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## The Effects of the Condemnation of 1277

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There are three primary stances regarding the relationship between science and the church in the middle ages. Concerning the condemnation of 1277, Pierre Duhem argues that (A) 1277 marks “the birth of modern science.”<sup>1</sup> Edward Grant and Richard Dales, among others, argue that (B) 1277 led to an “intellectual climate.”<sup>2</sup> Conversely, a wide-ranging group of scholars beginning in the seventeenth century (including Condorcet, and Voltaire) have endorsed a “warfare thesis,” claiming that (C) the church is responsible for the “dismal state of medieval science.”<sup>3</sup> I shall argue that A, B and C all prove to be inadequate. In the tradition of Locke and Hume, the criterion by which the arguments are adjudicated shall be the evidence found in primary sources. After all, “A wise man...proportions his belief to the evidence.”<sup>4</sup> In the spirit of Duhem’s original thesis, I shall narrow the focus to the effects of the condemnation of 1277 in Paris.

In a recent article, David C. Lindberg points out a lapse in the historiography of medieval science concerning the role of the church. He writes, “...the response of professional historians of medieval science has been curiously muted. We all acknowledge (when pressed) that there was a Christian context, and we deal with it when we must, but in general the community of historians of medieval science has, since Duhem, steered a course away from religious issues.”<sup>5</sup> In response to Lindberg, the goal of this paper is not only to refute A, B and C, but also to offer a fair appraisal of the relationship between science and the church in regards to 1277. While one may argue that Edward Grant has stripped Duhem’s thesis of its implausibility, thus nullifying any controversies that may exist amongst scholars, I shall argue that Grants thesis is thus rendered innocuous. Further, I shall argue that Grant’s thesis largely ignores the negative effects of 1277, while C fails to account for legitimate contributions made by the church to the progress of medieval science. Thus, in response to Lindberg’s remarks, I will: 1) render the arguments presented by Duhem, Grant, and White inadequate, and 2) present a new thesis, claiming that the effects of 1277 were narrow and largely ignored.

### I. Against the Duhemean Position

While Lindberg’s remarks may seem like an over generalization, and he admits as much, one would indeed be hard pressed to find a work more thorough and complete regarding the relationship between science and the church in the middle ages than Duhem’s *Etudes sur Leonard de Vinci*. Thus, one might reasonably question how exactly Lindberg’s concerns amount to a problem. Further, one might

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<sup>1</sup> Duhem, Pierre. *Etudes sur Leonard de Vinci*, 3 vols. (Paris: Hermann, 1906-1913), Vol. I, p. 412.

<sup>2</sup> Dales, Richard C. “Medieval De-Animation of the Heavens” *Journal of the History of Ideas* Vol. 41, No. 4 Oct, 1980, pg. 547

<sup>3</sup> Lindberg, David C. “Medieval Science and Its Religious Context” *Osiris* 2<sup>nd</sup> Series, Vol. 10, Constructing Knowledge in the History of Science (1995), pg. 67.

<sup>4</sup> Hume, David.

<sup>5</sup> *Ibid*, pg. 68.

point out, as Hans Thijssen has done, that few current scholars seriously endorse Duhem's thesis (noting that Edward Grant perhaps comes closest).<sup>6</sup> However, Duhem's thesis is not only bold, but it is unjustified given the evidence. Moreover, it has yet to be adequately refuted and replaced by a more cogent thesis.

In the historiography of medieval science, Pierre Duhem's work was seminal, legitimizing medieval science as a "serious academic discipline."<sup>7</sup> Grant refers to Duhem as the "eminent historian of medieval science."<sup>8</sup> Writing on the condemnation of 1277, Duhem presents the following claim:

...They impressed on scholastic science, in France as well as in England, a new orientation that obliged it to deviate from the Aristotelian tradition at many points...If we must assign a date to the birth of modern science, we would without doubt choose this year 1277...<sup>9</sup>

While Duhem's influence may be fading as medieval works continue to be translated and become more widely available, the debate is far from over. In response to the "warfare" thesis, which was reasserted in Bertrand Russell's *Religion and Science* (1935), Christian apologists such as Stanely Jaki have rushed to Duhem's defense.<sup>10</sup> The debates have generally been decided by personal opinion, each side pushing an agenda. Opinion, however, should carry little weight in the history of the philosophy of science. Accordingly, it is the purpose of section one to refute Duhem's central claim by using a defined set of criteria.

