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*CSFH I, 135-151*

# 'In the last days at the end of the world': Roger Bacon and the Reform of Christendom

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The 1250s were heady and difficult years for the Franciscan order. To its eschatologically-minded visionaries, their age was the dark evening of human history when every kind of crisis and danger would beset a Christendom lying under the shadow of Antichrist's imminence. Yet contained within this sense of impending doom was the hope that made the whole vast world shimmer with the beckoning mirage of evangelical triumphs.[1] From their earliest days, the Franciscans had felt acutely conscious of having a unique role to play in Christian society based on their dedication to apostolic poverty and their promotion of spiritual reform and renewal. Their sense of purpose evolved rapidly as the order expanded, produced its own histories and propaganda, and became more closely identified with the papacy. It took a markedly eschatological direction in some circles through the 1240s and more generally through the order under the leadership of John of Parma (1247-57), who was much influenced by the prophetic writings of Joachim of Fiore.[2]

1 This century has been identified as one of outstanding optimism about the prospect of conversion, especially of Muslims, and especially among Franciscans and Dominicans. See R.W. Southern, *Western Views of Islam in the Middle Ages*, Cambridge (Mass.) 1962; B.Z. Kedar, *Crusade and Mission: European Approaches towards the Muslims*, New Jersey 1984; E.R. Daniel, *The Franciscan Concept of Mission in the High Middle Ages*, Kentucky 1975.

2 On these developments see D. Burr, *The Spiritual Franciscans: From Protest to Persecution in the Century after Saint Francis*, Pennsylvania State University 2001, 1-41. On propaganda see A. Power, 'Franciscan Advice to the Papacy', *History Compass*, 5.5 (2007), 1550-75.

It had long been thought that two 'witnesses' [Revelation 11] would come forth to proselytise in the time of Antichrist. In the eleventh century, an increasingly important role was assigned to them, most influentially by Adso of Montier-en-Der, who wrote: 'they will defend the faithful of God against the attack of Antichrist with divine weapons and will instruct, comfort and prepare the elect for war, by teaching and preaching'.[3] From the late twelfth century, these 'spiritual men' were interpreted in a Joachite light, not as two individuals, but as two religious orders. By the mid-thirteenth century, some people were hypothesising that these orders were already active in the world as the Franciscans and Dominicans.[4] This apocalyptic role was made virtually official when, in 1255, John of Parma and the Dominican minister general, Humbert of Romans, issued a joint encyclical that attempted, among other things, to heal the breaches between the two orders. 'In the last days at the end of the world,' they announced, Christ: 'raised up our two orders in the ministry of salvation, calling many to himself and enriching them with celestial gifts… These orders are – to speak to God's glory and not our own – two great luminaries which by celestial light shines upon and ministers to those sitting in darkness and the shadow of death.'[5]

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3 *Qui contra impetum Antichristi fideles Dei diuinis armis premunient et instruent eos et confortabunt et preparabunt electos ad bellum, docentes et predicantes*, Adso Dervensis, 'Epistola adsonis monachi ad gerbergam reginam de ortu et tempore antichristi' in *De ortu et tempore antichristi necnon et tractatus qui ab eo depenunt*, ed. D. Verhelst (CCCM, 45), Turnhout 1976, 27-8.

4 See M. Reeves, *The Influence of Prophecy in the Later Middle Ages: A Study in Joachimism*, Oxford 1969, 133-90; *Eadem*, 'Opponents of Antichrist: A Medieval Perception', *Consilium*, 200 (1988), 105-8. For the case that only some among those Franciscans interested in the apocalypse were specifically Joachite in their interpretations, see B. Roest, 'Franciscan Commentaries on the Apocalypse' in: M. Wilks (ed.), *Prophecy and Eschatology* (Studies in Church History, Subsidia, 10), Oxford, 1994, 29-37.

5 'The joint encyclical of 1255' in: B. McGinn, *Visions of the End: Apocalyptic Traditions in the Middle Ages* (Records of Civilisation: Sources and Studies, 96), New York 1998, 164. For the full text see L. Wadding (ed.), *Annales minorum*, 30 vols., Quaracchi 1931-1951, III, 380-1. On the Dominican involvement see: E.T.

