

# Knowing the Time, Knowing of a Time

3<sup>rd</sup> Annual Conference of the Center for Millennial Studies

Boston, December 6-8, 1998

Conference Proceedings

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## Apocalyptic Calculators of the Later Middle Ages

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The purpose of my talk today is to explore why and how astrology became an accepted tool for apocalyptic calculation in the later Middle Ages. Although thirteenth-century scholars flirted with the idea of using the stars to calculate the timing of the end, serious astrological calculations of the apocalypse began in earnest only in the early fifteenth century, during the pervasive, eschatologically-charged crisis of the Great Schism of 1378 to 1414. Scholars then began to look to the stars, I will argue, as an outside, scientific means of countering urgent apocalyptic predictions based on prophecies, visions, and the interpretation of Scripture, predictions that in many instances were coming to be seen as dangerous and divisive. Once astrological calculations were incorporated into the eschatological arsenal, however, they began, rather, to add fuel to apocalyptic fires, complementing, rather than quashing more traditional modes of speculation.

In the twelfth and thirteenth centuries, large numbers of astrological texts had entered Europe, Latin translations of ancient Greek and, more importantly, medieval Arabic writings on the stars. Particularly in the works of Arabic astrologers, European scholars encountered theories that would give the stars a role in major religious changes and in delineating large periods of world history.<sup>1</sup> These theories would underlay astrological calculations of the timing of the End. A poem began circulating in the thirteenth century, for example, falsely attributed to the Roman poet Ovid that made use of the theories of the ninth-century Arabic astrologer Abu Ma'shar. In this poem, "Ovid" correlates the birth of religions, including Christianity, with certain periodic conjunctions of the planets Saturn and Jupiter. Just as these religious changes had been written in the stars, the arrival of Antichrist would be, as well.<sup>2</sup> Probably no one in the thirteenth century more eagerly embraced the possibilities of using astrology to investigate the apocalypse than did the Franciscan Roger Bacon. In his circa 1266 *Opus maius*, addressed to Pope Clement IV, Bacon championed Abu Ma'shar's theories about planetary conjunctions and religious change. According to Bacon, the world would see only six major religions in its history, each symbolized

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<sup>1</sup>See especially Edward S. Kennedy, "Ramifications of the World-Year Concept in Islamic Astrology," *Proceedings of the Tenth International Congress of the History of Science* (1962): 23-43; Edward S. Kennedy and David Pingree, *The Astrological History of Masha'allah* (Cambridge: Harvard University Press, 1971); and David Pingree, *The Thousands of Abu Ma'shar* (London: Warburg Institute, 1968).

<sup>2</sup>*The Pseudo-Ovidian De vetula: Text, Introduction, and Notes*, ed. Dorothy M. Robathan (Amsterdam: Adolf M. Hakkert, 1968), book 3, lines 522-654. [The poem is also edited in *Pseudo-Ovidius De vetula: Untersuchungen und Text*, ed. Paul Klopsch, *Mittelalters Studien und Texte*, 2 (Leiden: E. J. Brill, 1967).]

by the conjunction of the planet Jupiter with one of the six other planets (including the sun and moon as planets). Only the religion indicated by Jupiter's conjunction with the moon was yet to come. That final sect had to be the lying, magical sect of Antichrist. When that sect might arrive, Bacon did not hazard a guess, but he was confident that further study of the stars would yield the answer, urging Pope Clement IV in the *Opus maius*, "I know that if the Church should be willing to consider the sacred text and prophecies . . . and should order a study of the paths of astronomy, it would gain some idea of greater certainty regarding the time of Antichrist."<sup>3</sup>