If Duhem's claim that 1277 ought to mark the birth of modern science is correct, then a series of questions arise. First, what is modern science? Second, what separates it from pre 1277 science? And finally, why 1277? It seems that if 1277 does in fact mark the birth of modern science, then one could reasonably expect to find several occurrences in the years immediately following 1277:

- 1) Widespread effects, resulting in
- 2) Change in scholarly thought (perhaps, *a fortiori*, leading to the rejection of Aristotelianism), and
- 3) Signs of significant advances and progress.

After all, the birth of modern science ought to be marked by notable advances in thought and methodology. For the date to mark the birth of modern science effects must have been both significant and widespread. Otherwise, Duhem would clearly not regard it as such a monumental date. Further, the changes must result in marked differences, thus the "birth" of modern science. However, we instead find quite the opposite. Though not arguing against Duhem, Dales elucidates the point by writing:

...These condemnations were limited to Paris in their application although they seem to have exerted some influence on English thought as well. Secondly, condemning a view is not the same as abolishing that view. And finally, and most important, no European thinker to my knowledge

<sup>6</sup> Thijssen, Hans "Condemnation of 1277" *Stanford Encyclopedia of Philosophy* 2003. Pg 6 of 8.

<sup>7</sup> Ibid

<sup>8</sup> Grant, Edward. *A Source Book in Medieval Science*. Cambridge: Harvard UP, 1974, Pg. 46.

<sup>9</sup> Pierre Duhem, *Etudes sur Leonard de Vinci*, 3 vols. (Paris: Hermann, 1906-1913), Vol. I, p. 412. Reprinted in Lindberg, David C. "Medieval Science and Its Religious Context" *Osiris*, 2<sup>nd</sup> Series, Vol. 10, Constructing Knowledge in the History of Science (1995), pg. 68.

<sup>10</sup> Lindberg, pg. 68.

had yet proposed the kind of cosmos in which the motions of the heavenly bodies could be accounted for adequately as being natural.<sup>11</sup>

If these criticisms can be supported, then they would certainly prove devastating to Duhem's claim.

In order to reject the first claim that would be expected if Duhem's thesis were indeed correct, we need to look no further than the actual writings of the bishop of Paris, Etienne Tempier. On the 18<sup>th</sup> of January 1277 Pope John XXI wrote to Tempier requesting that he investigate rumors of heresy. Six weeks later, on the 7<sup>th</sup> of March, Tempier published his list of 219 condemned propositions. However, on the 28<sup>th</sup> of April 1277 the Pope wrote a follow up letter to Tempier, the "*Flumen aquae vivae*." But, as Thijssen points out, "this letter gives no indication whatsoever that the pope knew about Tempier's action."<sup>12</sup> It may very well be that Tempier acted autonomously. Further, Tempier's personal characteristics must be taken into account. John Wippel characterizes Tempier by pointing out that he "was not noted for his moderation," and that the Papal Curia was "reputed to be more merciful."<sup>13</sup> Thijssen describes Tempier's actions as "overzealous and hasty."<sup>14</sup> Given such evidence, it should begin to seem plausible that any effects that 1277 may have caused were more isolated than Duhem would have us believe. Further, the condemnation ought not to reflect the attitude of the church as a whole but rather, the over zealous disposition and intolerance of a single bishop in but one city. Accordingly, it is difficult to imagine that the condemnation launched the birth of modern science.

Moreover, 1277 was not the first condemnation in Paris. The works of Aristotle were first banned in 1210 and again in 1215, but as early as the 1240's the works of Aristotle were a regular part of university curriculum.<sup>15</sup> Thus, the banishment of Aristotelian thought was, at least in Paris, commonplace. It is hard to take seriously decrees that are frequently ignored and rarely enforced. Why does Duhem insist that 1277 mark the birth of modern science and not 1210 or 1215? Would it not be reasonable for a scholar of the time to believe that Aristotelian thought would resurface and that the decrees would once again pass without serious implications on scientific thought? Taken in a broader scope, there were approximately fifty cases of academic related judicial proceedings in the thirteenth and fourteenth centuries.<sup>16</sup> While *prima facie* this appears to be a staggering figure, it amounts to no more than one such case every four years. Moreover, the effects were not centralized and thus magnified, but were rather spread across the whole of Western Europe.