These were strong and controversial assertions of a kind that are generally only articulated publicly in times of extreme strain and polemical combat.[6] In this case, a complex political situation lay behind and provoked their publication. Growing internal dissensions among the Franciscans, rivalry between the two orders and bitter, damaging conflicts with the secular clergy made the world a demanding and uncertain place for its would-be saviours. The most dangerous and complicated clashes of the decade were with a powerful alliance of secular clergy and university masters in the city of Paris who threatened to discredit both orders and the whole concept of apostolic mendicancy and poverty.[7] The main protagonists on both sides made escalating use of apocalyptic rhetoric, and some of them came to grief when they overstepped the limits that the papacy would tolerate and found themselves condemned for heresy. Amid this debacle, John of Parma was forced to stand down and the order took steps to disassociate itself from the most controversial trends in eschatological thinking.[8] One of the main tasks of Bonaventure, who became the new Minister General, was to create and maintain a *via media* between conflicting interpretations of the Franciscan Rule. Although vocal advocates of radical Joachite perspectives were suppressed, society was saturated in

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Brett, *Humbert of Romans: His Life and Views of Thirteenth-Century Society* (Studies and Texts, 67), Toronto 1984 26-8.

6 The same sort of rhetoric was, for example, employed on both sides during the papal-imperial conflicts of the preceding decades. R.K. Emmerson / R.B. Herzman, *The Apocalyptic Imagination in Medieval Literature* (Middle Ages Series), Philadelphia 1992, 32-3.

7 B. Roest, *A History of Franciscan Education (c. 1210-1517)* (Education and Society in the Middle Ages and Renaissance, 2), Leiden 2000, 51-8; Brett, *Humbert of Romans* (cf. note 5), 12-40; Y.M. Congar, 'Aspects ecclésiologiques de la querelle entre mendiants et séculiers dans la seconde moitié du XIII$^{e}$ siècle et le début du XIV$^{e}$', *Archives d'histoire doctinale et littéraire du Moyen Âge* 28 (1961), 35-151.

8 On the scandal of the *Liber introductorius in evangelium aeternum*, which caused the condemnation and its outcome, see: D. Burr, *Olivi's Peaceable Kingdom: A Reading of the Apocalypse Commentary*, Philadelphia 1993, 14-21; Daniel, *Franciscan Concept of Mission* (cf. note 1), 76-82.

apocalyptic expectation, and many Franciscans continued to understand both history and their vocation in eschatological terms. Bonaventure himself reissued the 1255 encyclical in the year that he became Minister General and went on to produce the official biography of Francis, in which he identified the saint as the angel of the sixth seal.[9]

It was probably at some time between the two issues of this apocalyptic mission statement that an English scholar called Roger Bacon entered the Franciscan order.[10] Bacon is today one of the most famous medieval intellectuals, renowned for his much-discussed role in the development of science. Despite, or perhaps because of, this, aspects of Bacon's life and thought have not been entirely well-served by the ways in which he has been studied. In particular, his Franciscan vocation has been

9 Reeves called Bonaventure 'a Joachite *malgré lui*'. *Influence of Prophecy* (cf. note 4), 181. After J. Ratzinger's study, *Die Geschichtstheologie des heiligen Bonaventura*, Munich 1959, it was generally accepted that Bonaventure had been deeply influenced by Joachim's thought. See also Emmerson / Herzman, *Apocalyptic Imagination* (cf. note 6), ch. 2; G. LaNave, *Through Holiness to Wisdom: the Nature of Theology according to St. Bonaventure* (BSC, 76), Rome 2005.

10 The dating of this event rests on fragile evidence, but the consensus of historians puts it at ca. 1257. The most authoritative biographical studies of Bacon are: J. Hackett, 'Roger Bacon: his life, career and works', in: *Idem* (ed.), *Roger Bacon and the sciences: commemorative essays* (Studien und Texte zur Geistesgeschichte des Mittelalters, 57), Leiden 1997, 9-23; A.G. Molland, 'Roger Bacon', in: *Oxford Dictionary of National Biography* (2004); D.C. Lindberg, Introduction to *Roger Bacon's Philosophy of Nature: A Critical Edition, with English Translation, Introduction, and Notes, of* De multiplicatione specierum *and* De speculis comburentibus, Oxford 1983, updated in the Introduction to his *Roger Bacon and the Origins of Perspectiva in the Middle Ages: A Critical Edition and English translation of Bacon's* Perspectiva, Oxford 1996. Older, but still useful are: S.C. Easton, *Roger Bacon and His Search for a Universal Science: A Reconsideration of the Life and Work of Roger Bacon in the Light of His Own stated Purposes*, Oxford 1952 and T. Crowley, *Roger Bacon: the Problem of the Soul in his Philosophical Commentaries*, Louvain 1950.

underestimated and even overlooked.[11] This has had two important consequences. One is a certain difficulty in grasping Bacon's mind in its totality and in particular, the nature, effects and power of his spirituality. The other is a wariness in exploiting the very great value of his writings for shedding light on thirteenth-century society, especially as many historians are rightly conscious of the pitfalls into which their predecessors fell while using Bacon as a witness to his age.[12] In this article, I hope to address both by investigating his programme for the reform of learning in the specific context of the apocalyptic expectation that he repeatedly expressed.[13] The fact that his response to the threat of Antichrist was to suggest reform that was primarily practical and intellectual rather than moral reveals a great deal about how some Franciscans thought about their role in the Church during the crucial evolutionary period of the 1260s.