Despite Roger Bacon's confident predictions, by the early fourteenth century it was not apparent that astrology would be accepted as a valid tool for eschatological speculation. First, astrology, particularly in its more fatalistic form, had been condemned in the back-lash against the new reliance on Aristotelian philosophy by scholastic thinkers (the conflict frequently described as pitting faith against reason). In 1277, when Stephen Tempier, Bishop of Paris, condemned 219 propositions that were no longer to be taught at the University of Paris, a number of astrological propositions appeared on the list of errors. Bishop Tempier's list of errors caricatured astrology as teaching a doctrine of extreme fatalism, denying both human free will and God's omnipotence, and embodying a cyclic, deterministic view of history. Among the doctrines he denounced, for example, was the teaching "that when all the heavenly bodies have returned to the same point, which is accomplished in 36,000 years, the same effects will recur as are in existence now."<sup>4</sup> This 36,000-year Great Year was based on the precession of the equinoxes (or, in medieval terms, the motion of the eighth sphere of the fixed stars, which appeared to drift slowly at a rate of 1 degree per century, thus completing a cycle in 100 years x 360 degrees, or 36,000 years). While I have never seen a medieval astrologer arguing for such a cyclical view of history, there is evidence that some, perhaps, took a less deterministic view and suggested simply that the world would end after 36,000 years. At least this notion was attacked by Arnold of Villanova, writing in Paris around the year 1300, on the grounds that God could speed up the heavens at will and complete the whole cycle much sooner than 36,000 years should he so choose.<sup>5</sup>

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<sup>3</sup>Bacon, *Opus majus*, ed. Bridges, 1: 269: "Scio quod si ecclesia vellet revolvere textum sacrum et prophetias sacras, atque prophetias Sibyllae, et Merlini et Aquilae, et Sestonis, Joachim et multorum aliorum, insuper historias et libros philosophorum, atque juberet considerari vias astronomiae, inveniretur sufficiens suspicio vel magis certitudo de tempore Antichristi."

<sup>4</sup>The condemnations are edited in Heinrich Denifle and Emile Chatelain, eds., *Chartularium Universitatis Parisiensis*, 4 vols. (Paris: Delalain, 1889-97), 1:543ff; and Pierre Mandonnet, *Siger de Brabant et l'averroïsme latin au XIII<sup>me</sup> siècle*, 2nd ed., 2 vols. in 1 (Louvain: Institut Supérieur de Philosophie, 1908 and 1911), pt. 2, pp. 175-91. The relevant proposition is number 6 in Denifle and Chatelain's and number 92 in Mandonnet's edition: "Quod redeuntibus corporibus coelestibus omnibus in idem punctum, quod fit in XXX sex milibus annorum, redibunt idem effectus, qui sunt modo." It is not at all clear that anyone in Paris believed this proposition. It smacks of fatalism, of the eternity of the world, of everything Tempier distrusted about Greek philosophy; but it is also patently bad astrology. The rate of the eighth sphere's precession is independent of the periodicity of planetary configurations. When stars and planets might be expected to return to their original positions at Creation (even if that was known) was a much more complex calculation. Furthermore, no medieval astrologer argued for the kind of fatalism Tempier's condemnation implies.

<sup>5</sup>Arnold of Villanova, *De tempore adventus Antichristi*, of which lengthy excerpts are edited in Heinrich Finke, *Aus den Tagen Bonifaz VIII: Funde und Forschungen*, Vorreformationsgeschichtliche Forschungen, 2 (Münster: Aschendorff, 1902), pp. CXXIX-CLIX. The pertinent passage appears at p. CXXXIV: "Astrologi vero, qui probant, quod motus retardationis octave sphere compleri nequit in paucioribus quam in XXXVI milibus, debent scire, quod suam potentiam et sapientiam Deus non alligavit naturalibus causis. . . . Et si totius retardationis revolutio necessaria foret, ut asserunt, ad universalem perfectionem, nichilominus Deus est potens motum orbium velocitare, quantum placuerit, et revolutionem complere brevissimo tempore, ita ut revolutiones L vel centum annorum compleantur in uno anno vel dimidio." This passage of Arnold's was cited with approval in John of

Indeed, a flurry of writings about the end of the world produced in Paris around 1300 seem to provide a second nail in the coffin of astrological speculation about the apocalypse. The uproar had begun with Arnold of Villanova's *Treatise on the Time of Antichrist*. This work had shocked not simply because Arnold, a physician, had dared to pronounce on a theological subject, but also because, based on his reading of Daniel 12:11, Arnold had baldly predicted that Antichrist would arrive in the year 1378.<sup>6</sup>