Even more convincing is that one would expect to find a significant change of thought in the years following 1277, but it is less than clear that this is indeed the case. Largely focused on Aristotelian natural philosophy, the condemnation was a response by the bishop to rumors of heresy.<sup>17</sup> The works of Aristotle, recently translated from Greek to Latin, had become entrenched in medieval thought in the years prior to 1277. However, such works often indirectly implying that God's powers are limited, were

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<sup>11</sup> Dales, pg 546.

<sup>12</sup> Thijssen pg. 2 of 8.

<sup>13</sup> Wippel, John F. "The Condemnations of 1270 and 1277 at Paris" The Journal of Medieval and Renaissance Studies 7 (1977), pg 186.

<sup>14</sup> Thijssen, pg. 2 of 8.

<sup>15</sup> Wippel, pg. 172.

<sup>16</sup> Courtenay, William J. "Inquiry and Inquisition: Academic Freedom in Medieval Universities" Church History Vol. 58, No. 2 (Jun., 1989), pg. 170.

<sup>17</sup> Though the targets of the condemnations are not explicitly identified, it is clear that they are directed towards the arts faculty in Paris for disseminating Aristotelian views.

viewed as heretical by the church. Among the 219 condemned propositions, proposition forty-nine is of particular importance. It reads, “That God could not move the heavens with rectilinear motion; and the reason is that a vacuum would remain.”<sup>18</sup> Undoubtedly, this is aimed at Aristotle’s argument, which held that a void was impossible. Duhem argues that the denial of this argument ultimately “liberated Christian thought from the dogmatic acceptance of Aristotelianism.”<sup>19</sup> And *prima facie*, this seems plausible.

However, even when God’s absolute powers were acknowledged, the acknowledgment did not always coincide with the refutation of Aristotle. While Nicole Oresme held that God could create multiple worlds in a void if he so pleased,<sup>20</sup> he “concurred with Aristotle that there is only one world which contains all the matter in existence.”<sup>21</sup> Referring to proposition forty-nine, Thomas Bradwardine writes, “...by means of His absolute power God could make a void anywhere He wishes inside or outside of the world.”<sup>22</sup> At best, such statements appear to be little more than mere concessions rather than wholehearted endorsements.

John Buridan perhaps comes closest to seriously challenging an Aristotelian view. Proposition one hundred ten reads: “That the celestial motions occur because of an intellective soul; but an intellective soul or intellect cannot be produced except by means of a body.” In response, Buridan concludes:

...Someone might imagine that it would not be necessary to posit intelligences to move the heavenly bodies, because Scripture does not say anywhere that they ought to be posited. For it could be said that when God created the celestial spheres, He began to move each one of them as He wished. And they are still moved by the impetus He gave them, because this impetus is neither corrupted nor diminished, since it has no resistance.<sup>23</sup>

However, there is no clear evidence that Buridan rejected Aristotle’s theory of motion in the heavens. In fact, Dales points out that Buridan “seems to accept Aristotle’s doctrines of heavenly movement without any qualification.”<sup>24</sup> And so, given significant evidence found in the primary sources of the time, it is difficult to conclude that the condemned propositions were responsible for the birth of modern science.

Further, university masters were adamant about preserving their teaching freedoms. The acceptance of theological limits did not come without debate and protest, nor were they always followed. Albertus Magnus (ca. 1193-1280), bishop of Regensburg, is said to have traveled to Paris in order to defend his views against the condemnation of 1277.<sup>25</sup> Speaking of Henry of Hesse, Dales writes, “For him the condemnation of 1277 might as well never have taken place in spite of the fact that he himself taught in Paris.”<sup>26</sup> Speaking of Godfrey of Fontaines, Mary M. McLaughlin writes, “Far from moderate in his own opposition to the decree of 1277, Godfrey upheld the right of the theologian not only to seek out, in free discussion, the truth about the articles themselves, but to decide what authority pertained to the

<sup>18</sup> Grant, Edward. *A Source Book in Medieval Science*. Pg. 48.