Bacon became a Franciscan when he was in his early forties. He had been educated in Oxford, where he was among the first to make a thorough study of the recently-translated philosophical and scientific works of Aristotle and his Muslim commentators. During the 1240s, he taught arts and natural philosophy at the

11 For a justification of these claims see: A. Power, 'A Mirror for Every Age: The Reputation of Roger Bacon', *English Historical Review* 121 (2006), 657-92.

12 Concerns about Bacon's reliability as a witness have their origin in the series of critical articles by L. Thorndike, initiated in his 'Roger Bacon and Experimental Method in the Middle Ages', *Philosophical Review* 23 (1914), 271-92.

13 The important links between apocalypticism, astrology and Bacon's wider programme have been considered recently in H. Carey, *Astrology and Antichrist in the Later Middle Ages*, *Time and Eternity: the Medieval Discourse* (International Medieval Research, 9) Turnhout 2003, 515-35; J. Hackett, 'Aristotle, *Astrologia*, and Controversy at the University of Paris (1266-1274)', in: J. Van Engen (ed.), *Learning Institutionalized: Teaching in the Medieval University* (Notre Dame Conferences in Medieval Studies, 9) Notre Dame 2000, 69-111; J. Hackett, 'Astrology and the Search for an Art and Science of Nature in the Thirteenth Century', in: G. Marchetti *et al* (eds.), *Ratio et Superstitio: Essays in Honour of Graziella Federiei Vescovini* (Textes et Études du Moyen Âge, 24) Louvain-la-Neuve 2003, 117-36.

University of Paris. Towards the end of that decade, when he was perhaps in his mid-thirties, he grew frustrated with the limitations of the curriculum and environment and abandoned the formal world of the university to devote himself exclusively to the pursuit of *sapientia* – wisdom. He spent the next twenty years of his life studying languages, especially Greek and Hebrew; various branches of mathematics including astronomy, astrology and geography; the science of optics; arcane and occult arts such as alchemy and forms of magic; the moral philosophy and rhetoric of the classical world, and much else.[14] It was during this period that he entered the order. He never, in his extant works, told the story of how he came to do so, but it was probably not a very surprising decision. There is some risk involved in tracing his spiritual development on the basis of his major works, which were all written after he had been a friar for some years.[15] Nevertheless, it is certainly the case that by this date, the Franciscans and Dominicans were increasingly ubiquitous and influential in Christian society and especially in the intellectual sphere. They had succeeded in creating a notional divide between those secular scholars who chiefly sought personal glory and therefore achieved little and the mendicants whose personal humility and virtue enabled them to touch higher truths.[16] The belief in a necessary and fundamental connection between moral and intellectual endeavour enabled both orders to take, on the

14 For his account of these years, see *Opus tertium*, in *Fr. Rogeri Bacon Opera Quaedam Hactenus Inedita*, ed. J. S. Brewer (RS, 15) London 1859), 59.

15 I have attempted to construct such a narrative in my forthcoming *Roger Bacon and the Crisis of Christendom*. For other attempts at explanation see: Daniel, *Franciscan Concept of Mission* (cf. note 1), 66, 55-7; Lindberg, *Roger Bacon's Philosophy of Nature* (cf. note 10), xx; Lindberg, *Roger Bacon and the Origins of* Perspectiva (cf. note 10), xviii; Crowley, *Roger Bacon* (cf. note 10), 34-42, 67-71; Easton, *Roger Bacon and His Search* (cf. note 10), 124-6.

