat* ("signs"), as are the phenomena of nature, indicating that the Koran could be seen as the counterpart of a natural text translated into human words. Cf. S. H. Nasr, *Religion and the Order of Nature* (New York: Oxford University Press, 1996). An indirect reference to the difference between Christian and Islamic traditions is made by the *Catechism of the Catholic Church*, n. 108.

<sup>22</sup>For the Middle Ages, see J. M. Gellrich, *The Idea of the Book in the Middle Age* (Ithaca, NY: Cornell University Press, 1985).

<sup>23</sup>*Eruditiones Didascalicae*, Book VII, chap. 4 (PL 176, 814B).

<sup>24</sup>Wisdom was a book written inwardly, while the works of wisdom were a book written outwardly. Thereafter, wisdom was

written once again outwardly in another way, to make it clearer to see and better to understand. In this way, human eyes were enlightened to read this second writing, having become too weak to read the first one. Thus Wisdom made a second work, which not only showed but also enlightened. Wisdom took the human flesh without losing his divinity, making a book written both outwardly and inwardly; it was written outwardly in humanity and inwardly in divinity, so that it could be read outwardly looking at the visible, and inwardly contemplating the invisible; reading outwardly to be healed, reading inwardly to be delighted, acquiring merit by reading outwardly, and joy by reading inwardly. [...] The book, then, was written once inwardly and twice outwardly. The first outward writing was made by the visible creatures, the second one by the flesh he took. The first one to rejoice, the second one to heal; the first one according to what was given by nature, the second one to forgive the sin; the first one to nourish nature, the second one to cure of vice, and so to make nature blessed" (*De sacramentis*, Book I, Pars VI, chap. 5 [PL 176, 266–7]).

<sup>25</sup>Cf. Ezek. 2:9–10; Rev. 5:1.

<sup>26</sup>"There are three books. The first is what man makes from something existing; the second is what God created out of nothing, the third is he whom God generated from himself. The first one is a human work, susceptible of corruption; the second one is a work of God, which never ceases to exist, and in which the Creator's invisible wisdom was written by means of visible works; the third one is not God's work, but God's wisdom, through which he made all things, wisdom that God did not make but generated. In his wisdom, from all eternity, God wrote all that he was going to make according to his providence and predestination. And this is the book of life, in which once something is written it cannot be cancelled; those who shall have merited to be listed in it will live forever" (*De Arca Noe Morali*, Book III, chap. XII: *De tribus libris* [PL 176, 643–4]).

"There are three words. The first word is the human word, which once pronounced, fades away; the second is the word of God that is God's work, which once created, changes without ceasing to exist; the third is the generated, uncreated Word of God, which knows neither beginning nor end, nor suffers change, and this is the Word of life" (*ibidem*, Book III, ch. XIII: *De tribus verbis* [PL 176, 643–4]).

<sup>27</sup>See, for instance, *Itinerarium mentis in Deum*, I, 14.

<sup>28</sup>*Collationes in Hexämeron*, XIII, 12.

<sup>29</sup>*Sermones de Tempore*, Feria VI in Parasceve, sermon II, n. II.

<sup>30</sup>*Breviloquium*, Pars II, chap. 5.

<sup>31</sup>Cf. *Collationes in Hexämeron*, XII; cf. also *Breviloquium*, chap. XII.

<sup>32</sup>Explicit references can be found in *Super Epistolam ad Romanos*, chap. I, lect. 6 and in two other works, whose authenticity remain dubious: *Expositio in Apocalypsim*, chap. 3 and *Sermo V de Dominica secunda de Adventu*.

<sup>33</sup>"It was necessary for the salvation of man that certain truths which exceed human reason should be made known to him by divine revelation. Even as regards those truths about God which human reason could have discovered, it was necessary that man should be taught by a divine revelation; because the truth about God such as reason could discover, would only be known by a few, and that after a long time, and with the admixture of many errors. Whereas man's whole salvation, which is in God, depends upon the knowledge of this truth. Therefore, in order that the salvation of men might be brought about more fitly and more surely, it was necessary that they should be taught divine truths by divine revelation. It was therefore necessary that besides philosophical science built up by reason, there should be a sacred science learned through revelation" (Thomas Aquinas, *Summa Theologiae*, I, q. 1, a. 1). This doctrine is recalled by the First and by the Second Vatican Council (cf. *Dei Filius*, DH 3005 and *Dei Verbum*, 6).

<sup>34</sup>"According to the Apostle, ever since the creation of the world, his invisible attributes have been able to be understood and perceived in what he has made, as if this sensible world were a public book, in which everyone is able to read God's wisdom" (St. Bernard of Clairvaux, *Sermones*, *De Diversis*, IX, 1).