<sup>19</sup> Thijssen, pg. 6 of 8.

<sup>20</sup> Proposition thirty-four reads: “That the first cause could not make several worlds.”

<sup>21</sup> Grant, Edward. “Medieval and Seventeenth-Century Conceptions of an Infinite Void Space beyond the Cosmos” *Isis* Vol. 60, No. 1 (Spring, 1969), pg. 49.

<sup>22</sup> Bradwardine, Thomas. *De causa Dei*, pg. 180.

<sup>23</sup> Buridan, John. *Quaestiones super libris quattuor De caleo et mundo*, ed. Ernest A. Moody (Cambridge, Mass., 1942; repr. New York, 1970) Bk. II, Question 12.

<sup>24</sup> Dales, pg. 548.

<sup>25</sup> Grant, *A Source Book in Medieval Science*. Pgs. 809-10.

<sup>26</sup> Dales, pg. 549.

bishop in these matters.”<sup>27</sup> Protecting one’s right to teach freely and pursue the truth was of the utmost concern. William of Ockham staunchly defends his freedom: “Assertions especially concerning natural philosophy, which do not pertain to theology, should not be solemnly condemned or forbidden by anyone...everyone should be free to say freely whatever he pleases.”<sup>28</sup> Even when the limits were accepted and supported, the relevant issues were nonetheless often discussed. In fact, “Since the beginning of universities, propositions that sounded heretical had been viewed as perfect training tools to test the dialectical skills of young theologians to find an orthodox truth beneath a seemingly false or heretical statement.”<sup>29</sup> Instead of abandoning or ignoring Aristotelian views, the views were frequently assimilated. Though the list of condemned propositions may seem like censorship to the modern mind, this was not necessarily the view of the time. Lindberg points this out by writing, “In fact, medieval natural philosophers had remarkable freedom of thought and expression...All medieval scholars knew that there were theological limits, and knew approximately where they were, but these undoubtedly seemed broad and reasonable rather than narrow and restrictive.”<sup>30</sup> If anything, it seems as though the condemnations merely clarified the *status quo* for those that bothered to listen.

Though we find indirect references to the list of 219 propositions in the writings of Oresme, Bradwardine and Buridan, among others, they cannot simply be construed as church inspired progress. In fact, there is little evidence of any progress over the Aristotelian world-view. In spite of the so-called “intellectual climate” sparked by 1277, even Grant concedes “By the midthirteenth century...Aristotle’s cosmology was solidly entrenched in the medieval universities, where it remained virtually unchallenged until the sixteenth century.”<sup>31</sup> It was not until Tycho Brahe’s observation of a super-nova in 1572 and of a comet in 1577 that the incorruptibility of the heavens could finally be put to rest, and it was not until Galileo that Aristotle’s system was fully refuted.

However, even in Galileo’s Dialogue Concerning the Two Chief World Systems, written approximately 350 years after the condemnation, the church’s influence remains evident. Galileo’s mouthpiece, Salviati, says, “I did not say, nor dare I, that it was impossible for nature or for God to confer immediately that velocity which you speak of.”<sup>32</sup> Though this seems to be a concession to the pope, it is obvious that Galileo’s rejection of Aristoteliansism was not based on theological grounds but rather, on rigorous argumentation. In fact, later in the text, Galileo demonstrates that the omnipotence of God could be used to argue in favor of an anti-Copernican view. This time the speaker is Simplicio, the simple-minded defender of Aristotle: “But with respect to the power of the Mover, which is infinite, it is just as easy to move the universe as the earth, or for that matter a straw. And when the power is infinite, why

<sup>27</sup> McLaughlin, Mary M. “Paris Masters of the Thirteenth and Fourteenth Centuries and Ideas of Intellectual Freedom” Church History Vol. 24, No. 3 (Sep., 1955), pg. 203.

<sup>28</sup> William of Ockham, Dialouge, I. ii. 22 (ed., M Goldcast, Moncrchia s. Romani Imperiii sive Tractatus de Jurisdictione Imperiali, regi, et Pontificia, 3 vols., Frankfurth, 1668, II).

<sup>29</sup> Courtenay, pg. 181.