16 Evidence of the success of this conceptualisation – which had its roots in antiquity – can be found in the extensive recruitment among university masters by preachers using such arguments. See for example those of Jordan of Saxony, edited in A.G. Little / D. Douie, 'Three Sermons of Friar Jordan of Saxony, the Successor of St. Dominic, Preached in England, A. D. 1229', *English Historical Review* 54 (1939), 1-19.

whole, a practical view of the roles of *scientia* and *sapientia* in their wider mission of *renovatio*. These concepts were absolutely central to Bacon's own view of learning and can, I think, be assumed to have predated and therefore played a role in his decision to enter the order.[17]

Despite the apparently secular and even unorthodox nature of many of the subjects that he had devoted his life to studying, he conceived them to be organic parts of the divine wisdom unfolded by God through the ages. '[O]ne God has given the whole of wisdom to one world, for a single purpose,' he wrote, 'for wisdom is the way to salvation. Every consideration of man that is not to do with salvation is full of blindness and leads in the end to the blackness of hell'.[18] These remarks should not be read in isolation from the difficult, complex and evolving debate about education in the order, but they certainly indicate that he shared the fundamental ideas of Bonaventure and other leading Franciscans even if his was to some extent a novel voice.[19] The main common ground among those Franciscans committed to education was that the only possible justification for scholarship, as for anything else in life, was to assist the individual in serving the needs of Christendom and finding personal salvation. The

17 Bacon had admired since boyhood the moral philosophy of antiquity, which emphasised the connection between virtue and philosophy, and the application of morality to civic life. *Rogeri Baconis, Moralis Philosophia*, ed. E. Massa (Thesaurus mundi), Turin 1953 [hereafter *MP*], III.v.proemium, 133.

18 Roger Bacon, *Opus maius*, ed. J.H. Bridges, 3 vols., Oxford 1897 [hereafter *OM*], VII.iv, 2:376-7, II.1, 3:36. *ab uno Deo data est tota sapientia et uni mundo, et propter finem unum ... sed sapientia est via in salutem. Omnis enim consideratio hominis, quae non est salutaris, est plena caecitate, ac ad finalem inferni deducit caliginem*.

19 On the disputes about the place of the arts in mendicant *studia* see Roest, *A History of Franciscan Education* (cf. note 7), esp. 137-52 and M.M. Mulchahey, *"First the Bow is Bent in Study…" Dominican Education Before 1350* (Studies and Texts, 132), Toronto 1998, esp. 219-77. On Bacon and Bonaventure specifically, see: C. Bérubé, *De la philosophie à la sagesse chez St Bonaventure et Roger Bacon* (BSC, 26), Rome 1976; C. Bérubé, 'Le dialogue de S. Bonaventure et de Roger Bacon', *CF* 39 (1969), 59-103.

Church had wide responsibilities in a time when the rising Mongol empire and a broadening strategy in the conflict with Islam led to both the expansion of horizons and opportunities, and multiple threats to Christian security. Bacon did not merely share the views of his brothers in this regard, but he went further and argued that new types of knowledge were required to meet new demands. Essential areas of scholarship in which he was expert were being neglected because they seemed unorthodox, yet the Church could simply not afford to go on ignoring them.

In July 1266, Bacon had the opportunity to put these opinions to the highest authority in Christendom when, as a result of some prior exchanges, Pope Clement IV wrote to him asking him to explain: 'the remedies that you think we should adopt to address that great danger which you communicated to me on a recent occasion'.[20] In his main response, the *Opus maius*, he covered a range of areas in which he thought reform was necessary. His intention was to inform Clement about new developments in Latin scholarship – chiefly those resulting from the recent, rich fertilisation by Greek and Arabic learning – and to persuade the Pope of their utility to the Church. Running through the whole was his concern with the impending appearance of Antichrist and the sort of knowledge that would be required by religious men for the spiritual fortification and practical defence of the souls of the faithful during the subsequent time of tribulation.

Bacon's expectations of Antichrist appear to have been conventional. '[I]t is an article of faith,' he wrote, 'that one should believe that Antichrist will come'.[21] The salient points of this 'article of faith' were that the coming of Antichrist was inevitable and probably imminent. His appearance would be heralded by a terrifying onslaught of savage armies, unleashed

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20 *Et per tuas nobis declares litteras quae tibi videntur adhibenda remedia circa illa, quae nuper occasione tanti discriminis intimasti*, *Fr. Rogeri Bacon Opera*, ed. Brewer (cf. note 14) 1. The early contact between Bacon and Clement remains obscure, but the available evidence is thoroughly scrutinised in E. Massa, *Ruggero Bacone: etica e poetica nella storia dell''Opus maius'* (Uomini e dottrine, 3), Rome 1955.

21 *Ideo annexum articulis fidei est, quod credatur Antichristus venturus*. *MP* (cf. note 17), I.3 (6), 15-16.

from long centuries of imprisonment by Alexander the Great in the distant wildernesses of the world. After his arrival among Christians, Antichrist would use every possible weapon at his disposal to destroy their faith. Particularly dangerous was his capacity to seduce the faithful with false miracles and other illusions and to exercise a hypnotic power over human minds. Although his reign would be short, he would bring destruction and despair to Christianity.[22] Bacon thought carefully about each element of this complex threat, considering how best to prepare and protect Christian society during every stage of Antichrist's campaign.