John of Paris, writing in response to Arnold's treatise, flatly denied that humans could have certain knowledge of the time of Antichrist's advent, whether using scripture, prophecy, or astrology to calculate that time. John was willing, however, to use the figures for precession to offer a conjecture of the world's age (he found the world to be some 6300 years old in 1300). That figure, in turn, he fitted to the notion Richard Landes has dubbed the sabbatical millennium, paralleling the world's duration in millennia to the seven days of Creation week. The world was to end after 6000 years, according to this theory, but John said that round number of 6000 could stand for any number of years up to 6500. Thus he conjectured that the world would end within two hundred years (before A.M. 6500). All the same, John rejected the notion that astrology could generate a certain prediction of the time of Antichrist's advent.<sup>7</sup> Henry of Harclay, responding to both John's and Arnold's treatises, even more sharply attacked the claims that astrology--or any method of calculating--could predict the time of Antichrist's arrival. Ridiculing a number of apocalyptic prognostications, Henry thundered that the predictions of astrologers and other calculators were "*vanissimi*."<sup>8</sup>

The attacks of Stephen Tempier, Arnold of Villanova, John of Paris, and Henry of Harclay on astrologizing the apocalypse appear to have been largely effective in the fourteenth century. In mid-century, one of England's most prominent astrologers would rush to proclaim that he had predicted the outbreak of plague, would devote pages to using astrology to investigate the date of creation, but would shy away from any attempt to use astrology to predict the time of the End.<sup>9</sup>

The events of the fourteenth century, however, would do much to force authors to rethink this banishing of astrology from the task of calculating the apocalypse. Plague, the Hundred Years' War, and, most importantly, the Great Schism that broke out in 1378 unleashed a flurry of apocalyptic writings, announcing the eminence of the End, naming Antichrists, and adding apocalyptic fuel to the divisions of fourteenth-century Europe. The Franciscan Jean de

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Paris's *Tractatus de Antichristo*. See Sara Beth Peters Clark, "The *Tractatus de Antichristo* of John of Paris: a Critical Edition, Translation, and Commentary," Ph.D. diss., Cornell University, 1981, p. 62.

<sup>6</sup>Finke, *Aus den Tagen Bonifaz VIII.*, p. CXXXII: "Quod nobis hic sufficit, istud est, scilicet quod completis mille CC.X.C. annis a tempore, quo populus Judaicus amisit possessionem terre illius, stabit, ut ait dominus, abhominatio desolationis, scilicet Antichristus in loco sancto, quod erit circa septuagesimum octavum annum centenarii sequentis videlicet quarti decimi a salvatoris adventu." See the description of the controversy surrounding Arnold's treatise in Clark, "The *Tractatus de Antichristo*," pp. 7-12; and in Franz Pelster, "Die Questio Heinrichs von Harclay über die zweite Ankunft Christi und die Erwartung des baldigen Weltendes zu Anfang des XIV Jahrhunderts." *Archivio italiano per la storia della pietà* 1 (1951): 32-46.

<sup>7</sup>John of Paris, *Tractatus de Antichristo*, ed. Clark, pp. 46-47 and 59-62, in which John dismisses astrology's claims to offer any certainty about the time of Antichrist's arrival. See also my article, "The Alfonsine Tables and the End of the World: Astrology and Apocalyptic Calculation in the Later Middle Ages," in Alberto Ferreiro, ed., *The Devil, Heresy and Witchcraft in the Middle Ages: Essays in Honor of Jeffrey B. Russell* (Leiden: Brill, 1998), pp. 211-39.

<sup>8</sup>Henry of Harclay, *Utrum astrologi vel quicumque calculatores possint probare 2<sup>m</sup> adventum Christi*, ed. in Pelster, "Die Questio Heinrichs von Harclay," p. 82.

<sup>9</sup>That is, John of Aschenden (Joannis Eschuid). See Smoller, "Alfonsine Tables," pp. 220-21, and the references therein.