<sup>30</sup> Lindberg pg. 76

<sup>31</sup> Grant, Edward. “Were there Significant Differences between Medieval and Early Modern Scholastic Natural Philosophy? The Case for Cosmology” Nous Vol. 18, No. 1, 1984 A.P.A. Western Division Meetings (Mar., 1984), pg. 6.

<sup>32</sup> Galilei, Galileo. Dialogue Concerning the Two Chief World Systems. Edited by Stephen Jay Gould. New York: The Modern Library, 1967. pg. 23.

should not a greater part of it be exercised rather than a small?"<sup>33</sup> That is, God could just as easily move the sphere of fixed stars around the earth as He could move the earth itself.

There are several obvious objections to this line of reasoning in defense of Duhem. First, one may object to the notion that one ought to reasonably expect significant progress because of the condemnation. After all, the concepts that would ultimately overthrow Aristotle were often not evident in everyday experience. It is perhaps unreasonable to expect radical progress in a short period of time and without advances in technology such as the telescope. Further, there is evidence that the effects of the condemnation were indeed widespread. There are dozens of references in the writings of major figures from Buridan to Oresme (which ought to be proof enough), and there is evidence that their effects were felt as far away as Oxford (and as late as Galileo). Thijssen points out, "The collection of Parisian Articles must have had some kind of official status, and must have circulated among medieval scholars. Bachelors in theology were required by oath not to maintain anything in favor of articles that have been condemned at the Roman curia or in Paris."<sup>34</sup> Moreover, Christian apologists such as Stanley Jaki have objected to the warfare thesis. Jaki writes, "The decree of 1277 was a jolt...The jolt was to keep one mentally on one's toes in an anxious awareness of the inconceivably numerous ways in which the Creator could go about his work."<sup>35</sup>

To these objections I cannot hope to offer a thorough and conclusive defense. Short of a book-length manuscript examining each individual case, it is difficult to arrive at absolute truths. Nonetheless, it seems reasonable to derive at least one generalization from the evidence at hand: the effects of 1277 are often exaggerated, particularly by Duhem. And thus, the conclusion of section one may appear to be a weak one: that it cannot be justifiably held that 1277 marks the birth of modern science.<sup>36</sup> This though, I believe to be sufficient for our purposes. And other scholars would support the claim. Though using a different line of reasoning, Alexandre Koyre, for one, completely rejects Duhem's claim, instead arguing that Galileo marks the birth of modern science.<sup>37</sup> This, however, does little more than to pit one authority against another. Arguments holding that the effects of 1277 were in fact widespread must be addressed.

If, as alluded to earlier, one ought not to reasonably expect significant progress as a result of the condemnation, then 1277 becomes an arbitrary date and should not be considered the birth of modern science. Given such criterion, the works of Copernicus and Galileo were certainly more revolutionary and could thus more aptly be labeled as the birth of modern science. Additionally, that the Parisian Articles carried some sort of official status ought not to come as a surprise nor carry any weight. The authority of the church is not questioned here or by any credible scholar. Rather, the issue is whether or not major figures such as Buridan and Oresme seriously considered the decrees in their works and whether or not their works were in turn taken seriously by later scholars. Can it reasonably be concluded that the collection of such works constituted the birth of a new science? Finally, that the effects of 1277 were also felt in Oxford hardly constitutes a widespread influence. The list of English scholars who referenced 1277

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<sup>33</sup> Ibid, pg. 142.

<sup>34</sup> Thijssen, pg. 2 of 8.

<sup>35</sup> Jaki, Stanley L. The Road of Science and the Ways to God. Chicago: The University of Chicago Press, 1978. Pg. 40.

<sup>36</sup> To complicate matters, there is significant scholarly debate surrounding the continuity thesis. While such arguments may be relevant, I do not intend to discuss them at present.

<sup>37</sup> Koyre, Alexandre. "Galileo and the Scientific Revolution of the Seventeenth Century." The Philosophical Review Vol. 53, Num. 4, July 1943, Pgs., 333-348.

in their writings (directly or indirectly) is virtually nonexistent. While Paris, Rome, and Oxford would certainly be listed amongst the major cities and universities of the time, the list is hardly inclusive.