"This world is full of many different creatures: as if it were a book containing many different characters and phrases; a book in which we can read whatever we ought to imitate or to avoid" (Thomas of Chobham, *Summa de arte praedicandi*, chap. 7).

<sup>35</sup>"If thine heart were right, then every creature should be to thee a mirror of life and a book of holy doctrine" (Thomas of Kempis, *Imitatio Christi*, II, 4).

<sup>36</sup>John Abbot of Ford, *Super extremam partem Cantici canticorum sermones*, Sermon 104, 1.

<sup>37</sup>*Commedia*, Paradise, XXXIII, 85–90.

"At the end of the poem, the pilgrim's vision of the whole cosmos as a volume whose leaves are scattered through the layers of the material world merely confirms both Dante's notion that creation is a book and his imaginative impulse of conflating and reconstructing into a unity the rich, unfolding variety of creation," G. Mazzotta, *Dante's Vision and the Circle of Knowledge* (Princeton, NJ: Princeton University Press, 1993), 18.

We have enough reasons to infer that the word "volume" here means "book," and not merely "space." Other parallel pages of the *Comedia* present a volume as what is composed of various "quires" or "sheets" (cf. Paradise, II, 76 and XII, 121). For a philological introduction to Dante's *Comedia*, see C. Singleton, *Commedia. Elements of Structure* (Cambridge, MA: Harvard University Press, 1957).

<sup>38</sup>Cf. M. de Montaigne, *An Apology for Raymond Sebond*, ed. M. A. Screech (London: Penguin Books, 1987). On this author, see also J. de Puig, *Les sources de la pensée philosophique de Raimond Sebond* (Paris: H. Champion, 1994).

<sup>39</sup>"Thanks to this learning [of the book of nature] all men are taught how to know those truths regarding the human being and God; the knowledge of which is necessary to be saved, to reach one's fulfillment, and to achieve eternal life. And one acquires this knowledge without difficulty and effort, in an infallible and genuine way. Also thanks to this learning one knows, in the same infallible and genuine way, and with a high degree of certainty, all that is contained in Sacred Scripture, and all that the Scriptures tell and prescribe [...]" (Raymond of Sebond, *Theologia naturalis seu Liber creaturarum*, facsimile of 1852 publication at Sulzbach [Stuttgart-Bad Cannstatt: F. Frommann Verlag, 1966], *Prologus*, 27\*–28\*).

<sup>40</sup>"Every creature is nothing but a word, written by God's finger; like many different words, all these creatures compose one book which is called the book of creatures. This book includes the human being, who is the most important word contained therein" (*Prologus*, 35\*–36\*).

<sup>41</sup>"The book of creatures, then, is like a door, an introduction and even a light to have access to the book of Scripture, where God's words are contained; and so that presupposes this" (*Titulus CCXI*, 311).

<sup>42</sup>"The book of Scripture was given to the humankind in the second place, when the first book [of creatures] failed, because man was no longer able to read it. However, the book of creatures is open to everyone, while Scripture is not, since only clerics can read it" (*Prologus*, 36\*). The reference to the original sin becomes more explicit by the end of the *Prologue*: "No one can see and read God's wisdom in this ever open book, as such. In fact, one needs to be enlightened by God and cleansed by the original sin" (*Prologus*, 38\*).

<sup>43</sup>"The first book, the book of nature, cannot be falsified, nor destroyed or misinterpreted. Heretics cannot pervert it, nor could one become heretical dealing with it. The second book [of Scripture], on the contrary, can be falsified, be misinterpreted and misunderstood" (*Prologus*, 36\*–37\*).

<sup>44</sup>Cf. *Titulus CCXII*, 314–5.

<sup>45</sup>"Each one serves the other and one does not contradict the other. The first one is natural to us, the second one is supernatural" (*Prologus*, 37\*).

<sup>46</sup>Cf. *Titulus CCXV*, 322–4.

<sup>47</sup>"Between the book of Scripture and the book of creatures, then, there is a high consonance and a mutual advantage. The book of creatures serves the book of Scriptures which gives orders, governs

and prescribes. Actually, they differ in the way they affirm and tell: the first affirms by means of demonstrations, the second by means of precepts and authoritative teachings" (*Titulus* CCXII, 315).

<sup>48</sup>The *Liber Creaturarum* was known and appreciated by Nicholas of Cusa, Hugo Grotius, Blaise Pascal, Peter Canisio, Franciscus of Sales, Georg Wilhelm Hegel, and Giovanni Regoli, among others.

<sup>49</sup>Cf. A. G. Debus, *Man and Nature in the Renaissance* (Cambridge: Cambridge University Press, 1978); E. Garin, *Rinascite e rivoluzioni. Movimenti culturali dal XIV al XVII secolo* (Bari: Laterza, 1975); E. Garin, *La cultura filosofica del Rinascimento italiano* (Milano: Bompiani, 1994).

