Natural Philosophy and Theology in Seventeenth Century England

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Preface

This dissertation is the result of my own work and includes nothing that is the outcome of work done in collaboration except as declared in the Preface and specified in the text.

It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I further state that no substantial part of my dissertation has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University of similar institution except as declared in the Preface and specified in the text

It does not exceed the prescribed word limit for the relevant Degree Committee.

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Obviously, and unfortunately, I am not allowed judge the merits or failings of this thesis myself. However, I can say with certainty that without the help of several people it would have been very, very defective.

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My Mum, Jane, who was the best and craziest person I ever knew, died late last year. I devote this thesis to her memory.

Introduction

I. Disciplines

In 1666, the Oxford cleric, Samuel Parker (1640-1688), said: 'Tis an unpardonable Luxury and Wantonness for Wise and considering Philosophers, to spend their time and study to disclose distant and inscrutable Mysteries', for they are 'beyond the reach of human Cognisance, and such things as cannot be known but by Revelation'.[1] According to Parker, philosophy dealt with subjects that the human faculties could access and comprehend. This ruled out divine mysteries, which derived from scripture, and thus belonged to theology. Further, each discipline had professional practitioners whose job it was to inquire into their respective subject matters. Parker thus set a disciplinary boundary between natural philosophy and theology, determining what could and could not be said (by particular people) about particular subjects. His remarks therefore indicate the way disciplines shape knowledge and define what is knowable. He also alludes to the social dimension to disciplines – that they managed and differentiated groups of people. Taking Parker at this word, this thesis contends that disciplines bring out the cognitive and social aspects of knowledge making, and consequently, that they are necessary tools for analysing the establishment and defence of knowledge.[2] In what follows I will use these tools to unpack and understand knowledge in the seventeenth century.

In early modern England, disciplines were used for two purposes: one epistemic, the other, broadly, social and organisational. First, they set the rules and boundaries of argument, which meant knowledge was legitimised and made intelligible within disciplinary contexts. And second, disciplines structured pedagogy, dividing knowledge so it could be studied and taught. This pedagogical role explains why Joseph Mede (1586-1639), tutor at Christ's College, Cambridge, was praised for writing 'Instructions and Advices about the study of *Theology*, the *Arts* and *History*', which, had they been

[1] Samuel Parker, *A Free and Impartial Censure of the Platonick Philosophie Being a Letter Written to his much Honoured Friend Mr N.B.*, (Oxford, 1666), pp. 79, 82.
[2] This is true of seventeenth-century disciplines as well as their (otherwise very different) modern counterparts. See Simon Schaffer, 'How Disciplines Look', in Andrew Barry and Georgina Born (eds.), *Interdisciplinarity: Reconfigurations of the Social and Natural Sciences*, (London, 2013), 57-81, p. 58.

recovered, would have been 'advantageously instructive unto all…and copied out for the publick use'.[3]

This thesis asks questions about disciplines in general. However, my attention is largely focused on the nature and uses of natural philosophy and theology. Mediating these particular disciplines was important, as together they produced epistemic and ontological judgements about man, nature and the divine. Natural philosophy was the study of body or nature.[4] According to the Catholic philosopher, Sir Kenelm Digby (1603-1665), it was concerned with (but not limited to), 'those bodies we conuerse withall', and it aimed to discover 'by what course and engines nature gouerneth their common motions'.[5] Throughout medieval Europe, and into the seventeenth century, it was taught and studied using Aristotle's (384-322 BC) *libri naturales*.[6] Though valued in its own right, it was also regarded as preparation for higher disciplines, pre-eminently theology. Theology was the study of the divine. For Aristotle, it was neither a science (which was subject to reason), nor an art (which was subject to procedure), but was rather based on belief.[7] However, in school theology, taught in medieval and early modern universities, articles of Christian faith were usually explained and expanded using demonstrative Aristotelian metaphysics, (as well as scripture and the Church Fathers).[8]

Both disciplines underwent considerable change in the seventeenth century, and their relationship was changeable and multifaceted. By mid-century, scholasticism's textual Aristotelianism was giving way to more experimental, mathematical and mechanistic accounts of nature.[9] Natural philosophy was consequently vulnerable to accusations of materialism, even atheism.[10] Theology remained interested in what Thomas Barlow (1608/9-1691) called 'Knowledge of *God,* and our Duty, and that Divine *Worship* which is

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[3] Joseph Mead, *The Works of the Pious and Profoundly-Learned Joseph Mede, B.D. sometime Fellow of Christ's Colledge in Cambridge. Corrected and Enlarged according to the Author's own Manuscripts*, (London, 1677), 'The General Preface', unpaginated.
[4] See Ann Blair, 'Natural Philosophy', in Katharine Park and Lorraine Daston (eds.), *The Cambridge History of Science, Early Modern Science*, (7 vols., Cambridge, 2003), III, 365-406.
[5] Sir Kenelm Digby, *Two Treatises. In the one of which, The Natvre of Bodies; in the other, The Natvre of Mans Sovle; is looked into: in a way of discovery of the Immortality of Reasonable Sovles*, (Paris, 1644), p. 144.
[6] William A. Wallace, 'Natural Philosophy: Traditional Natural Philosophy', in Charles B. Schmitt, Quentin Skinner, Eckhard Kessler, with Jill Kraye (eds.), *The Cambridge History of Renaissance Philosophy*, (Cambridge, 1988), 199-235, pp. 202-3.
[7] Harris Francis Fletcher, *The Intellectual Development of John Milton, vol. II*, (Urbana, 1961), p. 197.
[8] *Ibid.*
[9] Christoph Lüthy, 'What to do with Seventeenth-Century Natural Philosophy? A Taxonomic Problem', *Perspectives on Science*, 8 (2000), 164-95, p. 165.
[10] Michael Hunter, 'Science and Heterodoxy: an Early Modern Problem Reconsidered', in *Science and the Shape of Orthodoxy: Intellectual Change in late seventeenth-century Britain*, (Woodbridge, 1995), 225-44.

due to Him'.[11] But the relationship between different types of religious writing – patristic doctrine, ecclesiastical and civil history, school-divinity, casuistry, popery, Socinianism, and church doctrine – was constantly shifting. The fluctuations in both disciplines prompted many seventeenth-century thinkers to establish (or re-establish) an appropriate relationship between the two. As such, scholars like Nicholas Jolley posit their relationship as a symptom of, or a means of explicating, the intellectual upheavals and transformations of the period.[12] In an essay entitled, *The Usefulness of Philosophy to Theology* (1676),[13] which formed part of a larger defence of the Royal Society's experimental programme, Joseph Glanvill (1636-1680) remarked that:

> 'there was never more need that the *Priests* should be *Philosophers*, than in *ours*; For we are liable every day to be called out to make good our *Foundations* against the *Atheist*, the *Sadduce*, and *Enthusiast*; And 'tis the *Knowledge* of *God* in his *Works* that must furnish us with some of the most proper Weapons of *Defence*'.[14]

As I will discuss, the relationship between natural philosophy and theology took many forms because the content and structure of both disciplines were fluid and contestable. But their mobile and dynamic relationship also reflected the competing interests of different (although often overlapping) intellectual groups – philosophers and clerics, according to Glanvill, but also lawyers, physicians and mathematicians.

These issues are discussed in two branches of scholarship. The first analyses disciplines (somewhat abstractly), the second reconstructs early modern natural philosophy and theology. To date, these pursuits have not been thoroughly combined. By and large, the study of disciplines is left to sociologists of knowledge and some historians of science. They rightly define disciplines as groups of propositions, deliberately associated with particular ways of learning and teaching requirements.[15] Disciplines prescribe methods and objects of study, but also establish criteria for knowledge, arbitrate between

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[11] Thomas Barlow, *Αυτοσχεδιασματα, De Studio Theologiæ: or, Directions for the Choice of Books in the Study of Divinity*, (Oxford, 1699), p. 1.

[12] Nicholas Jolley, 'The Relation between Philosophy and Theology', in Daniel Garber and Michael Ayers (eds.), *The Cambridge History of Seventeenth-Century Philosophy*, (2 vols., Cambridge, 1998), I, 363-92. Natural philosophy and theology are therefore more useful categories than science and religion. See Andrew Cunningham, 'Getting the game right: Some plain words on the Identity and Invention of Science', *Studies in History and Philosophy of Science*, 19 (1988), 365-89. For an overview of the science/religion historiography, see John Henry, 'Religion and the Scientific Revolution', in Peter Harrison (ed.), *Science and Religion*, (Cambridge, 2010), 39-58. See also, R. Hooykaas, *Religion and the Rise of Modern Science*, (Edinburgh, 1984), pp. 57-78.

[13] Also titled, *The Usefulness of Real Philosophy to Religion*.

[14] Joseph Glanvill, *Essays on Several Important Subjects in Philosophy and Religion*, (London, 1676), essay 4, p. 42.

[15] Rudolf Stichweh, 'The Sociology of Scientific Disciplines: On the Genesis and Stability of the Disciplinary Structure of Modern Science', *Science in Context*, 5 (1992), 3-15, p. 5.

orthodoxy and heterodoxy, create sites of economic activity (researching, publishing and teaching), and define communities of practitioners.[16] These functions are fulfilled descriptively – creating a canon of past efforts, achievements and personnel – and normatively – identifying present and future interests and concerns.[17] As such, disciplines are conceptual as well as social categories, reflecting the conceptual/epistemic and social dimensions to knowledge creation.[18] This analysis is correct and useful. Unfortunately, it primarily focuses on modern disciplines, or "disciplinarity", and scientific disciplines in particular. Early modern disciplines are side-lined or ignored. For example, in a co-edited volume, Ellen Messer-Davidow, David R. Shumway, and David J. Sylvan argue that disciplines did not exist before the late eighteenth/early nineteenth century.[19]

The opposite problem occurs in histories of the seventeenth century. Historians talk about natural philosophy and theology, but talk far less about the nature of disciplines: how they were constructed, what purposes they served, or why they were necessary for structuring and legitimising knowledge. Early modern disciplines had various components – source material, doctrine, method, and authorities. However, despite this complexity, scholars often construe them as coherently bordered, and thus relatable to one another in clear, uncomplicated ways. This is too simplistic, dismissing the possibility that disciplines overlap with, and differ from, one other simultaneously. The result is a simplified view of the relationship between natural philosophy and theology, whereby the two are either straightforwardly connected or separate. This binary can set up an equally uncomplicated power dynamic. As Ian Maclean argues, if natural philosophy and theology are in some way connected, either natural philosophy is regarded as subordinate to theology (the traditional view of medieval scholasticism), or the two disciplines are deemed to collaborate (evidenced by the practices of the Hartlib circle – the eclectic correspondence network centred around the London-based intelligencer, Samuel Hartlib (1600-1662)). If, however, natural philosophy and theology are separate, they will either be in conflict (in the case of Averroeist Aristotelianism and Christianity), or they will exist in peaceful coexistence (as they did in Jesuit pedagogy).[20]

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[16] Ellen Messer-Davidow, David R. Shumway, and David J. Sylvan (eds.), *Knowledges: Historical and Critical Studies in Disciplinarity*, (Charlottesville, 1993), pp. vii-viii.
[17] Schaffer, 'How Disciplines Look', p. 57.
[18] David R. Shumway and Ellen Messer-Davidow, 'Introduction', *Poetics Today*, 19 (1988), 331-3, p. 332.
[19] Messer-Davidow, Shumway, and Sylvan (eds.), *Knowledges: Historical and Critical Studies in Disciplinarity*, p. vii. A weaker version of the thesis says that *scientific* disciplines originated in the late eighteenth/early nineteenth century, see Stichweh, 'The Sociology of Scientific Disciplines', p. 4.
[20] See Ian Maclean, 'Certainty and Uncertainty in Early Modern Theology and Natural Philosophy', in Simo Knuuttila and Risto Saarinen (eds.), *Theology and Early Modern Philosophy, 1550-1750*, (Helsinki, 2010), 103-18, pp. 105-6.

Andrew Cunningham is a prominent advocate of the connected thesis, arguing that natural philosophy was primarily and necessarily interested in God and his attributes. A weaker version of this argument claims that natural philosophy was conceived as the study of nature, defined, explicitly, as God's creation. In any case, Cunningham holds that natural philosophy was a pious activity, unavoidably engaged with divine topics.[21] Indeed, for many seventeenth-century philosophers, natural philosophy served an obvious and important theological function. For example, in part one of *Some Considerations Touching the Usefulness of Experimental Natural Philosophy* (1663), the chymist and experimenter Robert Boyle (1627-1691) said 'God has made some knowledg of his Created Book, both conducive to the beliefe, and necessary to the Understanding, of his Written one'.[22] However, as well as being theologically minded, or interested in theological questions, it has also been suggested that natural philosophy borrowed concepts and theories from theology. So, according to Margaret Osler, religious scepticism gave way to philosophical scepticism; Boylean claims that theology was above reason resulted in philosophical nescience; and competing views of providence – say, Gassendian vs. Cartesian – produced different matter theories, epistemologies, and metaphysics.[23] Ideas lifted from theology were repurposed in natural philosophy.

On the other hand, several scholars claim natural philosophy and theology were, or increasingly became, estranged in the seventeenth century. Rather implausibly, Stephen Gaukroger contends that seventeenth-century natural philosophy developed its own sources of non-theological justification. For example, he argues, Francis Bacon (1561-1626) said natural philosophy was warranted by the possibility of controlling nature; René Descartes (1596-1650) relied on the persona of the *honnête homme* to make his philosophy credible; and Galileo Galilei (1564-1642) argued that the disinterestedness of his courtly patrons granted his astronomy objectivity.[24] Peter Harrison disagrees, arguing that seventeenth-century philosophers were overwhelmingly motivated by piety, and

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[21] See Cunningham, 'Getting the game right'. These views were developed during a debate between Cunningham and Grant about the terms 'science' and 'natural philosophy'. See Andrew Cunningham, 'The Identity of Natural Philosophy. A Response to Edward Grant', *Early Science and Medicine*, 5 (2000), 259-78; Edward Grant, 'God and Natural Philosophy: The Late Middle Ages and Sir Isaac Newton', *Early Science and Medicine*, 5 (2000), 279-98.

[22] Robert Boyle, *The Works of Robert Boyle*, edited by Michael Hunter and Edward B. Davis, (14 vols., London, 1999-2000), III, p. 219.

[23] M.J. Osler, 'Mixing Metaphors: Science and Religion, or Natural Philosophy and Theology in Early Modern Europe', *History of Science*, 36 (1998), 91-113.

[24] Stephen Gaukroger, 'The Autonomy of Natural Philosophy: from Truth to Impartiality', in Peter R. Anstey and John A. Schuster (eds.), *The Science of Nature in the Seventeenth Century: patterns of change in early modern Natural Philosophy*, (Dordrecht, 2005), 131-63, pp. 136-49.

framed their philosophies as Christian.[25] However, agreeing with Gaukroger, and thus disagreeing with Cunningham, Harrison says Bacon, Galileo and Descartes all began excluding theological considerations from natural philosophical inquiries. According to Galileo in *The Assayer* (1623), philosophy was 'written in this all-encompassing book…that is the universe' and composed 'in mathematical language'.[26] Theology, conversely, was based on scripture, which, because it was in large part figurative, 'has never been [permitted] to teach us the astronomical sciences'.[27] Natural philosophy and theology were non-overlapping bodies of knowledge, and, as such, theology had no right to impose on philosophy.[28] Harrison claims that by the second half of the seventeenth century, this disciplinary separation was causing a backlash. Natural philosophy and theology were reconnected, he argues, via the new discipline, Physico-Theology, which deployed the tools of natural philosophy to reach theological conclusions.[29]

Finally, Jolley holds that both formulations of the disciplinary relationship were given equal backing during the seventeenth century. Although he points to various medieval precursors, he identifies both traditions with the legacy of Cartesianism. According to Descartes, philosophy (by which he meant his philosophy) could serve theology – by, say, explicating the Eucharist – but was also independent of theology – and thus had little to say about grace or free will. Subsequent thinkers adopted one of these positions. Thus, Thomas Hobbes (1588-1679), Baruch Spinoza (1632-1677) and Blaise Pascal (1623-1662) argued that philosophy was categorically separate from theology, while Nicolas Malebranche (1638-1715) and Gottfried Leibniz (1646-1716) claimed they were connected, philosophy illuminating theological doctrine and theology justifying philosophical views and practices.[30]

None of these scenarios are outlandish. Viewed cursorily, disciplines appear either connected or separate. Moreover, as devices used to facilitate university teaching, they were sites of conflicting interest and authority. However, closer inspection reveals a messier, more complicated picture. Seventeenth-century disciplines were composite entities: including subject matter, source materials, cognitive principles, methods, and

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[25] See Peter Harrison, 'Physico-Theology and the Mixed Sciences: The Role of Theology in Early Modern Natural Philosophy', in Peter R. Anstey and John A. Schuster (eds.), *The Science of Nature in the Seventeenth Century: patterns of change in early modern Natural Philosophy*, (Dordrecht, 2005), 165-83, p. 171.
[26] Galileo Galilei, *The Essential Galileo*, edited and translated by Maurice A. Finocchiaro, (Cambridge, 2008), p. 183.
[27] *Ibid*., p. 141.
[28] See Rivka Feldhay, 'Religion', in Katharine Park and Lorraine Daston (eds.), *The Cambridge History of Science, Early Modern Science*, (7 vols., Cambridge, 2003), III, 725-55, pp. 745-6.
[29] Harrison, 'Physico-Theology'.
[30] Jolley, 'The Relation between Philosophy and Theology'.

group practices. These elements combined to determine whether a discipline dealt in knowledge or belief – whether it was demonstrable or probable. Different authors stressed or prioritised these elements differently, and because disciplines interacted across several areas, authors sometimes presented inconsistent accounts of disciplinary relationships. The point is that disciplines related to one another in multiple ways simultaneously, both pulling each other together *and* drawing each other apart. This dissertation sheds light on this messiness and complexity. In doing so, it demonstrates the nuance and fluidity of early modern disciplinary relationships, and the relationship between seventeenth-century natural philosophy and theology in particular. I implicitly argue that, as disciplines store and organise knowledge, the placement and contestability of disciplinary boundaries is indicative of the negotiable and contested nature of knowledge.