## II. Grant and Dales Refuted

Without directly disputing or endorsing Duhem's thesis, Edward Grant presents his own thesis:

It is no exaggeration to say that the medieval Scholastics who accepted and argued for the reality of an imaginary infinite void space beyond the finite and spherical Aristotelian cosmos did so on purely theological grounds.<sup>38</sup>

Though Grant's position is clearly weaker than Duhem's, and can thus more plausibly be defended, it is has consequently lost the punch that Duhem's thesis carries. In fact, Grant's thesis is comparatively innocuous. But, it is widespread amongst contemporary scholars. Dales writes:

The most important result of the 1277 condemnations was the creation of an intellectual climate where all sorts of imaginative hypotheses could be suggested and discussed, even if not adopted.<sup>39</sup>

Dales's thesis revolves specifically around the condemned propositions concerning the animation of the heavens. Aristotle held that the heavenly bodies moved by way of some sort of "intelligence" or "soul" rather than by a God given force or under their own mechanistic impetus. In support of his claim that the condemnation sparked an intellectual climate, Dales points to examples of innovate thought in the fourteenth century concerning the question of why the skies move. And again, as promised, there is ample evidence of such thought in the primary sources. Buridan, Oresme and Henry of Hesse, among others, all offer very anti-Aristotelian alternatives. Though it is clear that none are purely mechanistic in a Newtonian sense, it would be unfair to expect such radical progression that quickly. There is, nonetheless, evident progress.

However, to conclude that such progress was solely the result of 1277 is not entirely accurate, and Dales is certainly aware of this. In 1271, Robert Kilwardby "vigorously asserted the view of the self-sufficiency of nature...and denied that God moved the heavens...or that either angels or intelligences move the heavenly spheres."<sup>40</sup> Thus, there is at least one instance of a pre-1277 shift away from Aristotelian thought and towards a more mechanistic explanation of why the heavens moved as they did.

Grant uses reasoning similar to Dales in support of his own thesis. He points to Oresme's *Questions on De caelo*, Book I, Question 19, in which Oresme concludes that "...outside the heaven there may be a vacuum because God can create a body or a place there." However, as was argued in section one, it is unclear that Oresme's remarks amount to anything more than mere musings. And like Dales, Grant is hesitant in his assertion, writing: "In the absence of direct and obvious evidence, my response must be tentative and suggestive."<sup>41</sup> Later in the text, hidden away in a footnote, Grant makes a telling concession: "Thus even if prior to the Condemnations of 1277 views similar to Bradwardine's had been enunciated, it is nevertheless obvious that article 49 [of the condemnation] played a role in justifying the

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<sup>38</sup> Grant, Edward. "Medieval and Seventeenth-Century Conceptions of an Infinite Void Space beyond the Cosmos" Pg 59.

<sup>39</sup> Dales, pg. 547.

<sup>40</sup> Dales, pg. 544.

<sup>41</sup> Grant, "Medieval and Seventeenth-Century Conceptions of an Infinite Void Space beyond the Cosmos" pg. 50.

acceptance of an infinite extramundane void by Bradwardine and Oresme.”<sup>42</sup> This weakens the thesis even further. Post-1277 scholars offered nothing significantly new over pre-1277 concepts and scholarly debates. Accordingly, the role of 1277 is reduced to securing acceptance of old ideas rather than sparking new ideas. This hardly seems like a thesis worth supporting. The important question, however, is if post-1277 scholars were basing their ideas on pre-1277 scholars. Were Bradwardine and Oresme aware of works prior to 1277 that had posited similar views? Either way, it seems that their existence goes a long way in weakening the strength of the claim.

Emulating the method of section one, what would one expect to find if the condemnation did indeed lead to an “intellectual climate?” Obviously, we would expect to find evidence of debate and discussion concerning the propositions. And as promised, this is just what we find (though there is reason to think that this was done in jest). However, what would one not expect to find in an intellectual atmosphere? Surely, one would not expect to find limitations placed on thought or exiled scholars. And yet, this is also exactly what we find. The point here is to suggest that true and meaningful progress can not occur under tenuous circumstances. Otherwise, one may question the motivation behind any relevant progress. Scholars in fear of losing their jobs, or worse yet their lives, are apt to come to any conclusion necessary in order to preserve their livelihood. Under such circumstances, an intellectual atmosphere certainly takes on negative connotations.