To begin with, the coming of Antichrist was certain, but the date and the direction from which he would appear were unknown. It was vital to discover them as nearly as possible, and there were a number of ways in which this might be done. 'I do not want to sound as though I am above myself,' he wrote cautiously, 'but I know that if the Church would look again at the sacred text and holy prophecies, as well as the prophecies of the Sibyl, Merlin, Aquila, Seston, Joachim [of Fiore], and many others, as well as the histories and the books of philosophers and would command that the techniques of astronomy be considered, a sufficient suspicion or even a greater certainty about the time of Antichrist could be acquired'.[23] Despite St Augustine's discouraging remarks about trying to find exact dates for future events, Joachim had ushered in a new and very specific way of reading the Apocalypse which sought intimations of the end in current affairs and personalities. It seems that Franciscans who were interested in Joachite and other apocalyptic literature in

22 On medieval expectations of Antichrist see B. McGinn, *Antichrist: Two Thousand Years of the Human Fascination with Evil*, New York 2000.

23 *Nolo hic ponere os meum in coelum, sed scio quod si ecclesia vellet revolvere textum sacrum et prophetias sacras, atque prophetias Sibyllae, et Merlini et Aquiliae, 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*. *OM* (cf. note 18) IV.iv.16, I, 268-9.

these decades were mainly concerned with discovering exactly this information.[24] Bacon himself felt that although many hints could be drawn from prophetic material, information was usually veiled in colourful, symbolic language or it was imprecise on the subject of dates which was why it needed to be combined with the second, more empirical, method for determining the pattern of future events: astronomy.

Astronomy, especially in the predictive form now called astrology, had always been regarded with considerable unease or downright hostility by Christians, as Bacon knew well. Nevertheless, he was convinced that it posed no risk if done responsibly with due regard for the exercise of free will and that the Latin West could not afford to reject the vast amount of information that it was capable of providing. Everything that was true had its origin in God, who had good reasons for sharing it. '[T]he sun rises on the wicked and the seas lie open to pirates,' pointed out Bacon, 'so how much more is God bound to give useful knowledge of things to the good!'[25] Not only did celestial bodies influence all sublunary activity in ways that could be explained mathematically, but God permitted their movements and configurations to reflect the unfolding of the great drama of salvation history. Careful observation of the heavens could therefore reveal past, present and future alike: 'for God has willed to order his affairs so that certain future events which he has foreseen or predestined can be shown to rational people by means of the planets'.[26]

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24 *Sancti Aurelii Augustini, De civitate dei libri XI-XXII* (Aurelii Augustini Opera Pars 14.2. CCSL, 48), Turnhout 1955, XVIII.53; M.W. Bloomfield / M.E. Reeves, 'The Penetration of Joachism into Northern Europe', *Speculum* 29 (1954), 772-93.

25 *Nam et sceleratis sol oritur et pirates patent maria; quapropter longe magis Deus debet bonis utilem cognitionem rerum, OM* (cf. note 18) IV.iv.16, I, 286. See Carey, 'Astrology and Antichrist' (cf. note 13); P. Adamson, 'Abū Ma'šar, Al-Kindī and the Philosophical Defense of Astrology', *Recherches de Théologie et Philosophie médiévales* 69 (2002), 245-70.

26 *Voluit ergo Deus res suas sic ordinare, ut quaedam quae futura praeviderit vel praedestinaverit rationabilibus per planetas ostenderentur, OM* (cf. note 18), IV.iv.16, I, 267.

Knowledge obtained from the writings of *sapientes* and the study of the heavens needed to be further supplemented by close observation of what was going on in the wider world. It had long been thought that a particular sequence of events would usher in the Apocalypse. The first indication would be the destruction of Islam. Shortly afterwards, the ferocious tribes of the North – Gog and Magog – would emerge and ravage the whole world. Amid these tribulations, Antichrist himself would appear. Bacon pointed out that, at the time of writing: 'already the greater part of the Saracens has been destroyed by the Tartars together with the capital of their kingdom, which is Baldac [Baghdad], and the Caliph, who was just like our Pope'.[27]