In the remainder of this introduction I will flesh out the two functions performed by seventeenth-century disciplines. First, I will look at the structural characteristics of early modern disciplines. The intelligibility and legitimacy of knowledge-claims depended on disciplinary location. However, as disciplines were composed of various elements, they overlapped with, and alienated, one another simultaneously. Second, I will place disciplines in their university and social contexts. University and curricular structures reflected social hierarchies, which affected the division of knowledge into disciplines. As such, disciplines engaged questions of intellectual authority and hierarchy. Overall, the protean nature of disciplines meant disciplinary relationships were varied and author-dependent; they were not, in short, reducible to a simple connected/separated distinction.

II. Knowledge and disciplinary boundaries

Early modern disciplines housed collections of doctrine. But these concrete doctrinal commitments were related to, or derived from, more abstract, structural principles. Therefore, fundamentally, disciplines were the arenas in which knowledge and argument (pertaining to a designated topic or area) were structured and legitimised. Conventionally, disciplines married conceptual commitments with a particular methodology. This foundation established loose disciplinary parameters – prescribing source material, subject matter and epistemic status. Violating these boundaries meant moving from one

disciplinary inquiry into another. (Harrison says repeat violations could prompt the creation of a new discipline – e.g. Physico-Theology).[31] In other words, a proposition acceptable in one discipline could be totally incongruous in another. Although disciplinary boundaries were occasionally absolute, they were more often partial or overlapping.

Disciplines were modes of structured argumentation. They were usually governed by either method or subject matter, each informing the other. Take pre-Copernican astronomy, a discipline in close relation to mathematics and natural philosophy. Conventionally, astronomy used geometric principles to track and predict the motion of celestial objects. Astronomers could speculate about the causes of observed motions, or their place within a general physical schema. But their remit, established by the scope of astronomy's mathematical method, debarred them from making definitive statements about the natural order. Such judgements were found in natural philosophy, and could only be reached by logical demonstration.[32] Thus, in his prefatory letter for Nicolaus Copernicus's (1473-1543) *De Revolutionibus* (1543), Andreas Osiander (1498-1552) said astronomers 'cannot in any way attain to the true causes [of celestial motions]', and must simply 'adopt whatever suppositions enable the motions to be computed correctly from the principles of geometry'.[33]

As well as establishing a discourse's starting point or first principles, disciplines set the general direction and end of argumentation. Without these parameters, disciplines would not function as useful discursive categories. For example, theological discussion was made possible by the shared assumption that theology was, in some sense, about the nature of God and religious belief. However, disciplinary parameters were usually flexible and subject to interpretation. Therefore, the content of a discipline was rarely universally agreed upon. So, although theologians all studied God, they disagreed about what could actually be *known* about him. This is apparent when (broadly) comparing medieval Thomists and Ockhamists.[34] The former said it was possible to make rational inferences about God. They argued that man's reason was analogous (though immeasurably inferior) to God's essence, and was therefore capable of (weakly) partaking in God's

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[31] Harrison, 'Physico-Theology'.
[32] See Robert, S. Westman, 'The Astronomer's Role in the Sixteenth Century: a Preliminary Study', *History of Science*, 18 (1980), 105-47, pp. 108-9.
[33] Nicholas Copernicus, *On the Revolutions*, translation and commentary by Edward Rosen, (Baltimore, 1992), p. xx.
[34] Edith Dudley Sylla, 'Autonomous and Handmaiden Science: St. Thomas Aquinas and William of Ockham on the Physics of the Eucharist', in John E. Murdoch and Edith Dudley Sylla (eds.), *The Cultural Context of Medieval Learning*, (Boston, 1975), 349-77, pp. 73-4.

glory. Insofar as God imprinted his (rational) essence on his creation, man was able to analyse the world and learn something of God.[35] The latter, on the other hand, held God to be inscrutable. 'Theological truths', according to William of Ockham (1287-1347), 'will not be knowledge strictly so-called', i.e. they will not be demonstrative, because 'attributes cannot be demonstrated of God'.[36] Finite minds could not know or demonstrate the infinite; the divine was apprehended by faith alone.[37] In both cases, a view about divine knowledge or understanding was articulated through a particular conception of the discipline, theology.

Fundamentally, then, disciplines legitimised argument. They showed, for example, that knowledge derived from appropriate source materials and operated within known cognitive limitations. As such, argument or discussion could only coherently take place within a disciplinary context. As disciplines differed from one another, arguments acceptable or valid in one discipline might be unacceptable or invalid in another. Therefore, how and what one argued for, depended entirely on which discipline one was engaged in. Consequently, the same phenomena could be interpreted – i.e. argued about – from different disciplinary perspectives, resulting in radically different accounts of nature. This is demonstrated by the Jesuit Gabriele Beati's (1607-1673) various responses to Galileo's sunspot observations. Writing natural philosophy in 1650, Beati cited Averroes (1126-1198) to argue that, like lunar spots, the spots on the sun were examples of condensation or rarefaction, and therefore 'do not contradict the [Aristotelian notion of the] incorruptibility of the heavens'.[38] However, twelve years later, in a maths textbook that drew heavily on Galilean astronomy, Beati described the spots as clouds, and evidence of the heavens' corruptibility.[39] Beati had not changed his mind. He was merely respecting the disciplinary sources and parameters associated with each genre of writing: Galileo – an astronomer – was a legitimate reference in a maths textbook. According to Maclean, this tension was caused by early modern thinkers' willingness to 'compartmentalize their minds'.[40] That may be so. But mental compartmentalisation was itself a consequence of a two-fold disciplinary pressure. First, disciplines had particular

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[35] Robert Hoopes, *Right Reason in the English Renaissance*, (Cambridge MA, 1962), pp. 73-85.
[36] John Lee Longeway (ed. and transl.), *Demonstration and Scientific Knowledge in William of Ockham: A Translation of Summa Logicae III-II: De Syllogismo, and Selections from the Prologue to the Ordinatio*, (Notre Dame, 2007), pp. 227, 230.
[37] See Hoopes, *Right Reason*, pp. 85-95; John Morgan, *Godly Learning: Puritan attitudes towards Reason, Learning and Education, 1560-1640*, (Cambridge, 1986), pp. 41-2.
[38] Beati, quoted in Renee Raphael, 'Teaching Sunspots: Disciplinary Identity and Scholarly Practice in the Collegio Romano', *History of Science*, 52 (2014), 130-52, p. 130.
[39] See *Ibid*., pp. 130-1, 140-1.
[40] See Ian Maclean, 'The Science of Nature and the Science of God: Conflict and Collaboration in the Early Modern Period', *Filozofia*, 63 (2008), 352-64, p. 356.

structures – epistemic and organisational features that differentiated one discipline from another. This meant the authorities, arguments, and conclusions useable in maths or astronomy were, for the Jesuits at that time, unusable in natural philosophy. And second, disciplinary communities enforced these distinctions. Jesuits demanded obedience to the Church and Order, and, as I will discuss below, university faculty members regulated disciplinary practices. Different disciplines had different ends, defined and policed by disciplinary communities. Copernicanism only gained acceptance as an accurate description of physical reality from the mid-seventeenth century, and the Jesuits, as a corporate body, did not approve this epistemic view until some time later. Jesuit astronomy served a particular purpose – observing and measuring celestial motions and making mathematical predictions. But by disagreeing with natural philosophy, it sacrificed – in the eyes of the Jesuits – its claim to truth.

Hobbes encountered similar issues when talking about natural philosophy and theology. In *De Corpore* (1655), he claimed philosophy exclusively engaged with 'sensible things', and could not account for, or accept, incorporeal substances.[41] Consequently, although he said nothing could be known of God, Hobbes implied that God was corporeal. However, in an unpublished text, known as *Anti-White*, he remarked that, because it 'cannot be known by natural reason whether any substances are incorporeal…what has been revealed supernaturally by God must be accepted as true'.[42] So, in a theological vein, God could be invoked non-philosophically as incorporeal.[43] Thus, the type of claim one could make about God – e.g. whether he was material or incorporeal – was determined by disciplinary context.

Disciplines were organisational devices that coherently combined doctrine, method, epistemic valuation etc. Grouping these and other attributes or elements, disciplines also made it easier to compare disparate bodies of knowledge. For instance, disciplines drew attention to incommensurate or contradictory argumentation. Conflict was mediated in two ways. Either, one discipline was granted the authority to overrule another. Or, noting the differences in each discipline's foundations and concerns, their inconsistencies were accommodated by concluding that, to some degree, they worked at cross-purposes. The sixteenth-century Italian scholastic, Pietro Pomponazzi (1462-1525), controversially

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[41] Thomas Hobbes, *The English Works of Thomas Hobbes of Malmesbury*, edited by William Molesworth, (11 vols., London, 1839), I, pp. 75, 73.
[42] Thomas Hobbes, *Thomas Hobbes: Thomas White's De Mundo Examined*, translated by Harold Whitmore Jones, (London, 1976), p. 54. For the original Latin, see Thomas Hobbes, *Critique du De Mundo de Thomas White*, edition critique d'un texte inédit par Jean Jacquot et Harold Whitmore Jones, (Paris, 1973), p. 127.
[43] See Cees Leijenhorst, 'Hobbes, Heresy and Corporeal Deity', in John B§rooke and Ian Maclean (eds.), *Heterodoxy in Early Modern Science and Religion*, (Oxford, 2005), 193-222, pp. 207-8.

took this approach in *De Immortalitate Animae* (1516). Before the translation of the Aristotelian corpus into Latin in the thirteenth century, the soul was widely assumed to be an incorporeal, immortal substance, capable of existing independently of body.[44] However, Aristotle complicated the issue by defining the soul as the form of the body. As a compromise or synthesis, Thomas Aquinas (1225-1274) claimed the soul was the form of body – and not an independent substance – but was also self-sufficient, and could exist separately from body.[45] In his lectures and commentaries, Pomponazzi rejected the Thomist and Averroist position that the soul was immaterial.[46] However, regarding the soul, as with much else, he expressed doubts about his own judgement.[47] On the one hand, he said, Aristotle classified the soul as an object of natural philosophy, which, like all changing, physical entities, was perishable.[48] On the other, although 'no natural reasons can be brought forth proving that the soul is immortal', God 'himself has made manifest in word and deed that the soul is immortal'.[49] The tension derived from the different methods and standards of proof associated with natural philosophy and theology. Pomponazzi thus resurrected the Averroeist suggestion that Aristotelianism was unable to corroborate Christian truths. Still, he deferred to the theological view,[50] claiming that, because 'the soul is immortal is an article of faith…it ought to be proved by what is proper to faith…revelation and canonical Scripture'.[51]

As well as exposing incompatibilities, disciplines also highlighted commonalities between bodies of knowledge. In the Thomistic tradition, for example, knowledge was divided into contemplative disciplines, like arithmetic, geometry, physics and metaphysics; and active disciplines, like morality, history and medicine. Many Renaissance humanists distinguished the arts, or practical precepts, from the sciences, or theoretical doctrines. In addition, disciplines could be grouped by object of study, e.g.

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[44] Lorenzo Casini, 'The Renaissance Debate on the Immortality of the Soul. Pietro Pomponazzi and the Plurality of Substantial Form', in Paul J.J.M. Bakker and Johannes M.M.H. Thijssen (eds.), *Mind, Cognition and Representation: The Tradition of Commentaries on Aristotle's De anima*, (Aldershot, 2007), 127-50, p. 128.
[45] *Ibid*., pp. 129-30.
[46] Eckhard Kessler, 'The Intellective Soul', in Charles B. Schmitt, Quentin Skinner, Eckhard Kessler, with Jill Kraye (eds.), *The Cambridge History of Renaissance Philosophy*, (Cambridge, 1988), 485-536, pp. 501-2.
[47] Ian Maclean, 'Heterodoxy in Natural Philosophy and Medicine: Pietro Pomponazzi, Guglielmo Gratarolo, Girolamo Cardano', in John Brooke and Ian Maclean (eds.), *Heterodoxy in Early Modern Science and Religion*, (Oxford, 2005), 1-29, pp. 10-17.
[48] Martin L. Pine, *Pietro Pomponazzi: Radical Philosopher of the Renaissance*, (Padova, 1986), pp. 8-9.
[49] Ernst Cassirer, Paul Oskar Kristeller, and John Herman Randall Jr. (eds.), *The Renaissance Philosophy of Man*, (Chicago, 1948), pp. 377, 378.
[50] Although this is disputed, see Pine, *Pietro Pomponazzi*.
[51] Cassirer, Kristeller, and Randall, *Renaissance Philosophy of Man*, p. 379.

human activities, nature, and the divine.[52] This often created considerable disciplinary overlap. For example, John Locke (1632-1704) described theology as, among other things, 'Knowledge of God' and 'the Honour and Veneration of the Creator'.[53] However, he also included 'God himself, Angels, [and] Spirits' in his list of natural philosophical topics.[54]

This brings us to the issue of disciplinary boundaries.[55] Boundaries took two forms. First, they established a cut-off point, beyond which discussions or arguments no longer belonged to a particular discipline. By straying into foreign topics or using incongruous methods of inquiry or reasoning, arguments violated disciplinary boundaries, and/or became a different discourse. This sort of boundary created strict disciplinary separation, ensuring disciplines were established on different principles, developed by different methods, and engaged in different subjects. Within the scholastic tradition, Duns Scotus (1266-1308) characterised the boundary between natural philosophy and theology in these terms. Opposing Aquinas, Scotus advocated a voluntarist theology that became influential throughout early modern Europe.[56] He said 'the first efficient cause [God] does not cause in virtue of something else, neither does this cause direct its effect to an end by reason of something other than itself, for otherwise it would not be first'.[57] As such, divine actions were not performed in accordance with predefined notions of goodness or reason. God's actions were good by virtue of him doing them. Further, because the 'source of contingent action is…the will', God was not a suitable subject for rational inference or calculation.[58] Natural philosophy, which dealt in reason and logic, therefore had nothing to do with theology.

Perhaps the most extreme seventeenth-century example of this boundary setting is found in Hobbes, writing in the 1640s. In *Anti-White*, he defined philosophy as a linguistic activity constructed by syllogism. Words, he argued, were noises used to denote thoughts, which themselves resulted from the physical impact made on the senses by external objects. Therefore, for Hobbes, philosophy was a propositional description of

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[52] See Richard Serjeantson, 'Proof and Persuasion', in Katharine Park and Daston Lorraine (eds.), *The Cambridge History of Science, Early Modern Science*, (7 vols., Cambridge, 2003), III, 132-75, pp. 136-7.
[53] John Locke, *Of the Conduct of the Understanding*, with introduction by John Yolton, (Bristol, 1993), p. 66.
[54] John Locke, *An Essay Concerning Human Understanding*, edited with an introduction by Peter H. Nidditch, (Oxford, 1975), p. 720.
[55] For a comparison of two different conceptualisations of disciplinary boundaries, see Ann Blair, 'Bodin, Montaigne and the Role of Disciplinary Boundaries', in Donald R. Kelley (ed.), *History and the Disciplines: the Reclassification of Knowledge in Early Modern Europe*, (Rochester, 1997), 29-40.
[56] See Roger Ariew, *Descartes and the Last Scholastics*, (Ithaca, 1999), pp. 39-57; Roger Ariew, 'Scotists, Scotists Everywhere', *Intellectual News*, 8 (2000), 14-21.
[57] Duns Scotus, *Philosophical Writings*, edited and translated by Allan Wolter, (London, 1962), p. 53.
[58] *Ibid*., p. 56.

physical things. This rendering cut it off, entirely, from theology. Theological matters defied philosophical presentation because man was 'quite unable either to perceive them or to imagine them'.[59] God was beyond man's comprehension and thus outside the scope of syllogism. Philosophical matters were equally estranged from theology, for, 'when a demonstration persuades us of the truth of any proposition, that is no longer faith, but is natural knowledge'.[60] The boundary between natural philosophy and theology was therefore absolute, isolating both method and subject matter.

Before Hobbes, Bacon had tried to impose a similarly strict boundary between natural philosophy and theology. He claimed each discipline derived from a different cognitive process (reason and faith), and was developed by different methodologies (induction and deduction). Consequently, philosophical premises – inductive inferences made from sensory information – could not be lifted from scripture or theology. This was the theory. In practice, Bacon was slightly less rigorous. For instance, he engaged in mythopoetics – studying ancient fables for allegorical lessons in philosophy, politics and morality. Here – so, admittedly, when operating in a different disciplinary context – philosophy and theology were drawn far closer together. Fables, he said, were a 'veil' between lost ancient learning and modern traditions.[61] They therefore contained fragments of wisdom, forgotten by posterity. Transgressing his own disciplinary rules, Bacon said one could extract philosophical positions from fables that were untested by induction and possibly lifted from sacred history.