Roquetaillade, for example, produced a series of treatises in the years 1345-1356 in which he predicted (largely based on visions, the Joachite tradition, and his own gift for interpreting Scripture) an imminent series of tribulations under several Antichrists, to be followed by an earthly millennium to begin around 1400 (or 1415) in which the world would be under the leadership of a French king and an angelic pope drawn from the [true] Franciscan order, who would embrace poverty and go about barefoot. Roquetaillade was as explicit about who the enemies were as he was about the forces of good. Antichrist would arise from the Hohenstaufen line; the English would aid him in making war against the French.<sup>10</sup> Roquetaillade's predictions enjoyed an enormous circulation and perhaps inspired more than mere head-nodding agreement. The chronicler Froissart mentions Roquetaillade's prophecies, tantalizingly, in the context of his discussion of the 1358 peasants' uprising known as the Jacquerie.<sup>11</sup>

The Great Schism of 1378-1414, dividing Christendom into the followers of a pope based in Avignon and one based in Rome, stirred up enormous expectations of the imminence of Antichrist's reign and huge numbers of apocalyptic visions and prophecies. To many, the division of Christendom itself was a preamble to the appearance of Antichrist, the *discessio*, or falling away, of 2 Thessalonians 2:3 that was to precede the coming of the "son of perdition." (The twelfth-century *glossa ordinaria*, the standard commentary on the Bible, explained the *discessio* as the destruction of the Roman Empire or a schism in the church.) Others had visions--often explicitly partisan ones--that confirmed this interpretation of the schism. A Gascon woman named Marie Robine, for example, became convinced that the Avignon Pope Clement VII had been the intercessor responsible for her miraculous healing in 1387 and had a series of visions upholding the legitimacy of the Avignon popes (who eventually granted her an annual "salary" of 60 florins). The famous preacher Vincent Ferrer in 1398 had a vision of the imminence of the Last Judgment (he foresaw no earthly millennium) and began a twenty-year preaching tour to announce the coming of the End. He also wrote a letter to the Avignon pope Benedict XIII in which he adduced several other visions by people known to Vincent announcing that Antichrist had already been born some nine years previously. A number of theologians, worried about the profusion of often partisan prophecies, sought to identify and crack down on pseudo-prophets.<sup>12</sup> It was this situation that ultimately would persuade the French cardinal Pierre d'Ailly to bring astrology to the task of answering false prophets and quenching apocalyptic fires.

As the Schism stretched on and degenerated, after the 1409 Council of Pisa produced yet a third line of popes, d'Ailly became increasingly dissatisfied with the apocalyptic interpretation of the Schism, reasoning that labeling the other side the forces of Antichrist was doing little to help heal the division. In 1414, on the eve of the Council of Constance that would heal the Schism, inspired by a reading of Roger Bacon, d'Ailly turned to astrology to help him counter the claims of those who argued that the reign of Antichrist was imminent or even present. The culmination of his work was a treatise *On the Concordance of Astrology and History*, in which d'Ailly predicted that Antichrist would arrive in the year 1789, a prediction that occurred within a discussion of the Great Schism, its possible apocalyptic significance, and d'Ailly's hopes for the

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<sup>10</sup>I am drawing on the summaries in Marjorie Reeves, *The Influence of Prophecy in the Later Middle Ages* (Oxford, 1969; repr. South Bend: University of Notre Dame Press, 1993), pp. 225-28, and 321-25; and Robert Lerner, "The Black Death and Western European Eschatological Mentalities," *American Historical Review* 86 (1981): 541-44.

<sup>11</sup>Froissart, *Chronicles*, selected, translated, and edited by Geoffrey Brereton (Harmondsworth: Penguin, 1968, 1978), pp. 165-66.