The apparent impending doom of Islam was a sign reinforced by the possibility that the second part of the sequence might already have begun. Bacon was not alone in wondering whether the Mongols ought in fact to be identified with the tribes of Gog and Magog, 'due to issue forth in the days of Antichrist, who will first lay waste to the world and then will meet Antichrist and call him God of Gods'.[28] By this time, it was clear that it was the same people who had, within the last thirty years, so shockingly devastated the kingdoms along the north-eastern frontiers of Christendom and made such drastic inroads into the Islamic world. Recent events certainly seemed to fulfil the ancient prophecies, but Bacon remained cautious: 'since it is true that other races have in the past come forth from those places and have invaded the world as far south as the Holy Land, just as the

27 *Et jam major pars Saracenorum destructa est per Tartaros, et caput regni quod fuit Baldac, et Caliph qui fuit sicut papa eorum*. *OM* (cf. note 18), IV.iv.16, I, 266.

28 *Exitura in diebus Antichristi, qui mundum primo vastabunt et deinde obviabunt Antichristo, et vocabunt eum Deum Deorum, OM* (cf. note 18), IV.iv.16, I, 365. On Latin responses to the Mongol threat see: D. Bigalli, *I Tartari e l'Apocalisse: Ricerche sull' escatologia in Adamo Marsh e Ruggero Bacone*, Firenze 1971; G.A. Bezzola, *Die Mongolen in abendländischer Sicht, 1220-1270: ein Beitrag zur Frage der Völkerbegegnungen*, Munich 1974; J. Fried, 'Auf der Suche nach der Wirklichkeit: die Mongolen und die europäische Erfahrungswissenschaft im 13. Jahrhundert', *Historische Zeitschrift* 243 (1986), 287-332; P. Jackson, *The Mongols and the West, 1221-1410*, Harlow 2005.

Tartars are now doing ... therefore the activity of the Tartars is not sufficient to certify the time of the coming of Antichrist, but other things need to be considered'.[29] He particularly recommended the careful study of geography and detailed attention to all activity in the northern regions.[30] He was eager to emphasise the considerable range of knowledge upon which Christians ought to draw to evolve an early-warning system for the approach of Antichrist.

A greater preoccupation for Bacon was the fortification – physical and mental – of the Latin West against Antichrist during the two stages of his assault on Christians. The Church must consider ways to strengthen the defences of Christendom, focusing on the moment when Christians would find themselves faced with the armies of Antichrist on the battlefield. Bacon's priority here, as so often in his writing, was to come up with ways of avoiding actual confrontation and bloodshed by using advanced scientific methods: 'so that without a sword and without touching anyone, [our army] could destroy everyone who resists'.[31] His most famous suggestion was to set up different types of mirrors, convex, concave or fractured so that invading forces would be intimidated by their own reflections turned into giants, multiplied, or monstrously distorted. They could be made to see and attack things that did not exist. They could be driven to the point of madness by the manipulation of their environment: 'we could make the sun, moon, and stars appear to descend to the terrestrial realm and appear over the heads of enemies. And we could perform many similar feats, so that the mind of a mortal ignorant of the truth could not withstand them'.[32]

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29 *Verum enim est quod alias exiverunt gentes de locis illis et mundum invaserunt meridianum usque ad terram sanctam, sicut nunc Tartari faciunt ... Et ideo discursus Tartarorum non sufficit certificare tempus de adventu Antichristi, sed alia exiguntur, OM* (cf. note 18) IV.iv.16, I, 16-17.

30 *OM* (cf. note 18), IV.iv.16, I, 302-4.

31 *Ut sine ferro, et adsque eo quod tangerent aliquem, destruerent omnes resistentes*, *OM* (cf. note 18), VI.xii, 2:217.

32 *Et sic faceremus solem et lunam et stellas descendere secundum apparentiam hic inferius et super capita inimicorum apparere, et*

In addition to their capacity to confuse, mirrors could be used more directly as weapons. Concave mirrors could be used to focus the sunlight into concentrated rays of such power that they would burn whatever they touched. Certain branches of knowledge, particularly *scientia experimentalis*, could assist in the creation of a range of technologies for saving Christian lives by killing at a distance. Some would be imperceptible to the senses, or perhaps could only be smelled, while others would work by mysteriously infecting the enemy. There were some that would require some physical contact, such as malta, which was a kind of bitumen, easily found, that would burn up a soldier if it landed on his skin. Yellow petroleum would have a similar effect, and could not be extinguished by water. Other inventions could produce such a loud noise that, if they were set off suddenly at night, armies or cities might be overthrown by the shock of the sound and the accompanying light and cloud.[33] While most of these methods foreshadow the excesses of modern warfare, they were designed to save Christian lives from the violence of those who could not be converted and those who could not be stopped, such as long-prophesied armies with an eschatological role to play.