While the fight for intellectual freedom against the condemnations of the thirteenth century was a valiant one, it was not without cost. Careers were ruined. Scholars were imprisoned, and in at least one case, burned. Courtenay writes, “When severe punishment was administered, as in the case of the Amaurians in 1210, it was the clerics who were imprisoned or burned outside a gate of Paris, including one master of arts, William of Poitiers.”<sup>43</sup> In the wake of 1277, Giles of Rome was exiled from the theology faculty from 1278 to 1285.<sup>44</sup> Certainly Duhem would be hard pressed to construe such acts as “liberating,” and it seems that Grant and Dales must accept the negative effects along with any positive effects that may have resulted from 1277.

Further, what sort of intellectual atmosphere can come about in the face of the fear of persecution? Wippel writes, “...the condemnation weighed heavily on the scientific life of the university for some decades...The threat of excommunication was taken seriously, it would seem, and had grave consequences for a master at Paris...a spirit of suspicion toward ‘philosophers’ began to replace, after that date [1277], the spirit of friendly and confident collaboration with philosophy which had generally prevailed...”<sup>45</sup> And so, perhaps another generalization is appropriate: the condemnation of 1277 could not have sparked a genuine scholastic culture.

Moreover, if an intellectual atmosphere did indeed exist, can it be said that 1277 was responsible for sparking such an atmosphere? The thirteenth century was marked by the translation and absorption of non-Christian philosophical and scientific works. Most importantly, this included the works of Aristotle, ultimately leading to the condemnation of 1277. But, in light of the introduction of the rich intellectual heritage of Greek and Arabic thought, would the decades proceeding 1277 not be considered an intellectual climate? Further, criticism of Aristotle was already commonplace in Greek and Arabic

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<sup>42</sup> Ibid, pg. 51.

<sup>43</sup> Courtenay, pg. 174.

<sup>44</sup> Wippel, pg. 200.

<sup>45</sup> Ibid

literature. However, it was not until the late fifteenth and sixteenth centuries that the works of John Philoponus and other Greek authors were introduced in Western Europe.<sup>46</sup> The translation of Plato, the Atomists and the Stoics<sup>47</sup> offered additional alternatives to Aristotle. In fact, Philoponus refutes Aristotle's argument for the impossibility of a void in his "Commentary on Aristotle's Physics." Aristotle thought that if there were a void any motion that occurred within it would be infinite, and that he thought to be absurd. By way of reason, however, Philoponus concludes that "...it is possible for motion to take place through a void in finite time..."<sup>48</sup> Had the translation and absorption of Greek and Arabic works progressed without accusations of heresy and the excommunication of scholars, then it seems reasonable to conclude that additional alternatives to Aristotelianism would have been at hand much earlier. Further, such objections came out of real philosophical concerns, not theological prompting.

While Grant and Dales offer evidence in support of their respective claims, there is certainly sufficient reason to doubt their strength. In fact, both Grant and Dales seem less than adamant in endorsing their own theses. Further, to claim that the condemnation sparked an intellectual climate seems absurd given the looming possibility of excommunication. Rather than leading to an intellectual climate, it seems more reasonable to conclude that Oresme, Buridan, *et alia*, worked to assimilate philosophy and theology. As Lindberg points out, "They were so successful in achieving their goal that by the sixteenth century Aristotle had taken on the appearance of a Christian saint."<sup>49</sup> The conclusion of section two may again appear to be weak. However, if there is reason to doubt that 1277 created an intellectual atmosphere, then this is adequate for our purposes.

But if, at the least, doubt has successfully been cast on theses A and B, then it has seemingly come at the cost of endorsing a third thesis. Scholars in the seventeenth, eighteenth and nineteenth centuries from, Francis Bacon to Voltaire to Condorcet, routinely criticized the church for the "dismal state of medieval science."<sup>50</sup> A.D. White, has been so bold as to claim:

...The establishment of Christianity, beginning a new evolution of theology, arrested the normal development of the physical sciences for over fifteen hundred years.<sup>51</sup>

Though White is not widely considered to be a reliable source, Russell has reasserted the "warfare" thesis, and Lindberg holds that "...it appears to me that outside of conservative Christian circles the warfare thesis is overwhelmingly dominant."<sup>52</sup> Indeed, White is far from alone. Condorcet writes, "The triumph of Christianity was the signal for the complete decadence of philosophy and the sciences."<sup>53</sup>

However, the arguments presented in section one are still relevant, and they conflict with C. If the effects of 1277 were not widespread and were often ignored, it becomes difficult to place blame on the

<sup>46</sup> Grant, Edward. "Were there Significant Differences between Medieval and Early Modern Scholastic Natural Philosophy? The Case for Cosmology" Pg. 13.