<sup>12</sup>See Laura Smoller, *History, Prophecy, and the Stars: the Christian Astrology of Pierre d'Ailly, 1350-1420* (Princeton: Princeton University Press, 1994), p. 92-95, and the references therein.

upcoming Council of Constance. D'Ailly based his prediction upon several astrological phenomena. First, he relied upon the significance of certain periodic conjunctions of Saturn and Jupiter. According to d'Ailly, just such a conjunction was to occur around the year 1692.<sup>13</sup> Second, d'Ailly noted that the planet Saturn would complete a 300-year cycle of ten revolutions in the year 1789. As with Saturn-Jupiter conjunctions, Saturn's completion of ten circuits of the zodiac was supposed to portend great changes in mores, religions, and dynasties.<sup>14</sup> Third, d'Ailly noted that between the conjunction and the completion of Saturn's ten orbits there would be a "status" or "statio" (standing still) of the eighth sphere from the years 1764 to 1789. This is a reference to one explanation of the precession of the equinoxes, a theory which posited moving equinoctial points that described small circles around the true vernal and autumnal equinoctial points on the ecliptic, creating in effect a moving ecliptic which explained the apparent drift of the fixed stars. The early fourteenth-century Alfonsine tables described this motion in four 1750-year sub-periods (yielding an eschatologically satisfying 7000 years for the completion of the entire cycle). It was one of these sub-periods that was to end in the "status" of 1764 to 1789, in fact the fourth since Creation.<sup>15</sup> That the confluence of these three astrological events might indeed mark the advent of Antichrist d'Ailly gathered from the assertion of Roger Bacon and Arabic astrologers that there were to be only six major religions in the world, of which only the sect of Antichrist was yet to come. Armed with scientific reasoning coming from outside the world of unverifiable visions and private revelations, d'Ailly could refute the false prophets and visionaries, postpone the apocalypse to the comfortably-distant future, and get on with the task at hand of healing the Schism.

Following d'Ailly, later astrologers eagerly calculated the time of the apocalypse from the stars. But unlike d'Ailly, they did not use the stars to cool apocalyptic passions. Rather, astrology became a way to enhance predictions of the imminence of various end-time torments. A generation after d'Ailly was writing, for example, in 1444, an astrologer named Jean de Bruges was confidently applying astrological reasoning to the study of the apocalypse.<sup>16</sup> Relying heavily

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<sup>13</sup>*Concordantia astronomie cum hystorica narratione*, in Petrus de Alliaco, *Concordantia astronomie cum theologia* . . . (Augsburg: Erhard Ratdolt, 1490), ch. 60, fol. [d 7 v]: "Iam vero de octava maxima coniunctione loquamur quam futuram esse diximus si deus voluerit anno ab inicio mundi .7040. a diluvio .4798. vel circiter et post illam erit complementum .10. revolutionum saturnialium anno christi 1789. Et hoc erit post dictam coniunctionem per anos. 97. vel prope." It was not unusual for such infrequently occurring astrological events to have effects which occurred many years after the fact. See, e.g., d'Ailly's remarks in *De figura inceptionis mundi et coniunctionibus mediis sequentibus*, Vienna, Österreichische Nationalbibliothek, MS 5266, fol. 48r: "Sciendum est quod constellationes celestes secundum quod fiunt ex coniunctionibus tardioribus etiam principales suos effectus tardius producant."

<sup>14</sup>*Concordantia astronomie cum hystorica narratione*, ch. 47-48, citing Albumasar, *De magnis coniunctionibus*, tr. 2, diff. 8.

<sup>15</sup>*Concordantia astronomie cum hystorica narratione*, ch. 60, fols. [d7v]-[d8r]: "Inter dictam coniunctionem et illud complementum dictarum .10. revolutionum erit status octave spere circiter per annos .25. quod sic patet quia status octave spere erit anno .444. post situm augium qui secundum tabulas astronomicas sunt adequate ad annum christi 1320 perfectum. Et ideo anno Christi 1764 quibus si addas .25. fiunt anni .1789. quos prediximus. . . . Anno Christi 1765 diebus. 136. completis erit statio motus accessus et recessus et habebimus pro motu eius .30. [90] gradus." The Arabic astrologer Abu Ma'shar had taught that these movements of the eighth sphere were highly significant. See Smoller, "Alfonsine Tables," pp. 213-25, 221-24.