This was only a minor aberration on Bacon's part, but it demonstrates how hard it was to stringently keep the two disciplines apart. Total separation was incredibly rare among pre-modern thinkers. Either intentionally or inadvertently, most allowed some association between the two. As such, the second type of disciplinary boundary was not a clear delimitation, but involved a degree of overlap. The boundary consisted of the area(s) that disciplines had in common – where they addressed the same issue or relied on the same method. The subjects, principles, or practices unique to each discipline existed either side of the coterminous area. For Aquinas, natural philosophy and theology were bordered in this fashion. They were distinguished by their respective characteristics and intentions. The former derived from reason and queried natural substances; the latter was based on faith, for only revelation disclosed God's nature.[62] But, alongside these

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[59] Hobbes, *De Mundo Examined*, p. 310. For the original Latin, see Hobbes, *Critique du De Mundo*, p. 312.
[60] *Ibid*., p. 306.
[61] Francis Bacon, *The Works of Francis Bacon*, edited by James Spedding, Robert Leslie Ellis and Douglas Denon Heath, (14 vols., London, 1857-1874), VI, p. 695.
[62] Jolley, 'The Relation between Philosophy and Theology', p. 364.

differences, there were many areas of overlap. Since its translation into Latin in the thirteenth century, the Aristotelian model of science – syllogistically deriving knowledge from indemonstrable first principles – had been used to systematise (philosophical) knowledge. Scholastics like Aquinas applied this methodology to theology, deducing doctrine from matters of faith, or indemonstrable theological first principles.[63] Though it was not always possible to explicate a Christian mystery by reason alone, reason and mystery were considered compatible.[64] Natural philosophy and theology also enjoyed some conceptual correspondence. The former could be studied in its own right, but its main task was to explicate theological doctrine. According to Aquinas, theological conclusions were derivable from the study of nature. God could be known – his existence manifested – 'through his activity or effects', i.e. the apparent intelligibility of the natural order.[65] In addition, natural philosophy investigated the nature and operations of spirit. This Thomistic set-up, and its disciplinary cross-pollination, continued to find favour in the seventeenth century. For example, the English Catholic, Thomas White (1593-1676), argued that theology was produced by philosophically glossing articles of faith, a contention that brought him into conflict with Hobbes.

Several divines in seventeenth-century Cambridge – Henry More (1614-1687) and Ralph Cudworth (1617-1688) most prominently – envisaged even further disciplinary overlap.[66] Both men drew on ancient and modern philosophical sources, pre-eminently Plato (428/7 or 424/3-348/7) and Plotinus (204/5-270), to engage theological propositions, and defend them against atheistical or religious attack. According to More and Cudworth, Platonism gave the best account of the soul, and provided a metaphysics capable of redeeming crude atomistic matter theories – the 'Spirit of Nature' for More, 'Plastic Nature' for Cudworth.[67] In More's view, philosophy and theology both derived from a Mosaic *prisca theologia*, subsequently divided into different schools and disciplines. Along with true religion, philosophy and theology expressed a single rationality, and

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[63] Charles H. Lohr, 'Metaphysics and Natural Philosophy as Sciences: the Catholic and Protestant Views in the Sixteenth and Seventeenth Centuries', in Constance Blackwell and Sachiko Kusukawa (eds.), *Philosophy in the Sixteenth and Seventeenth Centuries*, (Ashgate, 1999), 280-95, pp. 280-5.
[64] Charles H. Lohr, 'Metaphysics', in Charles B. Schmitt, Quentin Skinner, Eckhard Kessler, with Jill Kraye (eds.), *The Cambridge History of Renaissance Philosophy*, (Cambridge, 1988), 537-638, pp. 560-5.
[65] Thomas Aquinas, *Summa Theologiae, Questions on God*, edited by Brian Leftow and Brian Davies, (Cambridge, 2006), p. 157.
[66] Doubts have been cast on the viability of the term 'Cambridge Platonists' by Dmitri Levitin, *Ancient Wisdom in the Age of the New Science: Histories of Philosophy in England, c. 1640-1700*, (New York, 2015), p. 16.
[67] Sarah Hutton, 'Philosophy, Theology and the Cambridge Platonists: Cudworth's Religious Apologetics', in Simo Knuuttila and Risto Saarinen (eds.), *Theology and Early Modern Philosophy (1550-1750)*, (Helsinki, 2010), 89-101, pp. 90-5.

therefore '*There is no real clashing at all betwixt any* genuine *Point of Christianity and what true Philosophy and right Reason does determine or allow*'.[68]

For More, the points of overlap between natural philosophy and theology were extensive enough to form a distinct disciplinary subcategory – natural theology. In his *Ecclesiastes* (1669), the cleric and Royal Society member, John Wilkins (1614-1672), defined natural theology as divine knowledge derived from 'the Principles of *Reason*, improved by *Consideration* and *Experience*, without the help of *Revelation*'. This distinguished it from revealed or 'Instituted' knowledge, which contained doctrines that were unknowable 'unless they had been particularly revealed'.[69] The former relied on the tools of natural philosophy, and, in some sense, was formed at its intersection with theology. Scholarship is undecided as to whether natural theology was a species of theology, a set of inferences derived from the study of nature, or co-extensive with natural philosophy.[70] For our purposes, however, the mere existence of natural theology is important because it shows the potential for natural philosophy and theology to be tightly, sometimes comprehensively, interwoven.[71]

According to Harrison, Physico-Theology, or the use of philosophical expertise to demonstrate theological propositions, was a late seventeenth-century phenomenon, pioneered by Royal Society virtuosi, and Boyle in particular.[72] Physico-Theology and

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[68] Henry More, *The Apology of Dr. Henry More…Wherein is contained as well a more General Account of the Manner and Scope of his Writings, as a Particular Explication of several Passages in his Grand Mystery of Godliness*, (London, 1664), p. 482.

[69] John Wilkins, *Ecclesiastes; or, The Gift of Preaching*, (London, 1669), p. 121. However, Wilkins's labelling is somewhat confusing. He groups "natural religion" and "instituted religion" under "religion". However, when recommending texts of the former, he lists them under "natural theology", reflecting the commonplace interchangeableness of natural religion and natural theology. *Ibid.*, pp. 122-3.

[70] Scott Mandelbrote, 'The Uses of Natural Theology in Seventeenth-Century England', *Science in Context*, 20 (2007), 451-80, pp. 85, 87, 90-91, brackets natural philosophy, natural theology and Physico-Theology together. Fernando Vidal and Bernhard Kleeberg, 'Introduction: Knowledge, Belief, and the Impulse to Natural Theology', *Science in Context*, 20 (2007), 381-400, p. 381, do likewise. Henry argues that natural theology was an amalgam of seventeenth century natural philosophy and theology. 'Religion and the Scientific Revolution', pp. 411-14. Describing natural theology in general, and its sixteenth-century confessional iterations in particular, Tom Woolford says they incorporated a range of disciplinary concerns – theological, natural philosophical and metaphysical. See T.A. Woolford, 'Natural philosophy and natural theology in the late Renaissance', (unpublished PhD. thesis, University of Cambridge, 2011), pp. 2-13. However, he argues, 'more autonomous formulations of the doctrine' were developed in the seventeenth century. *Ibid.*, p. 12.

[71] *Oxford Handbook of Natural Theology*, which surveys the uses and meanings of natural theology across various stages of history, declines to establish a univocal definition. While natural theology can broadly be classified as a type of divine knowledge that rational creatures derive from nature, historical examples vary considerably, and cut across disciplinary boundaries. See Russell Re Manning, 'Introduction', in Russell Re Manning (ed.), *The Oxford Handbook of Natural Theology*, (Oxford, 2013), 1-5, p. 1.

[72] Harrison construes Physico-Theology as a reaction against apparently secular justifications for natural philosophy advocated in the early seventeenth century by thinkers like Bacon, Galileo and Descartes. See 'Physico-Theology'.

natural theology are basically synonymous.[73] Both provide natural accounts of religious or theological doctrine, and constitute a point of disciplinary intersection, tended to by both philosophical and clerical thinkers. Nevertheless, the range of arguments included under the banner of natural theology was not novel to the late seventeenth century.[74] (Although, it is arguable that they took on new significance in the seventeenth century because, generally speaking, natural philosophy and theology were less entwined than they were in, say, the thirteenth century).

Plato and the Church Fathers made natural theological excursuses: assuming that, because human and divine creations were similar, something about God could be known by analogy.[75] Medieval authors also displayed a keen interest in acquiring knowledge of God through reason and experience. Anselm (1033-1109), for example, conceptualised God as that than which nothing greater can be thought.[76] God must therefore exist in reality, he argued, for if he did not, any entity with existence would be greater than God, undercutting the original definition.[77] As discussed, Aquinas was committed to various *a posteriori* arguments for God's existence. Simple observation, he said, would make one aware, first, of the purposefulness of nature, and second, of the chains of causation that must logically end in an uncaused first cause. Aquinas acknowledged that 'from God's effects we do not come to understand what God's nature is in itself'.[78] But his natural theological arguments were enough to combat Averroism, which stressed the un-Christian elements of Aristotle – the eternality of the world, the mortality of the soul, and the absence of sub-lunar providence – and the alienation of philosophy from theology.[79]

The 'confessional age' subsequently produced competing Catholic and Protestant natural theologies.[80] But, still, the most fertile period for natural theological speculation

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[73] John Brooke and Geoffrey Cantor, *Reconstructing Nature: the Engagement of Science and Religion*', (Edinburgh, 1998), pp. 145-9, do not distinguish between natural theology and Physico-Theology.
[74] See Dmitri Levitin, 'Rethinking English Physico-theology: Samuel Parker's *Tentamina de Deo* (1665)', *Early Science and Medicine*, 19 (2014), 28-75.
[75] Vidal and Kleeberg, 'Knowledge, Belief, and the Impulse to Natural Theology', p. 388. For the different types of Hellenistic theology, and the ways in which some of them were appropriated by pre-Christian Jewish thinkers, see John Collins, 'Natural Theology and Biblical Tradition: the Case of Hellenistic Judaism', *The Catholic Biblical Quarterly*, 60 (1998), 1-15.
[76] It is often assumed that Anselm was straightforwardly rebutting atheistic arguments by demonstrating God's existence. He actually sought to refute a conception of God that was anthropomorphic. See Brooke and Cantor, *Reconstructing Nature*, pp. 143-5.
[77] Alexander W. Hall, 'Natural Theology in the Middle Ages', in Russell Re Manning (ed.), *The Oxford Handbook of Natural Theology*, (Oxford, 2013), 350-7.
[78] Aquinas, *Summa Theologiae*, p. 157.
[79] See Jonathan Topman, 'Natural Theology and the Sciences', in Peter Harrison (ed.), *The Cambridge Companion to Science and Religion*, (Cambridge, 2010), 59-79, p. 61.
[80] See Woolford, 'Natural philosophy and natural theology'.

began in the second half of the seventeenth century (perhaps explaining Harrison's claim about the invention of Physico-Theology), and lasted well into the eighteenth, usually as a means of demonstrating the harmony between Christianity and Newtonian physics. Wilkins wrote extensively on '*Natural Religion*, which men might know, and should be obliged unto, by the meer principles of *Reason*, improved by Consideration and Experience, without the help of *Revelation*'.[81] Boyle argued that rational religion was an antidote to English sectarianism. He also endowed a series of sermons – known as the Boyle lectures – commissioned to demonstrate the truth of Christianity, and highlight its compatibility with the new philosophy.[82] More took a similar view to Boyle, although he co-opted more of the latter's experimental research for theological ends than Boyle – famed for his epistemic cautiousness – was comfortable with.[83]

Natural theology therefore had various uses. As well as demonstrating (but more often, justifying) the existence of God; it served as an ecumenical basis for belief; acted as a vehicle for confessional doctrinarism; and helped deflect suspicion from philosophical doctrine, Aristotelian and mechanistic. These variables aside, natural theology was created when the coterminous elements of natural philosophy and theology were so considerable that they constituted their own disciplinary subdivision. So, although it was not put in these terms by seventeenth-century thinkers, natural theology was an extreme logical consequence of loose, porous disciplinary boundaries.

Alongside these two boundary models, disciplines could relate to one another in a third way: one discipline leading to, or acting as a condition for, another. The archetype for this type of relationship was Aristotelian *metabasis* – the use of methods associated with one discipline on the subject matter of another. In *Posterior Analytics*, Aristotle prohibited *metabasis*, saying it was impossible to 'prove by any other science the theorems of a different one'. However, he argued, an exception was made when the conclusion of one science became a premise in another. These sciences 'are so related to one another that the one is under the other', and were known as subalternating and subalternate sciences.[84] Examples included geometry and optics – the former establishing theoretical principles

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[81] John Wilkins, *Of the Principles and Duties of Natural Religion*, (London, 1675), p. 39.
[82] Natural theology was eventually subject to Humean and Kantian critique. Nonetheless, its high-water mark came in 1802 when William Paley (1743-1805) made his God-as-watchmaker analogy in *Natural Theology*. See John Hedley Brooke, 'Why Did the English Mix their Science and Religion?', in Sergio Rossi (ed.), *Science and Imagination in Eighteenth-Century British Culture*, (Milan, 1987), 57-78, pp. 73-5; Topman, 'Natural Theology and the Sciences', p. 67; Brooke and Cantor, *Reconstructing Nature*, pp. 152-3; Vidal and Kleeberg, 'Knowledge, Belief, and the Impulse to Natural Theology', pp. 390-391, 394.
[83] John Henry, 'Henry More versus Robert Boyle: the Spirit of Nature and the Nature of Providence', in Sarah Hutton (ed.), *Henry More (1614-1687): Tercentenary Studies*, (Dordrecht, 1989), 55-76.
[84] Aristotle, *The Complete Works of Aristotle: the revised Oxford translation*, edited by Jonathan Barnes, (2 vols., Princeton, 1984), I, p. 122.

that were practically applied in the latter. In the fourteenth century, Ockham expanded the range of subalternation, which made *metabasis* a widely acceptable practice.[85] Consequently, mathematical principles began featuring in natural philosophy, ethics and theology.[86] And, in the seventeenth century, mechanistic theories were transplanted into physics, cosmology, and even political theory.[87]

This sort of disciplinary relationship also had a less formal iteration, in which one discipline covered subjects or drew conclusions that freed or encouraged an inquirer to engage with another discipline. This is how More and Cudworth conceived the relationship between natural philosophy and natural theology. The former attempted to explain nature mechanically. However, mechanistic theories were unable to account for all natural phenomena, which implied, or demonstrated, the existence and operation of incorporeal substances.[88] As such, More characterised natural philosophy as '*the first step to the abstrusest mysteries in Natural Theologie*'.[89]

In summary: disciplines were complex organisational categories that structured and legitimised knowledge and argument. Viewed plainly, they were bodies of knowledge. However, they were underpinned, and had their parameters set, by a range of factors – source material, method, type of cognitive apparatus, and epistemic status. These elements were variously combined and prioritised. A discipline's parameters and content were therefore contestable, and disciplines related to one another in fluid, messy, sometimes inconsistent ways. The relationship between natural philosophy and theology was particularly mutable. Hobbes advocated total separation, but this was unusual. By and large, overlap was expected. However, the areas of overlap were various and complex, and determined by the interests of particular thinkers. More regarded natural philosophy and theology as similar, virtually coextensive, while White claimed the former led to, and explicated, the latter. Others, like Bacon, were inconsistent: advertising, then flouting, disciplinary boundaries. To say natural philosophy and theology were simply connected or separate is therefore reductionist. Disciplinary arrangements were variegated, mirroring the complexity and complication inherent in the nature of

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[85] Steven Livesey, 'William Ockham, the Subalternating Sciences, and Aristotle's Theory of Metabasis', *British Journal for the History of Science*, 18 (1985), 127-45.
[86] Amos Funkenstein, *Theology and the Scientific Imagination: from the Middle Ages to the Seventeenth Century*, (Princeton, 1986), p. 6.
[87] *Ibid*., pp. 296-7.
[88] For Cudworth on this issue, see Hutton, 'Philosophy, Theology and the Cambridge Platonists', p. 96.
[89] Henry More, *The Immortality of the Soul, so farre forth as it is demonstrable from the Knowledge of Nature and the Light of Reason*, (London, 1659), 'The Preface', unpaginated.

disciplines. Beyond these structural issues, disciplines were also subject to institutional pressures.

III. Universities and curricula

As well as the relatively abstract function discussed above, disciplines had a concrete place within early modern pedagogy. University faculties and their disciplines were ordered hierarchically – theology at the top, the arts course and natural philosophy as propaedeutic. This allowed knowledge to be divided into teachable and learnable segments, but also articulated various social and professional conventions. Whether teachers and students worked within these curricular conventions, or tried to subvert or remake them – perhaps by teaching subjects not prescribed by the statutes – disciplines reflected, and were subject to, the authority of disciplinary communities and practitioners.[90] Therefore, when groups of scholars contested issues of priority and authority, the content, stature and influence of disciplines were likewise contested.[91]

Medieval universities in northern Europe – like Oxford and Cambridge – followed a common scholastic format.[92] The arts course was divided into two parts – bachelors and masters. The former consisted of the seven liberal arts – the trivium and quadrivium – the latter involved natural philosophy, ethics and metaphysics. Both parts were based on the Aristotelian corpus, and were regarded as groundwork for further graduate study. Doctoral work was offered in the three professional disciplines: theology, the highest discipline, medicine and law.[93]

In the sixteenth century, undergraduate courses took on additional material. Natural philosophy was introduced earlier, facilitated by the invention of the printing press, and

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[90] See Donald R. Kelley (ed.), *History and the Disciplines: the Reclassification of Knowledge in Early Modern Europe*, (Rochester, 1997).