<sup>47</sup> The Stoics held that there was a vacuum outside of our finite cosmos, though they were in agreement with Aristotle in that the cosmos itself, as a sphere, was a plenum.

<sup>48</sup> Philoponus, John. "Commentary on Aristotle's Physics" pp. 678.24-684.10 (Vitelli).

<sup>49</sup> Lindberg, pg. 77.

<sup>50</sup> Lindberg, pg. 67.

<sup>51</sup> White, Andrew Dickson. A History of the Warfare of Science with Theology in Christendom. New York: Appleton, 1896. Vol. I, pgs. 375, 381.

<sup>52</sup> Lindberg, pg. 68.

<sup>53</sup> Condorcet, Marquis de. Sketch for a Historical Picture of the Progress of the Human Mind. Ed. Stuart Hampshire, trans. June Barraclough. London: Weidenfeld and Nicolson, 1955. Pg. 72.

church. Though Aristotelianism remained entrenched until the works of Copernicus, to declare the state of medieval science “dismal” in light of the works of Buridan, Oresme, *et alia* is nothing short of historical negligence. Indeed, it is easy to exaggerate both the positive and negative effects of 1277.

Lindberg presents a devastating argument to the warfare thesis: “If, instead, we compare the support given to the study of nature by the medieval church with the support available from any other contemporary social institution, it will become apparent that the church was the major patron of scientific learning...Remove the church from the picture, and there is an enormous amount of serious intellectual activity that would not have occurred.”<sup>54</sup> While one may demand that science be autonomous, this has rarely, if ever, been the case. In our own culture, political, religious and economic objectives constantly interfere with and impede scientific progress. If the church was indeed a prominent supporter of scientific thought, then the assimilation of theological tenets is a small price to pay, even if the consequences of failing to conform were harsh by today’s standards.

### III. Final Thoughts

And so, if we can reasonably reject A, B, and C, then what are we to conclude? One author puts the dilemma as follows:

Some commentators, however, see the condemnation of 1277 as only a minor outbreak of hostilities which in the end produced harmony rather than discord, especially given that the condemnation held only for a few decades at the University of Paris, while at Oxford less restrictive measures operated, and elsewhere none at all. Still other investigators go further and argue that by freeing medieval thinkers from the yoke of strict obedience to Aristotle, the condemnation of 1277, in effect, liberated them to conceive new alternatives in solving long-standing problems in Aristotelian science and natural philosophy.<sup>55</sup>

While I hope to have provided sound arguments in support of the former and against the latter, I want to refrain from making broad, sweeping generalizations. Lindberg concludes by wisely refusing to pass judgment, either negative or positive, on the church. Where would science be if there had not been a church? If there had been no condemnation? These are what if questions, and as such they cannot be conclusively answered. Science does not occur within a vacuum. To separate competing religious agendas from the progression and freedom of scientific thought is impossible. However, when the available evidence is weighed, it is possible to determine the validity of competing theses. It is possible to conclude that theses A, B, and C each fail to account for a significant portion of the available evidence. Tentatively, I assert the claim that the effects of the condemnation of 1277 were narrow and largely ignored. One may object to the project as a whole as I have outlined it, in that the arguments used to reject one thesis are ignored or misconstrued in promoting another. *Prima facie*, this would appear to be problematic. However, I hold that this is in fact a valid move. The purpose is to undermine each of the three primary stances regarding the condemnation of 1277. If I have been able to cast doubt on each thesis on an individual basis, showing that each faces at least one major problem given the evidence, then shifting positions is certainly fair play.

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<sup>54</sup> Lindberg, pg. 74.

<sup>55</sup> McClellan, James E. III and Harold Dorn. Science and Technology in World History: An Introduction. Baltimore: Johns Hopkins UP, 1999, pg. 187.

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