<sup>16</sup>His prognostication appears in Paris, Bibliothèque Mazarine, MS 3893, fol. 65-99 (the sole Latin MS). There is a Latin incunable edition: *Pronosticum, sive tractatus qui intitulatur de veritate astronomie, a principio mundi usque in ejus finem* (Anvers: T. Martens, before 1503). There is also a French version, existing in two MSS: Paris, Bibliothèque Nationale, MS lat. 7335, fol. 115ra-131ra; Paris, Bibliothèque Ste. Geneviève, MS 2521, fol. 37-57v. There is a brief mention of Jean in the late fifteenth-century compilation of Simon de Phares, ed. in Jean-

on the example set by d'Ailly, Jean based his prediction of the End on the pattern of conjunctions made by the planets Saturn and Jupiter. He paid particular attention to the triplicity, or group of zodiacal signs, in which each conjunction occurred. (Astrologers divided the zodiac into four triplicities, each of which was held to share the characteristics of one of the four elements: earth, water, air, and fire. Successive conjunctions of the two planets tend to stay within the same triplicity for around 240 years.)<sup>17</sup> According to Jean, the world's end would have to take place when Saturn-Jupiter conjunctions entered the fiery triplicity around the year 1765, the same year in which the eighth sphere would complete its full 7000-year cycle. Just as a conjunction in one of the watery signs had signaled the Flood, the future return to the fiery triplicity would have to bring about the end of the world--now in its 7000th year--in a deluge of fire.<sup>18</sup> (As the world had more and more obviously passed its 6000th year, the interpretation of the sabbatical millennium in the later Middle Ages gradually came to settle on the notion that the world would endure 7000, and not 6000 years.)

Unlike d'Ailly, however, Jean did not intend his astrological analysis to calm fears about his own times by postponing Armageddon. In fact, he used astrology to point to the eschatological significance of a number of contemporary disasters including the current schism pitting Pope Eugenius IV against the Council of Basle and its appointed antipope. Jean hinted broadly that Antichrist would arrive in his own times, a period during which the all-important Saturn-Jupiter conjunctions were in the watery triplicity, which took its character from malign Scorpio, a fact of dire consequence for Christianity. He anticipated in fact that Antichrist would be born when Saturn-Jupiter conjunctions were in the watery triplicity, most logically when the two planets were conjoined in Pisces, the sign in direct opposition to Virgo, in which the planets had been conjoined when Christ was born. Jean speculated, following the Arabic astrologer Abu Ma'shar, that Christianity might not endure much beyond 1460 years. Without drawing any explicit conclusion, Jean in fact did describe a conjunction of Saturn and Jupiter in the dreaded sign of Pisces to come in the year 1464. If some final time of peace was to follow current torments prior to the world's final consummation in 1765, as, for example, in Roquetaillade's earthly millennium, Jean did not foresee it in the stars. He examined upcoming Saturn-Jupiter conjunctions all the way until 1544, all of which portended bad.<sup>19</sup>

To follow the story of astrological calculations of the apocalypse into the sixteenth century is to find astrology less and less playing the sober, calming role that it had for Pierre d'Ailly in the midst of the swirling visions and prophecies of the time of the Great Schism. More than one hundred publications, for example, offered interpretations of a cluster of planetary conjunctions in the sign of Pisces in 1524, many of which put an apocalyptic spin on the event, often making partisan reference to the rise of Martin Luther in Germany (or to papal Antichrists). In 1531, the French astrologer Pierre Turrel, explicitly following the lines laid out by Pierre d'Ailly

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Patrice Boudet, ed., *Le Recueil des plus celebres astrologues de Simon de Phares* (Paris: Champion, 1997), pp. 563-64. See also Lynn Thorndike, *A History of Magic and Experimental Science*, 8 vols. (New York: Columbia University Press, 1923-58), 4: 146-47; Jean-Patrice Boudet, *Lire dans le ciel: La bibliothèque de Simon de Phares, astrologue du XVe siècle* (Brussels: Centre d'Étude des Manuscrits, 1994), pp. 80-83; and Smoller, "The Alfonsine Tables," pp. 224-231.