However successful these weapons might prove, Antichrist himself could not be dealt with on the battlefield. His most dangerous and terrifying aspect was his capacity to deceive and fascinate good Christians, seducing them to evil, snatching salvation from them in the bitter turbulence of the last days of the world.[34] He would, wrote Bacon, 'infatuate the world through the art of magic and his lies'. This, then, was the nature of the deadliest threat. Christians who were killed in battle against

*multa consimilia, ut animus mortalis ignorans veritatem non posset sustinere*. Perspectiva, ed. Lindberg (cf. note 10), III.iii.4, 334-5.

33 *OM* (cf. note 18), VI.xii, I, 217-8.

34 Bacon's contemporaries feared that Antichrist might come as both Emperor and Pope; might pretend to be Christ, using the powers of demons to simulate the workings of the Holy Spirit, even enacting a false Pentecost so that Antichrist's disciples might appear to be speaking in tongues, and many other such horrors of deception and parody. See Emmerson / Herzman, *Apocalyptic Imagination* (cf. note 6), esp. 14-31; N. Morgan, *The Douce Apocalypse: Picturing the End of the World in the Middle Ages* Oxford 2006.

Antichrist's forces might prove to be the fortunate ones. Christians who fell into the spiritual snares of Antichrist would suffer eternal torment.

Bacon explained to the Pope something of the mechanics of how Antichrist would use fascination, magic and illusion on humanity. He wrote in a guarded, often oblique, manner, for despite wide popular use of various forms of magic, these matters lay, for clerics, in the shadows beyond the safe circles of approved and institutionalised knowledge. Yet he maintained that even ordinary, unlearned Latins needed to know how such arts functioned, how to recognise them, and how to turn them against those same enemies who would use them remorselessly to destroy Christianity. 'They will be absolutely necessary to the Church of God against the fury of Antichrist,' he wrote.[35] He had given hints in the early chapters of the *Opus maius* about the enigmatic power of words: the words of the sacraments, which could transform bread into the flesh of Christ, and the words of the saints, which had suspended the very laws of nature. He believed that the days of miracles were not over: 'we should believe that if, through the authority of the Church and with right intention and steadfast desire, many true and wise Christians were to utter holy incantations for the propagation of the faith and the destruction of lies, a great number of good things, by the grace of God, would be possible'.[36] For, noted Bacon, Avicenna had taught that: 'the soul sanctified and purified of its sins is able to change the universe and the physical elements, so that rains, tempests and all alterations of bodies in the world are made by its virtue'.[37] Such words, he believed, would be even more powerful

35 *Ecclesiae Dei sit omnino necessarium contra furiam Antichristi*, *OM* (cf. note 18), IV.iv.16, I,392.

36 *Credere debemus quod si auctoritate Ecclesiae et ex recta intentione et forti desiderio multi veri et sapientes Christiani voces sacras proferrent ad pro[pagationem] fidei et destructionem falsitatis, quod multa bona possint Dei gratia provenire*. *OM* (cf. note 18), III.xiv, III, 123. Similar ideas were common enough in medieval Europe. See D.C. Skemer, *Binding Words: Textual Amulets in the Middle Ages* (Magic in History), Pennsylvania 2006.

37 *Anima sancta et munda a peccatis potest universale et elementa alterare, ut ejus virtute fiant pluviae, tempestates, et omnes alterationes corporum mundi*. *OM* (cf. note 18), IV.iv.16, I, 403.

if spoken at the proper time, under the most advantageous constellations of the heavens.

A particular part of magic was the ability to fascinate and manipulate people. Bacon explained: 'By this extraordinary method, [Antichrist] will achieve what he wants to achieve without war, and men will obey him just like beasts, and he will make kingdoms and states fight each other for him, so that friends will destroy their friends, and in this way he will make what he likes of the world.'[38] It therefore seemed obvious to Bacon that: 'Unless the Church hurries to meet [these threats] by using exactly the same methods for impeding and destroying such works, it will be intolerably oppressed by these scourges of Christians'.[39] He concluded: 'the Church ought to consider employing [them] against *infideles* and rebels so that Christian blood might be spared, and especially because of the future dangers which will come in the times of Antichrist, which, with the grace of God, it would be easy to oppose, if prelates and princes were to promote study and investigate the secrets of nature and of art.'[40]

Beyond these specific suggestions for turning arcane arts and sciences against the very enemies who would employ them, Bacon's whole programme was aimed to strengthen and spread the Christian faith. This was obviously the best possible defence against Antichrist. He looked for ways to prove the truth of Christianity through reason rather than through scriptural citation. 'For we can have great consolation in our faith,' he wrote, 'since the philosophers who have been led solely by the

38 *Et per hanc viam magnificam faciet sine bello quid volet, et obedient homines ei sicut bestiae, et faciet regna et civitates pugnare ad invicem pro se, ut amici destruant amicos suos, et sic de mundo faciet quod desiderabit*. *OM* (cf. note 18), IV.iv.16, I, 399.