[91] Wilhelm Schmidt-Biggemann, 'New Structures of Knowledge', in Hilde de Ridder-Symoens (ed.), *A History of the University in Europe, volume II: Universities in Early Modern Europe (1500-1800)*, (Cambridge, 1996), 489-530, p. 490.

[92] Richard Tuck, 'The Institutional Setting', in Daniel Garber and Michael Ayers (eds.), *The Cambridge History of Seventeenth Century Philosophy*, (2 vols., Cambridge, 1998), I, 9-32, pp. 15, 20-1.

[93] Richard Serjeantson, 'Becoming a Philosopher in Seventeenth Century Britain', in Peter R. Anstey (ed.), *The Oxford Handbook of British Philosophy in the Seventeenth Century*, (Oxford, 2013), 192-212, pp. 10-17; Heikki Mikkeli, 'The Aristotelian Classification of Knowledge in the Early Sixteenth Century', in Marianne Pade (ed.), *Renaissance Readings of the Corpus Aristotelicum*, (Copenhagen, 2001), 103-27. Italian and southern European universities tended to be slightly more flexible, mixing up the content and structure of the philosophy course. Theology, moreover, had a less esteemed position, as universities were primarily institutes of medicine and law. See Tuck, 'The Institutional Setting', pp. 15-16.

demanded by the increased need for educated clergy and state administrators.[94] By the seventeenth, undergraduate curricula at Oxford and Cambridge – said to be in 'essential harmony' – had been expanded to include a range of arts and sciences, some drawn from the graduate curriculum.[95] At the same time, English grammar schools provided sufficient grounding in the Roman poets and orators, and Oxford ceased instruction in grammar.[96] According to the Bishop of Lincoln, Robert Sanderson (1587-1663), the arts were instrumental disciplines, like rhetoric or logic; while the sciences were either contemplative, like mathematics, physics and metaphysics, or active, like ethics, economics and politics.[97] Notwithstanding curricular modifications in the sixteenth and seventeenth centuries, theology remained the pinnacle of learning, though not a major plank of undergraduate study. Thus, the *Directions for a Student in the Universitie*, attributed to Richard Holdsworth (1590-1649), master of Emmanuel College, Cambridge, 1637-1643, recommended rhetoric, logic, philosophy – moral, natural and metaphysical – mathematics, history, poetry, and some theology.[98] This breadth was a concession to humanistic notions of "encyclopaedic" learning.[99] But it was also designed to allow students from noble backgrounds – many of whom did not finish their degrees – to cover as many subjects as possible.[100] Consequently, students were exposed to competing intellectual viewpoints. In seventeenth-century Cambridge, for example, natural philosophy was taught using scholastic textbooks by Johannes Magirus (1560-1596), Johann Alsted (1588-1638), and Bartholomew Keckermann (1572-1608), but also works by new philosophers like William Gilbert (1544-1603), Johannes Kepler (1571-1630), Pierre Gassendi (1592-1655), Descartes, and Boyle.[101]

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94 Blair, 'Natural Philosophy', pp. 367-8; Tuck, 'The Institutional Setting', pp. 20-1

95 Mordechai Feingold, 'The Humanities', in Nicholas Tyacke (ed.), *The History of the University of Oxford. Vol. IV, Seventeenth-Century Oxford*, (Oxford, 1997), 211-357, p. 212.

96 Richard Serjeantson, 'Introduction', in Meric Casaubon, *Generall Learning: a seventeenth-century treatise on the formation of the general scholar*, edited by Richard Serjeantson, (Cambridge: 1999), 1-65, pp. 14-15; Feingold, 'The Humanities', pp. 243-4. In Europe, though not in England, universities were challenged by the emergence of higher or illustrious schools. These schools taught the liberal arts, although universities reserved the right to confer degrees. See Willem Frijhoff, 'What is an early modern university? The conflict between Leiden and Amsterdam in 1631', in Helga Robinson-Hammerstein (ed.), *European Universities in the Age of the Reformation and Counter-Reformation*, (Dublin, 1998), 149-68, pp. 149-150, 160, 167.

97 Feingold, 'The Humanities', p. 214. Of course, different people grouped disciplines in different ways. For example, the Dutch scholar and theologian Gerardus Vossius (1577-1649) divided knowledge into 'common' and 'erudite' disciplines – the former including drawing and gymnastics; the latter, rhetoric, poetics, geometry and philosophy. See Serjeantson, 'Introduction', pp. 15-16.

98 See *Ibid*., p. 15.

99 Serjeantson, 'Proof and Persuasion', p. 134.

100 Feingold, 'The Humanities', pp. 215-17.

101 John Gascoigne, 'The Universities and the Scientific Revolution: the case of Newton and Restoration Cambridge', *History of Science* 23 (1985), 391-434, p. 411.

In religious or theological terms, universities also catered for a range of perspectives. According to Nicholas Tyacke, academic communities generally reflected shifts in national politics and religion.[102] As such, he argues, before the English Civil War, university appointees – to both teaching and governmental positions – tended to be Arminian: for example, William Laud (1573-1645), the Archbishop of Canterbury, became chancellor of Oxford in 1630.[103] Puritans later flooded the universities as a result of the liberal religious settlement of the Interregnum.[104] But they were eventually replaced with high churchmen following the Restoration, the Act of Uniformity (1662), and the Conventicle Acts (1664 and 1670).[105] While not untrue, this history is somewhat broad brush. In fact, there were clear political and religious differences between colleges.[106] Moreover, although university *appointees* reflected changing political and religious currents, at Cambridge there was still a high degree of religious plurality before the Civil War and during the Interregnum.[107]

Disciplinary hierarchies were established in two ways. In some cases, disciplines were ranked according to their instrumentality to other disciplines. This affected the order in which they appeared on curricula. For example, logic was taught to undergraduates as part of the trivium and then applied in other areas of study.[108] Similarly, natural philosophy prepared students for more advanced, graduate disciplines. For Aristotle, physics was the theoretical science of body, or changing entities with separate existence.[109] This definition was fleshed out in early modern teaching manuals. For example, Johann Stier (1599-1648) published a popular seventeenth-century textbook in 1628 – used in Cambridge thereafter – which claimed physics ascertained principles and characteristics common to all bodies. However, he further argued, its specific inquiries

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[102] Nicholas Tyacke, 'Introduction', in Nicholas Tyacke (ed.), *The History of the University of Oxford. Vol. IV, Seventeenth-Century Oxford*, (Oxford, 1997), 1-24, p. 8.
[103] Nicholas Tyacke, 'Science and Religion at Oxford before the Civil War', in *Aspects of English Protestantism, c. 1530-1700*, (Manchester, 2001), 244-61, p. 244.
[104] For the outbreak of sectarianism, including Puritanism, see Diarmaid MacCulloch, *Reformation: Europe's House Divided, 1490-1700*, (London, 2004), pp. 526-528; John Coffey and Paul C.H. Lim, 'Introduction', in John Coffey (ed.), *The Cambridge Companion to Puritanism*, (Cambridge, 2008), 1-16, p. 5.
[105] For the penalisation of dissenting and non-establishment sects, see John Spurr, 'Late Stuart Puritanism', in John Coffey (ed.), *The Cambridge Companion to Puritanism*, (Cambridge, 2008), 89-106, p. 90.
[106] For example, in pre-civil war and Interregnum Cambridge, Emmanuel College was considered Puritan, while Peterhouse had high church sympathies. See John Gascoigne, 'Isaac Barrow's Academic Milieu: Interregnum and Restoration Cambridge', in Mordechai Feingold (ed.), *Before Newton. The Life and Times of Isaac Barrow*, (Cambridge, 1990), 250-90, pp. 251, 273.
[107] See *Ibid.*
[108] Serjeantson, 'Becoming a Philosopher', pp. 23-4.
[109] The other theoretical sciences were mathematics and metaphysics. The former dealt with unchanging entities, existing only as qualifications of substance; the latter with pure form, unchanging and separately existing. See Fletcher, *Intellectual Development*, pp. 167-8.

ranged from the heavens to the elements, imperfect and perfect mixed bodies, the human body and soul.[110]

As this list suggests, natural philosophy furnished medicine with principles usable for improving health.[111] This disciplinary connection was particularly evident in the mid- to late-seventeenth century, when, as the Civil War damaged the reputations of law and theology, medicine became a popular graduate option in England.[112] As Boyle remarked, anatomists must 'be skill'd in some other things over and above that of dextrously Dissecting'. Namely, they must be proficient in natural philosophy. To understand parts of the body, one needs 'competent knowledge of the Nature of those Juices that are to pass thorow them…And the Nature of these Juices will scarce be exactly known, without some skill in divers parts of Physiology, and especially in Chymistry'. In addition, 'the Origination, Shape, Bulk, Length, progress, and Insertion of each particular Muscle, can hardly be well accounted for, without some skill in the Principles of Mechanicks'.[113] As such, the Regius Professor of Physic in Cambridge, Francis Glisson (1599?-1677), championed natural philosophy as a means of defending William Harvey's (1578-1657) anatomical discoveries.[114]

Homing back in on the subject of this thesis, natural philosophy was also integral to the discipline of theology. University curricula were based on the assumption that theological analysis drew upon techniques and concepts taught to students in natural philosophy. In his *Directions for the Choice of Books in the Study of Divinity* (1699), Barlow said revelatory theology 'is to be understood by considering the Text it self', along with commentators like Martin Luther (1483-1546), Philip Melanchthon (1497-1560), John Calvin (1509-1564) for the Old Testament; and Theodore Beza (1519-1605), Juan Maldonatus (1533-1583), Henry Hammond (1605-1660) for the New.[115] But Barlow also urged theologians to 'be acquainted with *School-Divinity*…[namely] *Lombard*, and *Aquinas*', for which natural philosophy and the arts were methodological and conceptual primers.[116] School concepts helped illuminate Christian doctrine. For example, ideas of essence and person explained how the Trinitarian God existed in three persons, but one being; and concepts like substance and accident demonstrated that the bread in the

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[110] *Ibid*., pp. 168, 184.
[111] Mikkeli, 'The Aristotelian Classification of Knowledge', pp. 114-16.
[112] John Gascoigne, 'A Reappraisal of the Role of the Universities in the Scientific Revolution', in David C. Lindberg and Robert S. Westman (eds.), *Reappraisals of the Scientific Revolution*, (Cambridge, 1990), 207-60, pp. 241-3.
[113] Boyle, *Works*, III, p. 267.
[114] Gascoigne, 'The Universities and the Scientific Revolution', p. 397.
[115] Barlow, *Directions for the Choice of Books*, pp. 3, 10-14.
[116] *Ibid*., p. 35.

Eucharist could be transubstantiated but remain visibly unchanged.[117] In addition, scholastics took the logic found in philosophical exposition, and re-used it to deduce doctrine from articles of faith, thus turning theology into a demonstrative science.[118] This had widespread academic approval – for example, Keckermann, a philosopher of the schools who used philosophical reasoning in theology, was recommended to Christ's College students by Mede.[119]

Nevertheless, the sixteenth century heralded a challenge to these curricular and disciplinary conventions, as Luther and Calvin sought to divorce theology from philosophy, and from Aristotle in particular. According to Richard Popkin, their campaign against reason was so fierce that western views of knowledge have never fully recovered.[120] However, the Reformers' attacks on reason were nuanced, and not an outright repudiation.[121] Reason and philosophy remained instrumental to Reformist theology and pedagogy, and Protestant polemicists relied on technical Aristotelian terminology in disputes about justification, grace and the nature of Christ.[122] These practices were reflected, and catered for, in Reformist curricula. For example, at the University of Wittenberg, although Melanchthon initially echoed Luther's attack on Aristotle, he later advocated a natural philosophy that drew on Aristotle, Galen (c.130-c.210) and others, and which was expressly designed to support Lutheran theology.[123]

The second factor effecting disciplinary hierarchies was the social status of particular chairs and professions. Within universities and outside them, some disciplines were more esteemed than others, and, as such, some disciplinary communities had more authority, and demanded greater deference, than others. Consequently, the scope and status of natural philosophy was not solely determined by its intellectual function as a primer for other disciplines, like theology. Natural philosophy was also socially inferior, and offered fewer professional outlets. Theologians, therefore, had more esteem and more authority. And natural philosophy was shaped and hemmed in by theological concerns.

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117 Lohr, 'Metaphysics', p. 587.
118 *Ibid*., p. 586-7.
119 Fletcher, *Intellectual Development*, pp. 197-200.
120 See Richard Popkin, *The History of Scepticism: from Savonarola to Bayle*, (Oxford, 2003), pp. 3-14.
121 Morgan, *Godly Learning*, pp. 43-4.
122 Cees Leijenhorst and Christoph Lüthy, 'The Erosion of Aristotelianism. Confessional Physics in Early Modern Germany and the Dutch Republic', in Cees Leijenhorst, Christoph Lüthy, and Johannes M.M.H. Thijssen (eds.), *The Dynamics of Aristotelian Natural Philosophy from Antiquity to the Seventeenth Century*, (Leiden, 2002), 375-411; Lohr, 'Metaphysics', p. 620.
123 Sachiko Kusukawa, *The Transformation of Knowledge: the case of Philip Melanchthon*, (Cambridge, 1995), pp. 36-58.

Universities fostered a degree of social mobility – Isaac Newton (1642-1727) was non-gentry, for example.[124] But they were largely hierarchic – attended by gentlemen, and viewed as a training ground for clerics.[125] In Cambridge, the wealthy were entitled to the best places in lecture halls, and lecturers sat in raised seats, which intentionally recalled episcopal chairs.[126] More relevant to this thesis: teaching personnel were also highly stratified, according to qualification *and* disciplinary affiliation. A doctor was obviously superior to a bachelor, but a student or chair in theology or law was superior to the same in logic or natural philosophy.[127] This social food chain had a public dimension, exemplified in seventeenth-century Cambridge degree parades. Bachelors of the arts opened the ceremony, followed by bachelors of medicine and law. Then arrived masters in the same subjects, followed by the most senior members, theologians. As well as their place in the parade, a scholar's style of dress identified their disciplinary speciality, degree level, and social status.[128]

Disciplines offered varying degrees of vocational credibility. As Locke discovered to his inconvenience, taking holy orders was the simplest way to guarantee university employment.[129] Theological chairs were not only numerous, they were also prestigious and lucrative.[130] Natural philosophy, on the other hand, offered few professional opportunities. Universities hired graduates to teach philosophy, usually while they studied for higher qualifications. For example, Barlow lectured in logic and philosophy while studying for his Bachelor of Divinity.[131] The mathematical sciences gained a foothold in Oxford via the 1619 Savilian lectureships in geometry and astronomy, and a chair in natural philosophy followed seven years later.[132] But teachers in disciplines like medicine continued to play a prominent role in philosophical instruction. Natural philosophers were therefore a smaller and less prestigious cohort than theologians, less able to shape curricula or set research agendas.

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124 Feingold, 'The Humanities', pp. 216-17; Richard Kirwan, 'Introduction: Scholarly Self-Fashioning and the Cultural History of Universities', in Richard Kirwan (ed.), *Scholarly Self-Fashioning and Community in the early modern University*, (Farnham, 2013), 1-20, p. 2.
125 Mordechai Feingold, *The Mathematicians' Apprenticeship: Science, Universities and Society in England, 1560-1640*, (Cambridge, 1984), pp. 29-31; Barbara J. Shapiro, 'The Universities and Science in Seventeenth Century England', *The Journal of British Studies*, 10 (1971), 47-82, p. 72.
126 William Clark, *Academic Charisma and the Origins of the Research University*, (Chicago, 2006), pp. 86-7, 70-1.
127 Peter A. Vandermeersch, 'Teachers', in Hilde de Ridder-Symoens (ed.), *A History of the University in Europe, volume II: Universities in Early Modern Europe (1500-1800)*, (Cambridge, 1996), 210-55, p. 240.
128 Clark, *Academic Charisma*, pp. 34-6.
129 Mordechai Feingold, 'Science as a calling? The early modern dilemma', *Science in Context*, 15 (2002), 79-119, p. 95.
130 Serjeantson, 'Becoming a Philosopher', p. 12.
131 *Ibid*., pp. 13-14.
132 Feingold, *The Mathematicians' Apprenticeship*, pp. 31-3.

Furthermore, the professional subjects – medicine, law and theology – led to esteemed careers beyond the universities. Not so, in natural philosophy. Boyle made a career as an experimentalist, but he was a wealthy peer who could forgo remuneration. Bacon, Locke and Newton all at some point accepted governmental jobs or honours, and studied around these commitments.[133] For many, the best means to philosophical inquiry was secretarial or tutorial work for aristocratic families. For instance, Hobbes's role as amanuensis and tutor to the Cavendish family allowed him to write on logic, natural philosophy and politics.[134] In sum, the interests, claims and priorities of natural philosophy had fewer and less authoritative promoters than theology.

As university communities and curricula were structured in a way that consolidated the authority and dominance of theology, it is not surprising that the champions of a more independent, assertive natural philosophy often worked extramurally. Disciplinary relationships were shaped by a multitude of factors, as this thesis will demonstrate. Nevertheless, Bacon and Locke, who for the most part had non-academic careers, granted natural philosophy more freedom from theology than White and More, who took holy orders and taught in universities. However, greater freedom should not be confused with superior status. All four thinkers respected theology's position at the pinnacle of learning.