<sup>50</sup>Concerning Nicholas of Cusa, see for instance *Idiota – De sapientia*, I, 5; *De Beryllo*, 36.

<sup>51</sup>Cf. E. R. Curtius, *European literature and the Latin Middle Ages* (Princeton, NJ: Princeton University Press, 1990), 322. Cf. also W. E. Peuckert, *Paracelsus, Die Geheimnisse. Ein Lesenbuch aus seinen Schriften* (Leipzig: Dieterich, 1941), 172–8.

<sup>52</sup>For the philosophical and historical contexts, see: W. R. Shea, *Galileo's Intellectual Revolution* (London: Macmillan, 1972); K. J. Howell, *God's Two Books: Copernican Cosmology and Biblical Interpretation in Early Modern Science* (Notre Dame, IN: University of Notre Dame Press, 2002); T. H. Levere and W. R. Shea, eds., *Nature, Experiment, and the Sciences: Essays on Galileo and the History of Science in Honour of Stillman Drake* (London: Kluwer Academic, 1990). Cf. also L. Dupré, *Passage to Modernity: An Essay in the Hermeneutics of Nature and Culture* (New Haven, CT: Yale University Press, 1993).

<sup>53</sup>G. Galilei, *Letter to P. Benedetto Castelli*, 21.12.1613, "Opere," vol. V, ed. A. Favaro (Firenze: Giunti-Barbera, 1968), 282.

<sup>54</sup>*Dialogo sopra i due massimi sistemi del mondo*, Dedicata al Gran Duca, in *ibidem*, vol. VII, p. 27.

<sup>55</sup>*The Assayer*, in *ibidem*, vol. VI, p. 232.

<sup>56</sup>*Letter to Fortunio Liceti*, January 1641, in *ibidem*, vol. XVIII, p. 295.

<sup>57</sup>"Since we astronomers are Priests of the Most High God with respect to the book of nature, it behooves us that we do not aim at the glory of our own spirit, but above everything else at the glory of God" (J. Kepler, *Letter to Heruath von Hohenburg*, 26.3.1598, n. 91, in *Gesammelte Werke XIII*, ed. the Kepler-Kommission, Bayerische Akademie der Wissenschaften (München: Beck, 1937ff), 193. "For it is precisely the universe which is that book of nature in which God the Creator has revealed and depicted His essence and what He wills with man, in a wordless script" (*Epitome Astronomiae Copernicanae*, in *Gesammelte Werke VII*, p. 25). "I make an effort to divulge promptly all these things, for the glory of God, who wants to be known through the book of nature. The more they will be raised, the more I will rejoice, with no envy at all. This is what I want, for I consecrated myself to God. I wished to be a theologian. For a long time I was troubled. But look and see now how God shall be praised through my work" (*Letter to M. Maestlin*, 3.10.1595, n. 23, in *Gesammelte Werke XIII*, p. 40). Cf. also *Mysterium Cosmographicum. Praefatio*, in *Gesammelte Werke I*, p. 5. See O. Pedersen, *The Book of Nature* (Notre Dame, IN: University of Notre Dame Press, 1992), 44–5.

<sup>58</sup>Another example of a more "universal" way to read the book of nature, within a scientific context, is that of Sir Thomas Browne, a physician who was contemporary of Galileo and Kepler. In his work *Religio Medici* (1643), he held that the book of nature is easily understandable by everyone: "Thus there are two books from whence I collect my Divinity; besides that written one of God, another of His servant nature, that universal and publick Manuscript, that lies expans'd unto the Eyes of all: those that never saw him in the one, have discover'd him in the other" (part I, chap. 15). Here "Divinity" means "theology" or "theological studies." Cf. E. R. Curtius, *European Literature and the Latin Middle Ages*, op. cit., p. 323. An attempt to read Thomas Browne's doctrine in a contemporary, personal context, is that provided by A. Peacocke, "The Religion of a Scientist: Explorations into Reality," *Zygon* 29 (1994): 639–59.

<sup>59</sup>On the content of this section, cf. G. Tanzella-Nitti, "The Book of Nature and the God of Scientists according to the Encyclical *Fides et*

*ratio*," *The Human Search for Truth: Philosophy, Science, Faith. The Outlook for the Third Millennium* (Philadelphia: St. Joseph's University Press, 2001), 82–90.

<sup>60</sup>Cf. Prov. 13:1–9.

<sup>61</sup>John Paul II, *General Audience*, Rome, January 30, 2002, n. 6.