39 *Et nisi ecclesia occurrat per facta consimilia ad impediendum et destruendum opera hujusmodi, aggravabitur intolerabiliter flagellis Christianorum*. *OM* (cf. note 18), IV.iv.i16, I, 402.

40 *Et hoc deberet ecclesia considerare contra infideles et rebelles, ut parcatur sanguini Christiano, et maxime propter futura pericula in temporibus Antichristi, quibus cum Dei gratia facile esset obviare, si praelati et principes studium promoverent et secreta naturae et artis indagerent*. *OM* (cf. note 18), VI.xii, II, 222.

exercise of their reason agree with us … not because we require reason before faith, but after faith, so that rendered certain by a double confirmation we may praise God for our salvation which we possess without doubt. And through this method … we are fortified in advance against the sect of Antichrist.'[41] If preachers could be trained in the rhetorical arts of the classical world, so that they could speak more effectively, their power to inspire ordinary people with spiritual joy would be greatly enhanced. If the widespread doubts about the Eucharist could be obliterated by careful, scientific arguments, the grace of that sacrament would uplift the whole population and greatly empower Christendom. Internal wars could be avoided by keeping a watchful eye on the movements of Mars and working especially for peace when that bellicose planet was in ascendance.[42] In these, and in many other ways, improved knowledge within the Church would promote moral reform and unity in society and protect the faithful through the coming trials.

This massive and controversial programme clearly demanded work and commitment from scholars of the highest moral calibre. Bacon did not say explicitly that such people would have to be members of religious orders, but considering that absolute rejection of worldly temptations was a preliminary step on the way to wisdom, it seems unlikely that it could be achieved by anyone outside the orders. Indeed, such a high standard of personal sanctity was required that very few people even within the orders could have achieved it.[43] It would be necessary to train pure young men to the task from their earliest years. Bacon wrote enthusiastically to Clement about one in particular of his students, John, a boy of twenty years, poor and untaught before he came to Bacon, and not of really outstanding intellectual

41 *Magnum enim solatium fidei nostrae possumus habere, postquam philosophi qui ducti sunt solo motu rationis nobis consentiunt…non quia quaeramus rationem ante fidem, sed post fidem, ut duplici confirmatione certificati laudemus Deum de nostra salute quam indubitanter tenemus. Et per hanc viam … praemunimur contra sectam Antichristi*, *OM* (cf. note 18), IV.iv.16, I, 253-54.

42 *MP* (cf. note 17), V, 247-63 [on rhetoric]; *MP*, IV.iii, 223-43 [on the Eucharist]; *OM* (cf. note 18), IV.iv.16, I, 385-86 [on war].

43 *OM* (cf. note 18), I.iii-iv, III, 6-11.

ability. Yet because of the extraordinary innocence and virtue of his soul, he had been able, with God's grace, to surpass all other students. In the course of just one year, he had learnt everything that it had taken Bacon thirty or forty years of intensive study to master. Nor was he the only one. Bacon had trained a number of virtuous young men so that they might be: 'useful vessels in the Church of God, that they may reform the whole academic curriculum of the Latins through the grace of God'.[44]

Bacon entered the order at a time when its leaders were committed to a profoundly eschatological vision of their role in society. Even after the formal suppression of extreme versions of such ideas, it is clear that many prominent Franciscans continued to understand their role in such a light. Bacon was discreet and avoided making any specific claims in this direction for the order, but taken as a whole, the underlying sense and unifying purpose in his writing seems clear enough. As John of Parma and Humbert of Romans had gone on to say in their encyclical, those of the orders would be like: 'the two cherubim full of knowledge … spreading out their wings to the people while they protect them by word and example, and flying about on obedient wing over the whole people to spread saving knowledge …' Bacon envisaged the reform of learning within Christendom being led by a group of exceptional young friars for the purpose of defending the community of the faithful against the most terrible threat it would ever face: the coming of Antichrist.

44 *Vasa utilia in Ecclesia Dei, quatenus totum studium per gratiam Dei rectificent Latinorum*, *OM* (cf. note 18), VI.i, II, 170-1.