<sup>17</sup>For a more detailed description of medieval conjunction theory, see Smoller, *History, Prophecy, and the Stars*, pp. 20-22, 70-71, 73-74; John D. North, *Chaucer's Universe* (Oxford: Clarendon Press, 1988), pp. 370-374; and John D. North, "Astrology and the Fortunes of Churches," *Centaurus* 24 (1980): 181-211.

<sup>18</sup>Bibliothèque Mazarine, MS 3893, fol. 94v: "Videtur ergo probabile cum naturali lumine per presentem triplicitatem aquatica antichristum et per futuram igneam diluvium per ignem naturaliter exspectandum." The completion of the eighth sphere's cycle is described at fol. 90r-91r. See Smoller, "Alfonsine Tables," pp. 226-228.

<sup>19</sup>See Smoller, "Alfonsine Tables," pp. 224-31.

and Jean de Bruges, offered an astrological prediction of the world's end in AD 1801. Antichrist, he thought, would arrive either at that point, when Saturn-Jupiter conjunctions would be in the fiery triplicity, or during their present sojourn in the watery triplicity, in which he sneeringly noted, the heresy of the "German scorpionists" had seen its birth. He also noted that a long period under the sway of Mars was about to give way to the rule of the Moon, a period that would be the world's final one, and one that some astrologers had associated with the appearance of Antichrist.<sup>20</sup>

Subsequent astrologers were even less guarded: the French astrologer Richard Roussat, for example published in 1550, a prediction based on the four ages of the world, in which he despaired that the world had perhaps only two or three years left. John Calvin's birth in 1504, he saw as a product of a malign Saturn-Jupiter conjunction, and Roussat suggested that Calvin was a forerunner of Antichrist. By 1563 Michel de Nostradamus in his almanacs was predicting the world's end for 1567 or 1568. An abundance of astrologically-backed apocalyptic prophecies, it has been suggested, in fact, fueled religious wars in late sixteenth-century France.<sup>21</sup>

And if one looks ahead to the English civil war of the mid-seventeenth century, the same pattern is again apparent. Astrologically-driven apocalyptic predictions, such as the prognostications in the widely circulated almanacs of William Lily, buoyed the spirits of fighters on both sides. (His 1646 almanac sold some 13,500 copies.)<sup>22</sup> No wonder that elites in the late seventeenth century began turning their backs on astrology, now derided as superstition or as trouble-making, popular "enthusiasm."<sup>23</sup> The irony is that astrology had entered the apocalyptic arsenal to combat just such trouble-making enthusiasm, the partisan visions of a Marie Robine, on the payroll of the Avignon popes. Apocalyptic calculators found in astrology, however, an almost infinitely flexible system, which could add scientific heft to predictions of an imminent crisis as well as to forecasts of a more distant End. When this danger became all too apparent, in the religious wars of the sixteenth and seventeenth centuries, elites had the good sense not to throw out the baby with the bath water. They jettisoned astrology (and ecstatic visions) without discarding eschatology. Indeed, it was this dangerous tendency of astrology to give backing to radical millenarians--and not so much the creation of new scientific mentalities in the seventeenth century--that led to its demotion from science to pseudo-science or superstition.

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<sup>20</sup>See Smoller, "Alfonsine Tables," pp. 231-236.

<sup>21</sup>Denis Crouzet, *Les guerriers de Dieu: La violence au temps des troubles de religion (vers 1525-vers 1610)*, 2 vols. (Seyssel: Champ Vallon, 1990), 1:101-43, esp. 120-30.

<sup>22</sup>Bernard Capp, *English Almanacs, 1500-1800: Astrology and the Popular Press* (Ithaca, NY: Cornell University Press, 1979); Patrick Curry, *Prophecy and Power: Astrology in Early Modern England* (Cambridge: Polity Press, 1989).

<sup>23</sup>A process traced in Curry, *passim*.