IV. Summary of the chapters

The pedagogical function of disciplines has been widely discussed by the burgeoning scholarship on the layout, priorities and practices of early modern European universities.[135] However, the structural components of seventeenth-century disciplines have been understudied or misunderstood. I address this lacuna here, providing four case studies demonstrating the varied and nuanced ways that natural philosophy and theology were constructed in seventeenth-century England. As we will see, the diversity within each discipline led, necessarily, to complex and multifaceted accounts of their disciplinary relationship.

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[133] Serjeantson, 'Becoming a Philosopher', pp. 20-1.
[134] See Noel Malcolm, 'General Introduction', in Thomas Hobbes, *Leviathan*, edited by Noel Malcolm, (3 vols., Oxford, 2012), I, 1-195, pp. 1-12.
[135] See John Gascoigne, *Science, Politics and Universities in Europe, 1600-1800*, (Aldershot, 1998).

This thesis shows that ideas about disciplines were critical for defining and legitimising early modern knowledge and belief. Knowledge-claims occurred in disciplinary contexts, and were informed, sometimes determined, by the particularities of that discipline. Therefore, I argue, the contestability of knowledge was reflected in the contestability of disciplines. This establishes a methodological imperative. Any study of knowledge – be it a specific debate, or the development of an idea or theory – must be mindful of disciplines and disciplinary relationships. An awareness of disciplines can therefore enhance our understanding of thinkers, their ideas, and their arguments.

Francis Bacon, Thomas White, Henry More, and John Locke are the focus of the four chapters respectively, with Glanvill, Hobbes, other Cambridge divines, and a variety of medieval scholastic authors providing context, comparison and reinforcement. Though selective, the combined life spans of these case studies cover the entire century. They also offer a cross-section of seventeenth-century thought and belief: embodying different professional and institutional interests, and representing an array of philosophical, theological and religious views. This carries some historiographical interest. Bacon and Locke are canonical figures; White and More are more marginal. Each conceived of, and described, knowledge in terms of disciplines and disciplinary boundaries. But their understandings of disciplines were informed by different ideological commitments and polemical concerns. Thus, together, they hint at the contingent and tendentious nature of knowledge, belief, certainty and truth.

Although each chapter can be read independently of the others, there are several lines of influence, or connection, running between the subjects of each. Bacon used Hobbes as an amanuensis in the 1620s.[136] Hobbes later wrote a critique of White's natural philosophy, and was in turn upbraided by More and Cudworth for his materialism.[137] Glanvill made a sceptical attack on White's demonstrative logic, and collaborated with More on natural histories of witchcraft.[138] Finally, Locke met More's colleague, Benjamin Whichcote (1609-1683), and was interested in the rational and tolerationist views of religion emanating from Cambridge. Crucially, each case study, in different ways, and to different effect, put the relationship between natural philosophy and theology at the heart of their intellectual endeavours. Collectively, they demonstrate the diversity within

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136 Robin Bunce, 'Thomas Hobbes' relationship with Francis Bacon – an introduction', *Hobbes Studies* 16 (2003), 41-83.

137 See Jon Parkin, *Taming the Leviathan: the reception of the Political and Religious Ideas of Thomas Hobbes in England, 1640-1700*, (Cambridge, 2007); Samuel Isaiah Mintz, *The Hunting of Leviathan. Seventeenth-Century reactions to the Materialism and Moral Philosophy of Thomas Hobbes*, (Cambridge, 1962).

138 Allison Coudert, 'Henry More and witchcraft', in Sarah Hutton (ed.), *Henry More (1614-1687) Tercentenary Studies*, (Dordrecht, 1989), 115-36.

both disciplines, and the negotiable and contested nature of their disciplinary relationship.

Chapter one focuses on Bacon. Alongside his fitful and ultimately disappointing political career, Bacon wrote extensively on the state of learning and inductive method. These writings are replete with religious and theological references and imagery. For Bacon, natural philosophy and theology had different source materials, and demanded different operations from the human understanding. Philosophy was the outcome of a specific type of rational judgement. The mind collated and ordered sensory impressions, creating natural histories that served as the basis for inferential reasoning. This method enabled man to sidestep the mental distempers responsible for 'Idols…the deepest fallacies of the human mind'.[139] Provided natural histories were exhaustive and sophisticated, and man's reasoning slow and methodical, the understanding eventually acquired knowledge of the forms of nature. Theology, on the other hand, was based on faith in revelation. Further doctrine was deducible from articles of faith, but this practice proceeded by syllogism, not induction. The disciplinary relationship was so strict that Bacon said mixing the two would result in 'Hereticall Religion; and an Imaginarie and fabulous Philosophie'.[140]

Bacon only violated his injunction against using theology as the basis for philosophical judgements in the vague disciplinary context of mythopoetics. However, reason – the cognitive faculty associated with philosophy – played a small role in theology, elaborating natural theology, and clearing up tricky definitional issues. Further, Bacon's entire worldview – philosophy included – was shaped by *religious* themes to do with providence, charity and millenarianism.

The second chapter looks at White. White was educated in Europe, and his teaching career also took place overseas. Back in England, he became the head of a group of Catholic recusants, called the Blackloists. Though an Aristotelian, White was eclectic – marrying school metaphysics with new corpuscular matter theory, and infusing Aristotelian logic with a concern for definitions (borrowed from geometric methodology). Despite these idiosyncrasies, White cleaved to Thomistic disciplinary conventions, in which natural philosophy was a necessary, though not sufficient, condition for theology.

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[139] Bacon, *Works*, IV, p. 431.
[140] Francis Bacon, *The Oxford Francis Bacon, IV: The Advancement of Learning*, edited with an introduction, notes and commentary by Michael Kiernan, (Oxford, 2000), p. 79.

Philosophy, he asserted, was formally demonstrable. Knowledge was produced when propositions were combined into syllogisms, and deductions made from the meaning of definitions. Theology was established by applying the same logical rules – in this case, making deductions from articles of faith. Natural philosophy and theology derived from different sources – reason and revelation. But their shared method meant they enjoyed some conceptual overlap. For example, White said the Eucharist was explained and accounted for by corpuscularian matter theory. Theology, in sum, was reliant and contingent upon philosophy. For 'Philosophy [both] defines the words Divinity uses', and 'propagate[s] science out of it'.[141]

Like Bacon, White distinguished faith from theology. He argued that before articles of faith were subject to philosophical exposition, or had doctrine deduced from them, they must be certified as true. As a prominent Catholic polemicist, White challenged the idea that the Bible's divinity straightforwardly established its truth and meaning. Articles of faith were true, he argued, because they derived from the Catholic oral tradition, which accurately conveyed apostolic teachings between generations of believers. This rule of faith rested on a historical argument. It was not philosophy, and did not hinge on a linguistic demonstration.

More, the subject of chapter three, articulated perhaps the greatest overlap between philosophy and theology. With other Cambridge divines, he was steeped in Platonism, particularly neo-Platonists, like Plotinus. Throughout his career, he was governed by two Platonic theological principles: a necessitarian view of providence, and an Origenist account of the soul. These presuppositions shaped More's conceptions of natural philosophy and theology. Pointing to God's goodness and rationality, he argued that both disciplines were rational and knowable. However, owing to the terrestrial condition of man's soul, reason had a tendency to err. At the same time, the soul's capacity for purification meant More also anticipated improvements in knowledge.

Although More regarded his philosophy and theology as rational, he did not claim they were certainly true. In fact, he argued that faith, which was proven by the historic fulfilment of biblical promises, was more certain than theology. As such, it was philosophy's job to protect theology, which it did in two ways. First, philosophy demonstrated the conceptual necessity of incorporeality. For More, the mechanical philosophy was only tenable once balanced with an incorporeal, Platonist metaphysics.

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[141] Thomas White, *Reason and Religion Mutually corresponding and assisting each other. First Essay: A Reply to the vindicative Answer lately publisht against a Letter, in which the sence of a Bull and Council concerning the duration of Purgatory was discust*, (Paris, 1660), pp. 25, 10.

In his natural philosophical-metaphysical schema, mechanical body was governed and regulated by an incorporeal divine agent – the Spirit of Nature. And second, philosophy defended theological doctrine from hostile forces – denominational and atheistic. Philosophy, in other words, erected '*an* Exoterick *Fence or exteriour Fortification about Theologie*'.[142] More attributed the compatibility of natural philosophy and theology to their shared origin in the Mosaic cabbalist tradition.

The final chapter is on Locke. Though he studied and taught at Oxford, Locke mainly worked outside the university. His view of natural philosophy (as well as many other disciplines) was shaped by his extensive investigations into the limitations of the human understanding. Sense and reason could not fully comprehend substances. Therefore, Locke was a tentative corpuscularian, who championed experimentalism and accepted Newton's non-mechanical theory of gravitation. His theology is harder to pin down, largely due to his reticence in print. For example, he appeared to reject Trinitarianism, but it is unclear whether or not he was a Socinian.

Locke's view of the disciplinary relationship between natural philosophy and theology changed over time. However, he consistently held that the latter had a higher epistemic status than the former. Natural philosophy was probabilistic because knowledge of substance was uncertain and derived from experiment and natural history. On the other hand, knowledge of God and morality was demonstrative and certain. In *An Essay concerning Human Understanding* (1689), the two disciplines had conceptual and methodological overlaps because studying nature elicited theistic conclusions about God's existence and intelligence. However, in the *Reasonableness of Christianity* (1695) and other works, Locke changed his mind, becoming doubtful that reason could demonstrate God or construct natural theology. Theology, then, became a scriptural discipline, based entirely on faith in the proposition that Jesus was the Christ. It was therefore detached from natural philosophical practice. Still, as the more probable or epistemologically secure discipline, theology retained its governing position vis-à-vis natural philosophy.

This thesis demonstrates that the disciplinary relationship between natural philosophy and theology formed a central part of how seventeenth-century thinkers understood the world, and their place within it. Broadly speaking, the case studies show some continuity or consistency. Whether or not the century witnessed the beginning of modern scientific thought and practice, it was certainly a fruitful and dynamic period in the history of

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[142] Henry More, *A Collection of Several Philosophical Writings of Dr Henry More*, (London, 1662), 'The Preface General', p. vi.

man's engagement with nature.[143] Yet, in the main, curricular priorities stayed the same. Theology engaged the loftiest ideas and principles, and retained its position as the most prestigious university discipline. Therefore, theologians – the community that marshalled and governed theology – continued to play an authoritative role in intellectual life. Natural philosophy was rich and varied, housing a diverse set of methods, concepts and propositions. But it was a subordinate discipline: either working for theology – explicating and devising doctrine – or being corrected or guided by it. White and More – both avowedly attached to old philosophical traditions – adhered to these conventions. But, in large part, so did Locke, who, in other respects, desired to break from the past. Bacon and Hobbes – who both reduced the role of theology in other disciplines – are the outliers in this thesis. However, in common with many others, Bacon posited natural philosophy as the basis for natural theological arguments for God's existence. Natural theology – very prominent in the seventeenth century – was the name given to the considerable areas of disciplinary overlap between natural philosophy and theology. This is historically significant. Seventeenth-century disciplinary cross-pollination – for example, using natural philosophical methods, concepts and observations to corroborate theological truths, or setting the boundaries of what is knowable about nature according to theological doctrine – prefigures the sort of disciplinary collaboration known today as "interdisciplinarity".[144]

However, despite their broad agreement about disciplinary hierarchy, thinkers disagreed about the exact remit of each discipline, and the influence one discipline had on the other. Both disciplines were variegated, and structured differently by different people. This complexity meant their disciplinary relationship was variable and rarely straightforward. Different conceptions of either discipline, or their relationship, implied or manifested competing notions of nature or the divine, as well as different criteria for knowledge and belief. In other words, each formulation reflected particular judgements about the nature of the world and man's cognitive potential. This engendered different, sometimes mutually incompatible, claims about reality, stated with varying levels of epistemic assurance. There were, in short, various ontological and epistemic issues at stake. Consequently, in many instances, the disciplinary boundary between natural philosophy and theology was the keystone of broader systems of thought, and the basis for subsequent reasoning. As those boundaries differed or changed, so the world and conceptions of knowledge differed or changed also.

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[143] Lüthy, 'What to do with Seventeenth-Century Natural Philosophy?'.
[144] See Messer-Davidow, Shumway, and Sylvan (eds.), *Knowledges: Historical and Critical Studies in Disciplinarity.*

Assessing what reality consisted of, and what we could know about it, also had some normative import: indicating how man should behave, and what he should engage in. In a basic sense, mediating natural philosophical and theological ideas and arguments established the margins between orthodoxy and heresy. The former was located within disciplinary boundaries – knowledge or belief produced by a sanctioned method, applied to a sanctioned subject matter or source material. (Needless to say, the rightness or wrongness of those sanctions was a matter of violent dispute). The latter was usually defined as a breach of those disciplinary protocols. Therefore, disciplines did not merely shape, or mirror, man's understanding of the world, they also affected his view of truth, rightness, and rectitude.

Finally, this thesis draws attention to the role of disciplines in three important features of seventeenth-century intellectual life. First, chapters two and three attest to the diversity and continuity, throughout the century, not only of Aristotelianism (particularly in the case of White), but also Platonism (in the case of More), and the manner in which both adapted to the novelties of the age.[145] Second, chapters one and four demonstrate that, although the century produced novel elaborations of experimentalism, corpuscularianism etc., *novatores* like Bacon and Locke still owed many debts to their philosophical predecessors, scholastic and humanistic.[146] Each of these ideological negotiations was conveyed through the structure and priority of disciplines. In particular, they were expressed through the relationship between natural philosophy and theology. And third, all four chapters highlight the differences between seventeenth-century theology, which strove to establish the nature of God's will, and religion, which aimed to follow it. As Wilkins famously put it:

> '*Religion* may be described to be, That general habit of reverence towards the Divine Nature, whereby we are enabled and enclined to worship and serve God after such a manner as we conceive most agreeable to his will, so as to procure his favour and blessing.
> The *Doctrine* which delivers the Rules of this, is stiled **Theology**, or Divinity'.[147]

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[145] This argument has been made in various ways by Charles B. Schmitt, *Aristotle and the Renaissance*, (Cambridge MA, 1983); Edward Grant, 'Ways to interpret the terms 'Aristotelian' and 'Aristotelianism' in Medieval and Renaissance Natural Philosophy', *History of Science* 25, (1987), 335-58; Robert Pasnau, *Metaphysical Themes 1274-1671*, (Oxford, 2011).

[146] By and large, the historiography has focused on how new philosophers like Descartes and Hobbes drew upon their scholastic forbears. See Dennis Des Chene, *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*, (Ithaca, 1996); Cees Leijenhorst, *The Mechanisation of Aristotelianism: the late Aristotelian setting of Thomas Hobbes' Natural Philosophy*, (Leiden, 2002); Michael Edwards, 'Aristotelianism, Descartes, and Hobbes', *Historical Journal*, 50 (2007), 449–64.

[147] Wilkins, *Ecclesiastes*, p. 121.

This distinction is crucial for the subject of this thesis. However, it is usually overlooked or unexplored in the scholarship.[148] Philosophers were almost always anxious to convey the piety of their work, and religion weighed generally on thought as a whole. Theology, on the other hand, had a particular disciplinary relationship with philosophy.

[148] Osler is one of the few scholars to point it out. 'Mixing Metaphors', p. 92.

Francis Bacon

In order to renovate natural philosophy, Francis Bacon placed it on particular epistemic and cognitive foundations. These foundations set it apart from theology. Knowledge, he argued, derived from sense or revelation, was established by reason or faith, and created philosophy and theology respectively. The manner by which each discipline acquired and comprehended information prescribed discrete subject matters: body and divine mysteries. In addition, Bacon claimed, both were governed by specific methods, each suited to the type of knowledge produced in that discipline. If either discipline encroached on the subject matter of the other, violating the disciplinary boundaries established by their different epistemic limitations, the result was speciousness and falsity.

This is remarkably neat. In practice, things were slightly more complex. For example, although Bacon wanted natural philosophy to operate independently of theology, he knew that, to some degree, theology relied on natural philosophy to establish natural theology. Moreover, when discussing the philosophical import of ancient fables, Bacon broke his rule that prohibited the development of natural philosophy from theological sources or principles. This chapter will explore these positions and tensions. I argue that, for the most part, Bacon kept natural philosophy and theology separate, largely to ensure the former was protected from the latter. However, to reconstruct clearly and accurately Bacon's precise, but occasionally inconsistent, disciplinary arrangement, a ground-clearing exercise is required.

I. Religious themes

Bacon historiography is vast. It is therefore surprising so few scholars have written about the relationship between his natural philosophy and theology.[1] Bacon's religious beliefs,

[1] Many scholars speak of Bacon's "science" rather than his "natural philosophy". See Paolo Rossi, *Francis Bacon: From Magic to Science*, (London, 1968); Moody E. Prior, 'Bacon's man of science', in Vickers, Brian

and their affect on his wider thought – and, specifically, on his philosophy – have attracted greater study.[2] However, in some instances, the religious references in Bacon's work are mistaken for theology.[3] So, to understand properly the disciplinary relationship between natural philosophy and theology, we must take care to distinguish the latter from Bacon's religion.