<sup>62</sup>Cf. First Vatican Council, *Dei Filius*, n. 2; Second Vatican Council, *Dei Verbum*, nn. 3 and 6.

<sup>63</sup>Cf. *Catechism of the Catholic Church*: "Thus the revelation of creation is inseparable from the revelation and forging of the covenant of the one God with his People. Creation is revealed as the first step toward this covenant, the first and universal witness to God's all-powerful love" (n. 288). "Even before revealing himself to man in words of truth, God reveals himself to him through the universal language of creation, the work of his Word, of his wisdom: the order and harmony of the cosmos – which both the child and the scientist discover ..." (n. 2500). Cf. also John Paul II, *Address to the World Youth Day*, August 15, 2000.

<sup>64</sup>Cf. Prov. 13:5.

<sup>65</sup>Cf. Col. 1:16.

<sup>66</sup>Cf. Col. 2:9; Eph. 1:10.

<sup>67</sup>Cf. G. Tanzella-Nitti, "Le rôle des sciences naturelles dans le travail du théologien," *Revue des Questions Scientifiques* 170 (1999): 25–39. On the same topic, more extensively, *Scienze naturali, utilizzo in teologia*, in "Dizionario Interdisciplinare di Scienza e Fede. Cultura scientifica, filosofia e teologia," ed. G. Tanzella-Nitti and A. Strumia, 2 vols. (Roma: Urbaniana University Press – Città Nuova Editrice, 2002), vol. II, 1273–89 (English translation *Natural Sciences, in the Work of Theologians*, in the web page "Interdisciplinary Encyclopedia of Religion and Science," [www.ctns.org/encyclopaedia.html](http://www.ctns.org/encyclopaedia.html)).

<sup>68</sup>It is common to quote Einstein's question on this subject: "It could be said that the eternal mystery of the world is its comprehensibility ... the fact that it is comprehensible is truly a miracle" ("*Physik und Realität*," *Journal of Franklin Institute* 221, no. 3 [1936]). On the question of the intelligibility of nature, see, for instance: E. Wigner, "The Unreasonable Effectiveness of Mathematics in the Natural Sciences," *Communications in Pure and Applied Mathematics* 13 (1960): 1–14; M. Heller, "Scientific Rationality and Christian Logos," *Physics, Philosophy and Theology. A Common Quest for Understanding*, ed. R. Russell, W. R. Stoeger, G. V. Coyne (Città del Vaticano: LEV and University of Notre Dame Press, 1988), 141–9; J. D. Barrow, *Pi in the Sky. Counting, Thinking, and Being* (Oxford: Clarendon Press, 1992); P. Davies, *The Mind of God: Science and the Search for Ultimate Meaning* (London: Simon & Schuster, 1992); P. Davies, "The Intelligibility of Nature," *Quantum Cosmology and the Laws of Nature*, ed. R. Russell, N. Murphy, C. Isham (Città del Vaticano: Vatican Observatory Publications and The Center for Theology and Natural Sciences, 1993), 145–61. For a theological perspective, G. Tanzella-Nitti, *Gesù-Cristo, Rivelazione e Incarnazione del Logos*, in "Dizionario Interdisciplinare di Scienza e Fede," op. cit., vol. I, pp. 693–710 (English translation *Jesus Christ, Incarnation and Doctrine of Logos*, web page "Interdisciplinary Encyclopedia of Religion and Science," [www.ctns.org/encyclopaedia.html](http://www.ctns.org/encyclopaedia.html)).

<sup>69</sup>O. Godart, M. Heller, "Les relations entre la science et la foi chez Georges Lemaitre," *Pontificia Academia Scientiarum, Commentarii*, vol. III, no. 21, p. 11, quoted in John Paul II, *Discourse to the Pontifical Academy of Sciences*, November 10, 1979, in *Osservatore Romano*, English week edition, November 26, 1979, p. 10.

<sup>70</sup>J. Polkinghorne, *One World. The Interaction of Science and Theology* (Princeton, NJ: Princeton University Press, 1987), 46

<sup>71</sup>E. Hubble, *The Nature of Science and Other Lectures* (San Marino, CA: 1954), quoted in O. Pedersen, "Christian belief and the Fascination of Science," *Physics, Philosophy and Theology. A Common Quest for Understanding*, ed. R. Russell, W. R. Stoeger, G. V. Coyne (Città del Vaticano: LEV and University of Notre Dame Press, 1988), 133. On the humanistic and religious experiences associated to scientist's activity, see E. Cantore, *Scientific Man: The Humanistic Significance of Science* (New York: ISH Publications, 1977).

<sup>72</sup>Rev. 5:13, cf. 5:7–13.

<sup>73</sup>Cf. Rev. 1:8; 21:6; 22:13.