Casting him as an agent of modernity, some scholars deny Bacon a religious identity. Jerry Weinberger, for example, describes Bacon as 'a central founder of the modern project', by which he meant a prophet, partisan and critic of technological advancement. According to Weinberger, the manifest rationality of the project was suggestive of Bacon's unbelief.[4] Similarly, Robert Faulkner downplays Bacon's religiosity in order to play up his social and political agendas.[5] In a slightly more circumspect manner, Perez Zagorin describes Bacon's mind as 'overwhelmingly secular in its interests'.[6] This strand of historiography is significant, but not as prominent as sometimes suggested.[7] Most modern scholarship is not interested in telling a story of Bacon's unbelief, because, as we will see, the presence of religious ideas in Bacon's thought is so apparent.[8]

Determining which sort of Christian Bacon was is nevertheless problematic. His mother, Anne Bacon (1528-1610), was a fervent Puritan and supporter of various nonconformist ministers.[9] Bacon was home schooled. He then went to Cambridge

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(ed.), *Essential Articles for the study of Francis Bacon*, (London, 1972), 140-63; Antonio Pérez-Ramos, *Francis Bacon's Idea of Science and the Maker's Knowledge tradition*, (Oxford, 1988). Those who favour the term natural philosophy usually stress Bacon's materialist or atomistic ontology. See Fulton Henry Anderson, *The Philosophy of Francis Bacon*, (Chicago, 1948); Graham Rees, 'Atomism and 'Subtlety' in Francis Bacon's Philosophy', *Annals of Science*, 37 (1980), 549-71. Others emphasise the apparently secular and statist motivations and aims of Bacon's philosophy, and pay little attention to theology. See Stephen Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy*, (Cambridge, 2001), pp. 68-74.

[2] See John Gascoigne, 'The Religious Thought of Francis Bacon', in Carole Cusack and Christopher Hartney (eds.), *Religion and Retributive Logic: Essay in Honour of Professor Garry W. Trompf*, (Leiden, 2009), 202-23.

[3] See, for example, Steven Matthews, *Theology and Science in the Thought of Francis Bacon*, (Aldershot, 2008), pp. viii-ix.

[4] Jerry Weinberger, *Science, Faith, and Politics: Francis Bacon and the Utopian roots of the Modern Age. A commentary on Bacon's Advancement of Learning*, (Ithaca, 1985), pp. 9, 17, 111-15.

[5] Robert K. Faulkner, *Francis Bacon and the Project of Progress*, (Rowman & Littlefield, 1993), p. 99.

[6] Perez Zagorin, *Francis Bacon*, (Princeton, 1998), p. 51.

[7] Matthews argues that, in the eyes of most contemporary literature, Bacon was either an atheist, secularist, or indifferent to religion. *Theology and Science*, pp. vii-ix. Stephen, A. McKnight, *The Religious Foundations of Francis Bacon's Thought*, (Columbia, Mo., 2006), pp. 1-2, concurs.

[8] Jerry Weinberger, 'Francis Bacon and the Unity of Knowledge: Reason and Revelation', in Julie Robin Solomon and Catherine Gimelli Martin (eds.), *Francis Bacon and the Refiguring of Early Modern Thought: essays to commemorate The Advancement of Learning (1605-2005)*, (Aldershot, 2006), 109-27, disputes Bacon's piety. He argues that Bacon was silent on a number of religious topics in order avoid exposing their nonsensicality, in particular, the notion of religious virtue. However, Weinberger does not account for the innumerable instances when Bacon spoke about how religious topics (like the Fall) conditioned his philosophy. He (Weinberger) also ignores the tracts that Bacon devoted to theological exposition – e.g. *Confessions*.

[9] Zagorin, *Francis Bacon*, p. 11.

between 1573-1575 where he was further exposed to Calvinist teachings.[10] In the 1580s, he attended Puritan sermons at Gray's Inn and Temple Bar, and was alarmed by both the threat of Catholicism, and the English Church's aggressive anti-Puritanism.[11] However, in manuscript pamphlets written in 1589 and 1603, Bacon defended episcopacy and attacked Puritan doctrine (although he argued against forceful or punitive treatment of Puritans). He was, moreover, very close to Arminians like Lancelot Andrewes (1555-1626) and George Herbert (1593-1633).[12] Bacon addressed his own beliefs in *Meditationes Sacræ* (published 1597) and *A Confession of Faith* (published 1648, but written before 1603). The former was a series of essays, including 'Of Atheism', which, in Calvinist fashion, claimed atheism was an act of will rather than true thought. The latter was a statement of personal belief, which also contained no little Calvinist theology. However, neither text was purely or straightforwardly Puritan; the *Confession*, for example, claimed Christ's death cleansed everybody of sin, not merely an elect.[13] It has variously been argued that Bacon's philosophical works – many composed in the 1620s – were inflected with, or undergirded by, Anglicanism, Calvinism, or the influence of the Church Fathers.[14] Thus, the source and character of Bacon's religious inspiration remains a vexed issue, and, as John Gascoigne remarks; 'It is difficult to identify Bacon too closely with any particular religious movement'.[15]

What is clear, though, is that Bacon's philosophy, or, more generally, his unfinished renovation of learning, the *Instauratio magna*, was informed by faith. Here, I will discuss three pertinent influences: the idea that the world was a divine creation; the motivational role of Christian charity; and the effect of the Fall on man's relationship with nature. Religion looms large in Bacon's writings because it set his intellectual parameters. For example, Graham Rees notes the conceptual restraint placed on Bacon's philosophy by scripture, and particularly Genesis. Bacon's natural philosophy, Rees argued, could not

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[10] Gascoigne, 'The Religious Thought of Francis Bacon', p. 211.
[11] M. Peltonen, 'Bacon; Francis, Viscount St Alban (1561-1626)', in *Oxford Dictionary of National Biography*, (Oxford, 2004). Online edition: 2007 [http://www.oxforddnb.com/view/article/990, accessed 9 June 2016].
[12] Gascoigne, 'The Religious Thought of Francis Bacon', pp. 212-13.
[13] For the way these texts both intersected and diverged from Calvinist teaching, see Benjamin Milner, 'Francis Bacon: The Theological Foundation of *Valerius Terminus*', *Journal of the History of Ideas*, 58 (1997), 245-64, pp. 245-55. For the Calvinism in *Confession*, see Brian Vickers (ed. with intro. and notes), *Francis Bacon: the Major Works*, (Oxford, 2002), p. 562.
[14] Bacon has been labelled an Anglican, albeit an unenthusiastic one. See C.D. Broad, *The Philosophy of Francis Bacon: an Address*, (Cambridge, 1926). Matthews says Bacon's early Calvinism was replaced by an admiration for the Church Fathers, mediated by his friend Lancelot Andrewes. See *Theology and Science*. Peter Harrison, 'Review: Steven Matthews. *Theology and Science in the Thought of Francis Bacon*', *Isis*, 100 (2009), 660-1, agrees that Bacon was interested in the Church Fathers, but says his theology was more Pelagian or Arminian than Matthews allows.
[15] Gascoigne, 'The Religious Thought of Francis Bacon', p. 226.

be educed from scriptural evidence, but must, nevertheless, be consonant with it.[16] That is not to say it was primarily and necessarily interested in God and his attributes.[17] But Bacon's natural philosophy was conceived as the study of nature, defined, explicitly, as God's creation.[18] In short, Bacon and other natural philosophers knew their natural inquiries would to some extent touch upon religious questions, and be shaped by them accordingly. It is therefore anachronistic (*pace* Zagorin) to describe his philosophy as secular.

As well as setting the intellectual parameters of Bacon's natural philosophy, Christianity served as an important motivator, emphasising the common over the private good. In an epistolary tract composed sometime between 1596-1604, Bacon described religion as 'the most sovereign' influence on man's will.[19] Religion provided great moral impetus, for, as Bacon noted in *De Augmentis* (1623), morality consisted in knowing what was good, but also knowing how to move the will to realise it.[20] Everybody, Bacon went on to say, identified with two types of good: individual or collective, virtue or duty. Undercutting the Aristotelian preference for private, contemplative virtues, Bacon said the will must, principally, be turned towards duty.[21] Humanists in the *vita activa* tradition valorised ethics because it was other-regarding.[22] For Bacon, duty was best fostered by Christianity, which advocated 'Charity, which is excellently called "the bond of Perfection," and which comprehends and fastens all virtues together'.[23] Charity raises the human mind 'to greater perfection than all the doctrines of morality', and, unlike other inducements to virtue, which were vulnerable to distortion, 'Charity alone admits of no excess'.[24] Bacon used these principles to legitimise natural philosophy, arguing that, because it improved man's estate, natural philosophy embodied the highest virtue. Thus, he said in *Novum Organum* (1620), to study nature, one had to 'put off the zeal and prejudice of beliefs' and

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[16] Graham Rees, 'Introduction', in Graham Rees (ed. with intro., notes, and commentary), *The Oxford Francis Bacon, VI: Philosophical Studies c.1611-c.1619*, (Oxford, 1996), xvii-cx, pp. xlviii-li. As Jolley notes, all early modern philosophers were anxious to highlight the compatibility of their philosophy with Christian doctrine. 'The Relation between Philosophy and Theology', pp. 364-6. Nevertheless, it is worth noting that Bacon's allusions to Greek and Roman authors – which were often laudatory – have rarely been interpreted as Bacon courting the classics.

[17] The reasons why Cunningham's rubric does not entirely fit with Bacon will become apparent in the second section of this chapter. See 'Getting the game right'

[18] Grant, 'God and Natural Philosophy', p. 284, says that if God was merely present in natural philosophy as the acknowledge creator of nature, his effect on philosophy, substantively, was negligible.

[19] Bacon, *Works*, VII, p. 100.

[20] *Ibid*., V, p. 2.

[21] *Ibid*., pp. 7-8, 14-15. This locates Bacon within the *vita activa* tradition, which, though popular in the Renaissance, actually dated from Plato. See Brian Vickers, 'Bacon's so-called "Utilitarianism": sources and influence', in Marta Fattori (ed.), *Francis Bacon: terminologia e fortuna nel XVII Secolo*, (Rome, 1984), 281-313.

[22] *Ibid*., pp. 311-13.

[23] Bacon, *Works*, V, pp. 28-9.

[24] *Ibid*., p. 29.

'think of the common good'.[25] For these reasons, natural philosophy derived impetus from notions of Christian charity.[26] The success of Bacon's reform of natural philosophy was therefore predicated on its ability to enlist religious sentiment.

Finally, we can observe a more direct theological influence on Bacon's natural philosophy; the doctrine of the Fall. In *Novum Organum*, Bacon said the task of his natural philosophy was to 'recover the right over nature' that man lost in the Fall, but 'which belongs to him by God's gift'.[27] In this regard, Bacon exemplified what, for Peter Harrison, was the defining feature of early modern thought. According to Harrison, seventeenth-century epistemological debates can all be traced back to particular theological anthropologies, or issues relating to man's expulsion from the Garden of Eden.[28] Harrison defines two anthropologies, distinguished by the degree to which the Fall disabled man's capacity to acquire knowledge, and the extent to which that loss was recoverable.[29] Rather schematically, Harrison says theological anthropology was reflected in confessional divisions. So, for Catholics like René Descartes – who took their cue from Thomas Aquinas – the Fall stripped man of his supernatural qualities, but not his natural light. For Harrison, this explains why Descartes was able to base his philosophy on certain, *a priori* knowledge. Contrarily, in an Augustinian vein, Reformers said the Fall caused the corruption of man's natural faculties. Natural philosophers in this tradition – Harrison cites Robert Boyle – sought knowledge by *a posteriori* methods, accepting that the mind was incapable of certainty.[30]

The problem with Harrison's schematic is that anthropological beliefs did not perfectly mirror confessional divisions.[31] The Jansenists, for example, are excluded from the analysis. Descartes, moreover, was not a representative Catholic – he had a checkered

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[25] Francis Bacon, *The New Organon*, edited by Lisa Jardine and Michael Silverthorne, (Cambridge, 2000), p. 13.
[26] However, this is not the same as McKnight's view that Bacon self-identified as a priest, come to restore spiritual and natural order. *Religious Foundations*, p. 4.
[27] Bacon, *The New Organon*, p. 101.
[28] Peter Harrison, *The Fall of Man and the Foundations of Science*, (Cambridge, 2007). More controversially, Harrison also contends that such questions also prevailed over the post-Cartesian philosophical settlement up until Hegel or Kant.
[29] *Ibid*., pp. 1-9.
[30] *Ibid*., pp. 6-7, 54, 65, 87-8, 156-8
[31] For example, Harrison says Catholics in the Thomist tradition usually regarded Adam's immortality as a divine gift, forfeited by sin. However, he argued, post-Reformation Christians, treated mortality as merely a part of man's post-lapsarian corruption, and therefore something that could – at least in part – be reversed or revoked. This phrase – 'post-Reformation Christians' – enabled Harrison to speak simultaneously about disparate figures like Descartes (a Catholic) and Bacon (a Protestant) – both interested in the prospect of prolonging human life. However, curiously, on most other philosophical problems – the sort that Harrison associated with theological anthropology – Harrison differentiated Descartes and Bacon, citing their different denominational affiliations as the cause of their differences. *Ibid*., pp. 170-2.

relationship with the Jesuits, and his reading was not limited to Thomism.[32] Boyle also was not a thoroughgoing Calvinist.[33] Bacon is likewise hard to pigeonhole. In non-Calvinist fashion, he dissociated the Fall from man's attempts at natural knowledge. God, he said, had framed man's mind to interpret nature freely.[34] Rather, the Fall was occasioned when man 'turn[ed] away from God and give [moral] laws to himself'.[35] However, in his *Confession*, Bacon described the consequences of the Fall in a Calvinistic idiom. First, he said, the Fall dulled man's epistemic faculties, and second, it corrupted nature, making it less amenable to investigation.[36]

Despite the reductiveness of Harrison's argument, many philosophers, Bacon included, posited their natural philosophy as a response to man's post-Fall predicament. Reconquering nature, man would approximate the power enjoyed by Adam in Eden.[37] Bacon drew this association most explicitly in his early writings, encouraged by the fledgling successes of his political career. He knew his reformation of learning required state sponsorship and promotion.[38] So, to further his philosophical ends he sought political office. However, for some time, his efforts were unsuccessful. In the 1580s, he petitioned his uncle, Lord Burghley (1520-1598), but was largely overlooked. He found patronage in the 1590s, but his patron, the Earl of Essex (1565-1601), was convicted of treason in 1601.[39] Bacon's political fortunes only really improved when James I took the throne. Thus, he was knighted in 1603 and he joined the King's legal counsel a year later. Political ascendency stoked his philosophical optimism. In *Valerius Terminus* (1603?),[40] Bacon stressed the epistemic potential and restorative powers of his philosophy. The true

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32 See Roger Ariew, 'Descartes and the Jesuits: Doubt, Novelty, and the Eucharist', in Mordechai Feingold (ed.), *Jesuit Science and the Republic of Letters*, (Cambridge, Mass., 2003), 157-94.
33 Michael Hunter, *Boyle: between God and Science*, (New Haven, Conn., 2009), p. 208.
34 Curiosity was long regarded as a post-lapsarian vice. Bacon, however, dissociated natural learning and the consequences of the Fall, and thereby turned natural philosophy into a virtuous pursuit. See Peter Harrison, 'Curiosity, Forbidden Knowledge, and the Reformation of Natural Philosophy in Early Modern England', *Isis*, 92 (2001), 265-90.
35 Bacon, *The New Organon*, p. 12.
36 Bacon, *Works*, VII, p. 221. Neither does Bacon's philosophy neatly accord with one side of Harrison's dichotomy. Bacon eschewed *a priori* reasoning. See Harrison, *The Fall of Man*, p. 7). But he also thought nature's essences could be known with certainty. See Peter Dear, 'Method and the Study of Nature', in Daniel Garber and Michael Ayers (eds.), *The Cambridge History of Seventeenth Century Philosophy*, (2 vols., Cambridge, 1998), I, 147-77, pp. 153-60.
37 Bacon, *The New Organon*, p. 221.
38 Gaukroger, *Francis Bacon*, p. 6.
39 Zagorin, *Francis Bacon*, pp. 5-15.
40 The exact dating of *Valerius Terminus* is uncertain. James Spedding agrees with Robert Ellis that the bulk of *Valerius* was likely written before the *Advancement*, probably in 1603. However, according to Spedding, some parts of the text may well have been composed afterwards. See Bacon, *Works*, III, pp. 206-13. The most recent compositional history argues that parts of *Valerius* were written pre-1603. See Richard Serjeantson, 'The Philosophy of Francis Bacon in early Jacobean Oxford, with an edition of an unknown manuscript of the *Valerius Terminus*', *The Historical Journal*, 56 (2013), 1087-1106.

end of knowledge, he said, was the 'restitution and reinvesting…of man to the sovereignty and power (for whensoever he shall be able to call the creatures by their true names he shall again command them) which he had in his first state of creation'.[41] Despite further professional successes, Bacon was impeached by parliament for corruption in 1621.[42] His late philosophical works did not convey quite the same level of assurance and optimism – nevertheless, *Novum Organum* still referenced the restorative powers of natural philosophy.[43]

The Christian parameters, charitable motivation, and deferment to anthropology, show that Bacon's natural philosophy was shaped by his piety. This religious influence was broad – insofar as nothing, really, escaped the purview of his religious beliefs – but also loose – circumscribing his thought, but rarely interfering actively in it.[44] Bacon's works were therefore pious, but they were not, themselves, religious texts. Two scholars, however, claim that they were. According to Stephen McKnight and Steven Matthews, the religious dimension in Bacon's work took centre stage, to the extent that Bacon was essentially mixing philosophy and theology. Both stress what McKnight describes as the 'centrality of religious concepts in Bacon's philosophical works'.[45] And, noting the profusion of biblical imagery, characterise the Baconian canon as a statement of theological prophecy, and Bacon's natural philosophy as a harbinger of the apocalypse.[46] For McKnight, 'the overarching motif' of *Novum Organum* was 'one of apocalyptic transformation'.[47] Bacon, he further argues, regarded himself as a priest of nature, tasked with returning man to a state of prelapsarian perfection.[48] Matthews also associates Baconian natural philosophy with salvation.[49] He says Bacon engaged with the intellectual heritage of Irenaeus of Lyon (130-202), and in particular, the concept of theosis – the idea that one can participate in God's nature.[50] According to Matthews,

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41 Bacon, *Works*, III, p. 222.
42 Zagorin, *Francis Bacon*, pp. 22-3.
43 Bacon, *The New Organon*, p. 101.
44 Paul H. Kocher, *Science and Religion in Elizabethan England*, (San Marino, 1953), pp. 63-91, argues that Elizabethan scientists, including Bacon, were respectful of the boundaries placed on learning by religion, but were equally anxious to ensure the remoteness of theological boundaries so that philosophical inquiry was largely unconditioned and unfettered.
45 See Matthews, *Theology and Science*; McKnight, *Religious Foundations*, p. 3.
46 Matthews, *Theology and Science*, pp. 55-57; McKnight, *Religious Foundations*, p. 3.
47 McKnight, *Religious Foundations*, p. 6.
48 *Ibid*., pp. 155-7.
49 Matthews, *Theology and Science*, pp. 64-77, 99-110.
50 Matthews tells a developmental story in which Bacon abandoned his early Calvinist instruction – imparted by his mother and Cambridge tutors – and embraced the teachings of various Church Fathers. *Ibid*., chapters 1 and 2

Bacon's obsession with developing natural knowledge was inspired by his desire to make man more God-like.[51]

The implication of these arguments – that Bacon elided natural philosophy and theology – is false and will be refuted throughout this chapter. However, in what remains of this section, I want to highlight the shortcomings of several specific elements of the above analysis. First, there is a hermeneutic problem. Most early modern philosophy contained biblical citations. These citations served many purposes: they highlighted authorial piety; appeased ecclesiastical authorities; and demonstrated the orthodoxy of philosophical doctrine. However, the presence or absence of religious themes need not affect a discourse's subject matter, method, or epistemic status – the things that determined disciplinary identity. As such, the religious vignettes in Bacon's writings do not provide an obvious window onto his *disciplinary* setup. Consequently, *contra* Matthew and McKnight, they do not prove or suggest that theology set philosophical agendas, or that philosophy appropriated theological areas of study.

The remaining problems are more substantive. Essentially, Matthews and McKnight overplay whatever apocalyptic or providential themes exist in Bacon, and efface – to the point of banishment – his worldly, social concerns.[52] This overly theological reading assumes that Bacon viewed his *Instauratio* as the culmination of sacred history. According to this history, the Fall precipitated war, poor communication and idolatrous thinking, which accounted for man's fitful attempts at knowledge. This pattern persisted until Bacon's time, which was marked by general prosperity, geographical expansion, and new inventions like the compass.[53] According to Matthews and McKnight, Bacon legitimised his natural philosophy by hitching it to these providential currents.[54] Therefore, Matthews argues, his *Instauratio* had a 'divine mandate'.[55] Locating Bacon's natural philosophy in this sacred history implies it was capable of either restoring man's proper relation to God, or acquiring divine wisdom.[56] In short, it suggests his philosophy was profoundly theological.

However, this somewhat overstates Bacon's sense of his own destiny. Providence had a hand in all progress, and Bacon praised Elizabeth I and James I for fostering technical

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[51] *Ibid*., pp. 30-50.
[52] See, for example, McKnight, *Religious Foundations*, pp. 155-6; Matthews, *Theology and Science*, pp. 99-105.
[53] Bacon, *The New Organon*, p. 60.
[54] See Matthews, *Theology and Science*, pp. 89-90, 92-8, 108-10; McKnight, *Religious Foundations*, p. 152.
[55] Matthews, *Theology and Science*, p. 51.
[56] McKnight, *Religious Foundations*, pp. 46-7; Matthews, *Theology and Science*, pp. 58-9.

and intellectual development.[57] But he did not regard his own work as the inevitable climax to those developments. This deflationary sentiment was partly a reflection of his ailing political circumstances. Bacon was made attorney general in 1613. He joined the Privy Council in 1616, became Lord Chancellor in 1618 – the same year he received a peerage – and then Viscount St Alban in 1621.[58] However, he was impeached by parliament later that year, losing his offices and royal favour. Though his fines were largely remitted, Bacon's subsequent attempts to restart a career – as political advisor to the Duke of Buckingham (1592-1628), or provost of Eton College – were thwarted. Bacon spent the remaining five years of his life productively engaged in contemplation and writing. However, he was disillusioned by his political failures, and aware that his philosophical reforms lacked institutional backing.[59] He also knew the *Instauratio* was far from complete. *De Augmentis* constituted part I; the unfinished *Novum Organum* provided a small portion of part II; various natural histories, published and unpublished, contributed to part III; and parts IV and V were no more than prefaces.[60] Neither did Bacon expect his project or reforms to be completed in his lifetime. In the *Abecedarium* (the draft preface of part IV, written in 1622), he lamented that 'my own words (as far as the work of instauration is concerned) could be accused of lacking an age or era to match them'. He was therefore 'devoted to posterity…deal[ing] out work for ages to come'.[61] It is a stretch, therefore, to claim Bacon was expecting the arrival of an imminent 'apocalyptic transformation'.[62]

This casts new light on Bacon's contention that his natural philosophy would recapture the power over nature enjoyed in Eden. On one reading, natural philosophy delivered man from sin and returned him to a state of prelapsarian purity.[63] However, Bacon realised he was not witnessing the final stage of sacred history; and thus it is unlikely he

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[57] For Bacon's interest in contemporary innovations, see Richard Serjeantson, 'Natural knowledge in the *New Atlantis*', in Bronwen Price (ed.), *Francis Bacon's New Atlantis: new interdisciplinary essays*, (Manchester, 2002), 82-105. For his praise of his serving monarchs, see Bacon, *Works*, IV, p. 283; Bacon, *The New Organon*, p. 4.

[58] Zagorin, *Francis Bacon*, pp. 20-1.

[59] *Ibid*., p. 23.

[60] Graham Rees, 'Introduction', in Graham Rees (ed. with intro., notes, commentary, and facing-page transl.), *The Oxford Francis Bacon, XIII: The Instauratio magna: Last Writings*, (Oxford, 2000), xix-xcvi, pp. xx-xxi.

[61] Francis Bacon, *The Oxford Francis Bacon, XIII: The Instauratio magna: Last Writings*, edited with introduction, notes, commentary, and facing-page translations by Graham Rees, (Oxford, 2000), p. 173.

[62] Bacon was sometimes very downbeat about the intellectual condition of his own age. In *De Augmentis*, for example, he said 'I fear this our age of the world, as being somewhat upon the descent of the wheel, inclines to arts voluptuary' – i.e. arts pertaining to luxury – as opposed to liberal arts – related to mathematics and morality. See *Works*, IV, p. 395

[63] According to Matthews, Adam pursued Baconian natural philosophy in Eden. The process whereby Adam named creatures according to their essential natures was tantamount to Bacon's method of discerning the forms of simple natures. *Theology and Science*, pp. 62-3.

thought his natural history would entirely rediscover Adam's natural power. Even in his earlier works, Bacon's philosophical pretensions were less exorbitant than they appear to be. In *Valerius*, he warned that 'in two points the curse [of the Fall] is peremptory and not to be removed' – these were: man's vanity, and the corruption, or 'reluctation' of nature.[64] Natural philosophy might battle these impediments forever and never eradicate them. Thus, restoring truly Edenic conditions – in which these impediments were gone – required more than the perfection of his natural philosophy.

Of course, millenarianism was an important feature of Bacon's philosophy.[65] No consensus existed on how to facilitate the thousand-year age of sacredness, or what to expect from it.[66] But, generally, millenarianism signalled an interest in man's current earthly predicament (as preparation for millennial transformation), not imminent divine communion.[67] For Bacon, millenarianism had practical goals, based around manipulating and controlling nature. In *De Augmentis*, he warned against 'men possessed by a false idea of exalting their nature'.[68] To 'dignifie and exalt knowledge', he said in the *Advancement*, 'contemplation and action', must be 'more neerely and straightly conioyned and vnited together'.[69] Thus, in *Novum Organum*, Bacon identified 'the true ends of knowledge' as 'the uses and benefits of life'.[70] He also referred to the manner in which 'discoveries make men happy, and bring benefit without hurt or sorrow to anyone', distinguishing philosophical developments from, say, political ones.[71]

Bacon's philosophical ambitions were practical. But he couched his project, specifically, in relation to scholasticism. Bacon derided learning that failed to escape the lecture hall or academy. The school of Aristotle, he said, was 'more concerned with how one might explain oneself in replying…than of the internal truth of things'.[72] It was verbal and disputatious, and, because it was mired in syllogism, 'lets nature slip out of our hands'.[73] In its place, Bacon championed an inductive method that worked from sense impression to general principles. This was a 'form of demonstration which respects the

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64 Bacon, *Works*, III, p. 222.
65 Bacon's millenarianism was seized upon by his intellectual successors. According to one historian, Puritan interest in technological innovation and applied science, exemplified by the Hartlib circle in the 1640s/50s, was a 'utopian endeavour…guided by the *Instauratio Magna* of Francis Bacon'. See Charles Webster, *The Great Instauration: science, medicine and reform, 1626-1660*, (London, 1975), p 335.
66 See *Ibid.*, pp. 1-18.
67 See Harrison, 'Review: Steven Matthews'.
68 Bacon, *Works*, V, p. 13.
69 Bacon, *Advancement*, p. 32.
70 Bacon, *The New Organon*, p. 13.
71 *Ibid.*, p. 99.
72 *Ibid.*, p. 51.
73 *Ibid.*, p. 16.

senses, stays close to nature, fosters results and is almost involved in them itself'.[74] Equipped with more potent reasoning directives, natural philosophy could be transformed into something truly useful. As Bacon said in *Cogitationes de Natura Rerum* (c. 1604/1605): 'it is not enough, nor indeed of any great use, to know of what things consist, if you know not the ways and means of their mutations and transformations'.[75]

In sum, the theological import of Bacon's natural philosophy is less clear-cut than is sometimes suggested. Fulfilling God's providential plan and reacquiring prelapsarian power are famed Baconian motifs, with obvious rhetorical power. They were nevertheless vague ambitions. Bacon's actual intentions, though hitched to millenarianism, were less bombastic, more practical, and did not involve personal deification or divine communion. Bacon's natural philosophy was not a species of theology, and, notwithstanding his presuppositions about the world as divine creation, he tried to shield natural philosophy from theological incursion. It is the aim of the remainder of this chapter to clarify this disciplinary arrangement.

II. Philosophy and theology

To understand how Bacon conceptualised disciplines in general, and natural philosophy and theology in particular, the obvious place to start looking is *De Augmentis*.[76] Published in 1623 as part I of the *Instauratio*, *De Augmentis* was a survey of the state of extant learning, divided into disciplines. Its English language version, *The Advancement of Learning*, was published far earlier, however, in 1605. In these works, Bacon divided learning into history, poetry and philosophy, leaving space for theology as a mirroring adjunct. Despite its marginal role in this schema, theology was the foil for Bacon's definition of philosophy. Reason and faith were the foundations of (natural) philosophy and theology, respectively, ensuring that each discipline remained largely independent of the other. There were, nevertheless, minor points of overlap. As we shall see, general theistic principles could be inferred from natural philosophical observations. Moreover, in order to make itself intelligible, theology drew upon select rational calculations.

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[74] *Ibid.*
[75] Bacon, *Works*, V, p. 424.
[76] Bacon did not use the term 'discipline' which usually carried a pedagogical implication. But he divided and sub-divided learning into parcels of knowledge, tantamount to disciplines.

The purpose of both the *Advancement* and *De Augmentis* was to identify areas of learning in need of further study. This called upon Bacon to establish disciplinary boundaries, which he did by associating areas of human learning with different human cognitive faculties. Bacon was not the first person to constitute disciplines psychologically.[77] Aristotle, who largely divided knowledge by subject matter, left some room for subjective classifications – those determined by principles internal to man. Medieval authors, Avicenna (980-1037) and Averroes, and Renaissance medical writers, Juan Huarte (1529-1588) and Helkiah Crooke (1576-1648), also used combinations of objective and subjective classifications.[78] However, according to Grazia Olivieri, Bacon was the first to group disciplines by the Galenic-Nemesian tripartition of the mind or rational soul.[79] Simplifying Aristotelian psychology, this tradition divided the rational soul into memory, imagination and reason, each part working through the brain, or specific ventricles.[80] Bacon's debt is not hard to fathom. He said 'History has reference to the Memory, poesy to the Imagination, and philosophy to the Reason'. History was established when sensory impressions of particular species were stored in the memory, while poesy was created when the imagination – which, unlike memory, was not limited by the specificities of sensory reality – combined particular impressions invented in imitation of history. Only philosophy raised the human mind to abstractions, producing general axioms by analysing sensory data and making rational inductions.[81]

However, Bacon further claimed that the tripartite classification of history, poesy and philosophy was mirrored in divine learning, splitting theology into sacred history, parables and doctrines or precepts. For Bacon, 'The information derived from revelation and the information derived from the sense differ no doubt both in the matter and the manner of conveyance…[but] the human mind is the same, and its repositories and cells the same'.[82] Theology and human learning used different media to reach the mind – revelation and sense respectively – but animated the same areas of the human understanding. This formulation is neat. However, by claiming a correspondence between human and divine learning, Bacon violated his own principles of cognitive psychology. In human learning, the understanding was engaged in different ways,

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[77] See Sachiko Kusukawa, 'Bacon's Classification of Knowledge', in Markku Peltonen (ed.), *The Cambridge Companion to Bacon*, (Cambridge, 1996), 47-74, p. 51.
[78] See Grazia Tonelli Olivieri, 'Galen and Francis Bacon: Faculties of the Soul and the Classification of Knowledge', in Donald R. Kelley and Richard H. Popkin (eds.), *The Shapes of Knowledge from the Renaissance to the Enlightenment*, (Dordrecht, 1991), 61-81, pp. 67-73.
[79] *Ibid*., pp. 70-1.
[80] See *Ibid*., pp. 66-7.
[81] Bacon, *Works*, IV, p. 292.
[82] *Ibid*., p. 293.

depending on the type of mental operation performed on sensory impressions. Consequently, different psychological faculties were responsible for different disciplines. In divine learning, however, this connection did not exist. Each sub-field of theology was decoupled from man's mental faculty because theology was revelatory and not the product of human experience or evaluation. Divine learning had an incongruous place within Bacon's classificatory schema because it did not engage the mind in the same way as human learning, and its sub-divisions could not be justified on the same psychological basis.[83]

Though somewhat careless, this inconsistency is not in fact surprising. Bacon's texts betray various Christian presuppositions, but his direct engagements with theology were usually circumspect. Bacon discussed ecclesiology in *An Advertisement touching…the Church of England* (1598), and *Certaine considerations touching...the Church of England* (1604). But these tracts were largely political, avoided revealed theology, and, in the case of the latter, have a print history that suggests Bacon doubted its appropriateness for public consumption.[84] In his first publication, *Meditationes Sacræ*, Bacon recommended deferring to church authority on matters of scriptural interpretation.[85] And later, when he turned to divine learning in *De Augmentis*, he curtailed his pretensions, declaring that 'I will not…as in other like cases, either introduce examples or give precepts [in theology]. That I will leave to theologians'.[86] Bacon's respect for the clergy's professional right to theology sits uneasily with Matthews and McKnight's claim that Bacon saw himself as some sort of priest. He appeared happy to leave priestly status, and its intellectual prerogatives, to the priesthood. In all likelihood, his confused sub-division of theology reflects this deference to, and disengagement from, theological questions.

This is borne out by comparing other areas of Bacon's classificatory schema. After surveying Bacon's taxonomy of learning, Sachiko Kusukawa concluded that Bacon's natural philosophy was more coherent and unified than his human philosophy. This, she argued, was because Bacon spent more time developing it than he did the latter.[87] The same principle applies to Bacon's treatment of divine learning. As theology was the

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[83] It has been suggested that the divisions within divine learning corresponded to parts of the divine mind – which knows the past, present and future simultaneously. See T.A. Woolford, 'Religion and faith in Francis Bacon's The Advancement of Learning (1605)', (unpublished MPhil. thesis, University of Cambridge, 2007). However, there is no textual basis for this claim.

[84] For the print history of *Certaine considerations*, see Richard Serjeantson and Thomas Woolford, 'The Scribal Publication of a Printed Book: Francis Bacon's *Certaine Considerations Touching…the Church of England* (1604)', *The Library*, 10 (2009), 119-56.

[85] Bacon, *Works*, VII, p. 254

[86] *Ibid.*, V, p. 111.

[87] Kusukawa, 'Bacon's Classification of Knowledge', p. 67.

intellectual property of theologians, Bacon studied it less than disciplines he could legitimately contribute to. The purpose of the *Instauratio* was to reform the entire intellectual globe. But Bacon's main concern – and his strategy for achieving such sweeping reform – was the reconstruction of natural philosophy, which in *Novum Organum* he described as 'the great mother of the sciences'.[88] The improvement and development of theology would not radically affect Bacon's reformation of natural philosophy, which was why he was, or claimed to be, happy to defer to clerical authority on theological matters.

However, despite Bacon's slightly sketchy account of divine learning, theology's placement within his classificatory schema was highly significant. This was because, besides the (confused) relation between divine learning and human learning, theology, according to Bacon, had a direct, oppositional relationship with philosophy. Unlike other fields of learning, this relationship was defined, specifically, within the rubric of knowledge. 'Knowledge', Bacon said in *De Augmentis*, 'admits of two kinds of information; the one inspired by divine revelation, the other arising from the senses'. This, he said, was reason enough to 'divide knowledge into Divinity and Philosophy'.[89] Their contrasting foundations meant both disciplines were composed of opposing elements. The source of knowledge – revelation or sense – was intimately connected to the manner in which knowledge was cognised – by faith or reason.[90] This, moreover, prescribed dissimilar disciplinary subject matters. Philosophy was born of reason working upon sensory information, and therefore discoursed on matters natural. Theology derived from faith and revelation, and thus dealt with divine mysteries.[91] To confuse the principles or content of one discipline with the other would be a category mistake, and, as such, Bacon cautioned against their admixture.[92] The consequences of their conflation,

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[88] Bacon, *The New Organon*, p. 64. For example, natural philosophy was used as a corrective principle in astronomy, and a foundational principle in medicine, both of which were separate disciplines. See Bacon, *Works*, IV, p. 373.
[89] *Ibid*., p. 336.
[90] Silvia Alejandra Manzo, 'Holy Writ, Mythology, and the Foundations of Francis Bacon's Principle of the Constancy of Matter', *Early Science and Medicine*, 4 (1999), 116-26, pp. 114-17, discusses this distinction, but only cursorily. Other scholars offer slightly different interpretations. For example, Milner says that, rather than dividing knowledge according to whether it derived from reason or faith, Bacon differentiated knowledge from belief. 'Theological Foundation', pp. 259-62. This argument relies on passages where Bacon claimed it is 'more worthy…to believe than to think or to know'. See *Works*, III, p. 218. Also, *Advancement*, p. 182. However, this maxim was more rhetorical than axiomatic, and it usually served to reiterate Bacon's exhortation not to subject matters of faith to foolhardy rationalisations. See, for example, *Works*, V, p. 112.
[91] Bacon, *Advancement*, pp. 8, 183.
[92] *Ibid*., p. 9; Bacon, *The New Organon*, p. 53.

he warned in the *Advancement*, were 'Hereticall Religion; and an Imaginarie and fabulous Philosophie'.[93]

According to Bacon, philosophy's disciplinary separation from theology was based on the cognitive limitations of the former. Speaking aphoristically in *Valerius*, he said 'the sense[s] discover natural things, but darken and shut up divine'.[94] He expanded this argument in the *Advancement*, claiming that, because the will and image of God were not divulged by reason, nor evident in nature, philosophy was disqualified from speaking on such matters.[95] Theology, in short, was not subject to rational scrutiny. Bacon respected this injunction – flying in the face of certain philosophical trends – by refraining from discoursing, philosophically, on the substance of the soul.[96] He also chastised the schools for making faith conform to rational dictates, which reduced theology to a form of art.[97]

Although Bacon placed limits on philosophy and reason, he was not trying to seriously disable philosophical inquiry. Rather, his main concern was to secure philosophy's disciplinary boundaries. For, on the one hand, philosophy suffered various 'descredites and disgraces' due to 'the zeale and iealousie of Divines'.[98] And on the other, philosophers like Pythagoras (570-495) and Plato invited theological considerations into their reasoning. Consequently, Bacon debarred philosophy from subjects not amenable to sense or reason, which meant it operated without violating theology.[99] But the disciplinary restriction cut both ways. Theology, which was constituted by faith, could not make any claims against philosophy. The upshot, for Bacon, was philosophy's independence from theology.

This is how Bacon generically isolated philosophical investigation from theology. But the same principles applied as he negotiated a more specific fault line, between natural philosophy and theology. Bacon disdained thinkers who derived natural philosophy from scripture. Paracelsus (1493-1541) drew the majority of Bacon's ire, but, as Michael Kiernan notes, he also targeted members of his school, like Gerhard Dorn (1530-1584) –

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[93] Bacon, *Advancement*, p. 79.
[94] Bacon, *Works*, III, p. 218.
[95] Bacon, *Advancement*, pp. 78-9
[96] *Ibid*., p. 103. Olivieri argues that, despite avoiding talk of the rational soul, Bacon was philosophically interested in the substantial, or physical soul. See 'Galen and Francis Bacon'. Still, Bacon neglected to discuss how these two parts of the soul might interface.
[97] Bacon, *Advancement*, p. 186; Bacon, *Works*, V, pp. 116-17.
[98] Bacon, *Advancement*, p. 5.
[99] Milner reaches a similar conclusion, but he differentiates faith from knowledge, rather than from reason. 'Theological Foundation', pp. 259-60.

whose philosophy was elaborated from the books of Genesis and Job.[100] Other adherents of "Mosaic Physics" included Lambert Daneau (1535-1590) and Conrad Aslacus (1564-1624), who treated the bible, literally, as a work of natural philosophy (unlike Paracelsus who read scripture figuratively).[101] Mosaic Physics tended to be admired by theologians, as it demonstrated the harmony between natural philosophy and theology.[102] However, it was anathema to Bacon because it made scripture the source and judge of natural philosophic doctrine.

According to Bacon, natural philosophy must operate independently of theology. Nevertheless, it – natural philosophy – acted as the basis for some theological speculation. Bacon negotiated these twin goals by a deft bit of disciplinary fragmentation. In the *Advancement*, he divided philosophy into three branches (all connected to the 'ste*m*me' of *Philosophia Prima*), each with a different subject – God, nature and man.[103] The branches-meeting-at-a-stem metaphor indicates that each sub-disciplines was part of, or derived from, the same overarching disciplinary schema.[104] They were nevertheless sufficiently distinct to warrant sub-categorisation. Consequently, philosophical inquiries into nature – the sub-discipline of natural philosophy – were, at least partly, bracketed off from philosophical inquiries into God – the sub-discipline of natural theology. Scholars disagree about how to classify natural theology e.g. as a sub-field of theology, or an offshoot of natural philosophy.[105] Bacon, however, is clear: natural theology was a species of philosophy.

Natural theological arguments have a long history, dating at least to pagan philosophy, and finding particular prominence in medieval scholasticism and late seventeenth century apologists for the new philosophy.[106] Bacon un-controversially defined natural theology as the 'knowledge concerning GOD…obtained by the contemplation of his Creatures'.[107]

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100 Bacon, *Advancement*, p. 188; Bacon, *The New Organon*, p. 53. See Michael Kiernan, 'Commentary', in Michael Kiernan (ed. with intro., notes and commentary), *The Oxford Francis Bacon, IV: The Advancement of Learning*, (Oxford, 2000), 205-362, p. 360.

101 Ann Blair, 'Mosaic Physics and the Search for a Pious Natural Philosophy in the Late Renaissance', *Isis*, 90 (2000), 32-58, p. 36.

102 *Ibid*., pp. 47-50.

103 Bacon, *Advancement*, p. 76.

104 In general, Bacon preferred to conceptualise disciplines, not as entirely separate entities, but divided sections on a single map of learning. *Ibid*., p. 93

105 See the *Introduction* to this thesis.

106 See Levitin, 'Rethinking English Physico-theology'.

107 Bacon, *Advancement*, p. 78. According to Mandelbrote, there were two competing trends in natural theology in seventeenth century thought. The first, associated with figures like John Wilkins and Robert Boyle, assumed God created a world with natural regularities. Man could grasp these regularities by reasoning on natural, sensory information. Such practices would disclose knowledge of God's power and will. The second trend, espoused by Cambridge divines like Henry More and Ralph Cudworth, dismissed sensory knowledge as fallen, but claimed the soul could detect the divine in nature. In order to rebut

Put another way: it was a set of theistic conclusions derived from a suitably judicious natural philosophy. The latter was therefore prior to, and the foundation of, the former.[108] As a means of acquiring knowledge of God by sense and reason, natural theology was distinct from theology proper, which was founded on faith in revelation. Nevertheless, natural theology was fundamental to faith, and its dereliction was an invitation to unbelief. According to Bacon, if one engages in the 'contemplation of second Causes' only superficially, it 'doth derogate fro*m* our dependance vpon God, who is the first cause'.[109] However, if nature is studied carefully and thoroughly, considerations of natural causation will lead to knowledge of God. Furthermore, he said, 'the works of God…doe shew the Omnipotencie and wisedome of the Maker'.[110]

The precise limits of this natural divine knowledge are not entirely clear. In his early essay, *Of Atheism*, Bacon said 'depth in Philosophy, bringeth Mens Mindes about to *Religion*'.[111] But in the *Advancement*, he claimed reason could not disclose God's will, and that natural theology could 'conuince Atheisme; but not…informe Religion'.[112] The latter view is probably Bacon's final word, and it reappeared in his more thoroughgoing treatments of natural theology. It also fits with his general view that religion was predicated, ultimately, on faith in revelation. Philosophy was capable of engendering belief, but extra-rational means were needed to establish the correct belief.

This disciplinary relationship between Bacon's natural philosophy and natural theology undercuts two discussed historiographical viewpoints. Bacon's natural philosophy worked within various religious constraints, and acted as a base for theological inferences. Yet, in its first analysis, natural philosophy did not query divine matters.

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materialist thinkers like Hobbes, the Platonists said natural phenomena proved the existence of spirits. This type of natural theology claimed to illustrate, not just God's power – demonstrable by natural design – but also his wisdom. Bacon had more in common with the first camp – he thought empirical study of natural causes disclosed knowledge of God. However, he was not a clear-cut forerunner of it. For example, he did not advocate the sort of Boylean mechanism that tied in closely with this brand of natural theology. 'The Uses of Natural Theology', pp. 451-2, 458-60, 466-9.

[108] According to Vidal and Kleeberg, early modern natural theology differed from medieval examples by dint of its reliance on natural philosophy. 'Knowledge, Belief, and the Impulse to Natural Theology', pp. 390-1.

[109] Bacon, *Advancement*, p. 6. See also, *Ibid.* p. 37.

[110] *Ibid.*, pp. 78-9. Bacon is consistent on this point, see *Works*, III, p. 221; *Ibid.*, IV, p. 341. According to Milner, 'Theological Foundation', p. 263, *Novum Organum* was a departure from previous works because it was the first time Bacon claimed philosophy, rather than nature, revealed the power of God. However, the departure was not as stark as Milner supposes. In the *Advancement* – published fifteen years before *Novum Organum* – Bacon said that it was 'the works of God [i.e. nature]; which doe shew the Omnipotencie and wisedome of the Maker'. He made this assertion as part of a discussion of divine philosophy or natural theology, which is 'knowledge concerning GOD, which may be obtained by the contemplation of his Creatures [i.e. nature]'. *Advancement*, pp. 78-9.

[111] Francis Bacon, *The Oxford Francis Bacon, XV: The Essayes or Counsels, Civill and Morall*, edited with an introduction, notes and commentary by Michael Kiernan, (Oxford, 2000), p. 51.

[112] Bacon, *Advancement*, p. 78.

Cunningham's claim that early modern natural philosophy was primarily interested in God is therefore too simplistic. For Bacon, natural philosophy aimed, first, to discover natural causes – ultimately formal causes – and second, to make the knowledge of natural causation operational by the production of effects. Turning the conclusions of natural inquiry into natural theology came *afterwards*, and fell within the ambit of a separate sub-discipline: natural theology. It is also clear that Matthews's contention that 'The two pursuits of natural philosophy and theology were singular for him [Bacon]', is false.[113] Bacon, in fact, created several layers of disciplinary fragmentation. First, he broadly established disciplines according to the faculty of the mind they animated – memory, imagination, or reason. And second, he sub-divided according to subject matter – in this case, nature and God.

Acknowledging these disciplinary distinctions, a third view, articulated by Tom Woolford, posits reason as the linchpin of theology. Woolford does not say Bacon conflated philosophy and theology, but he recasts Bacon as a theologian, and theology as a rational discipline. This argument rests on the assumption that Bacon subscribed, largely uncritically, to Aristotelian accounts of human psychology and cerebral physiology. Thus construed, Bacon was committed to a doctrine of the soul that posited vegetative, sensible and rational parts, each working through different ventricles of the brain. The vegetative and sensible components were both corporeal: the former was regulatory, dealing mainly with processes like digestion; the latter was perceptive and responsible for bodily motions. The sensible soul – which included the five external senses – also operated within the mental faculties of the memory and imagination, seated at the back and the front of the brain respectively. Only the rational soul, the source of intellection, was incorporeal.[114]

According to Woolford, Bacon constructed a careful, essentially Aristotelian, psychological epistemology. Knowledge originated from the *phantasmata* or sense-impressions that affected the sense organs from the outside world. These corporeal impressions were relayed to the mind where, as sensible species, they were the objects of memory and imagination. The intellect produced rational or universal knowledge by abstracting sensory particulars. First, however, the imagination had to transform sensible species into intellectual species (partially abstracted impressions half-way between

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[113] Matthews, *Theology and Science*, p. 27.

[114] Woolford, 'Religion and faith in Francis Bacon's The Advancement of Learning', pp. 13-14. For details of these psychological breakdowns in a non-Baconian context, see Katharine Park, 'The Organic Soul', in Charles B. Schmitt, Quentin Skinner, Eckhard Kessler, with Jill Kraye (eds.), *The Cambridge History of Renaissance Philosophy*, (Cambridge, 1988), 464-84.

phantasmata and full cognition). Then, finally, reason converted the intellectual species into abstract thought or philosophy. The rational soul was the only faculty capable of cognising abstract, immaterial universals because it was itself immaterial.[115] From this Aristotelian framework, Woolford concluded that, because it was the job of immaterial reason to cognise abstract thought derived from the natural world, it was equally well suited to cognising theological truths derived from the spiritual world. He claimed that although immaterial theological truths bypassed the (corporeal) sensible soul, they were, for Bacon, available, and intelligible, to the rational soul that, because of its immateriality, dealt in abstractions.[116] This, in sum, placed reason at the heart of Bacon's theology, rendering faith a branch of rationality.

This reconstruction is certainly neat, but it has two main flaws. Firstly, it ascribes too much psychological detail to a theory that Bacon only treated superficially. Bacon's account of the progress of sense impressions through various degrees of cognition was scant; the mind, he said, either 'rehearses them' (to make history), 'makes fanciful imitations of them' (to make poesy), or 'analyses and classifies them' (to make philosophy).[117] Furthermore, although Bacon assigned the sub-fields of human learning to different mental faculties, this, as noted above, placed him more within a Galenic-Nemesian tradition than a strictly Aristotelian one. In fact, despite having a more obvious affinity with Galenic psychology than Aristotelian theories – which posited variegated perceptions and different types of *phantasms* – Bacon was not entirely sold on either. He was virtually silent on the subject of cerebral physiology, and when he did touch upon it, he was circumspect, noting that the 'proper seats and domiciles' of the mental faculties were 'disputed or slightly inquired'. Of the theory that the soul utilised different areas of the brain – a view integral to Woolford's Aristotelian rendition, and Oliveri's Galenic-Nemesian interpretation – Bacon was again hesitant, conceding that 'Neither…is…[the] arrangement of the intellectual faculties (imagination, reason, and memory) according to the respective ventricles of the brain, destitute of error'.[118] Apparently, Bacon was neither wholly committed to a particular epistemological tradition, nor had he fully developed his own theory.[119] Thus, he urged further inquiry on the subject – for the 'imperfect understanding' of the sensible soul had 'bred opinions

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[115] Woolford, 'Religion and faith in Francis Bacon's The Advancement of Learning', p. 14.
[116] *Ibid*., pp. 15-16.
[117] Bacon, *Works*, IV, p. 293.
[118] *Ibid*., p. 378.
[119] As further evidence of his indecision, Bacon said that 'the opinion of Plato, who place the understanding in the brain…animosity…in the heart; and concupiscence and sensuality in the liver; deserves neither to be altogether despised nor to be eagerly received'. *Works*, IV, p. 378.

superstitious and corrupt and most injurious to the dignity of the human mind', and of the physical origins of man's faculties, 'nothing of much value…has as yet been discovered'.[120] Baconian psychology was therefore sketchy for two reasons. First, the subject was understudied, and second, Bacon was reluctant to speculate potentially 'injurious' details. This did not stop him developing a clear philosophic method of discovery. But here Bacon was different from both his scholastic predecessors – whose logic treatises usually assumed that understanding method required a good grasp of psychology – and several of his mechanistic successors – for example Thomas Hobbes, whose epistemology developed a full picture of the mind's interaction with the world.

The second problem with Woolford's interpretation is that the importance of reason in theology is underdetermined. Bacon did not theorise the manner in which revelatory theology became or constituted knowledge. Theology was not obviously associated with any of the psychological faculties, and, as we have seen, its relation to other types of learning or knowledge was unclear. It is clear, however, that theological cognition was not, at root, rational. The human mind – its rational faculty and sensory storehouse – was simply not equipped to explore the niceties of Christianity. Bacon repeatedly warned against reason's illicit incursions into matters of faith. Speaking of divine mysteries in *De Augmentis*, he said that 'to inspect and sift them too curiously and search out the manner of the mystery [i.e. to subject them to reason], is in my opinion not safe'.[121] They were beyond the purview of reason, and known only by faith. Thus, among Bacon's various refrains was the maxim, first announced in *Valerius*, to 'give unto faith that which unto faith belongeth'.[122]

Theology was not derived from reason, and reason was not its primary mode of cognition. In other words, it was not a rational discipline in the way Woolford claims. That being said, natural theology – which demonstrated God's existence and power, and provided a (rational) foundation upon which theology could be built – was a sub-field of philosophy. Therefore, implicitly, Bacon granted reason a role, however small, in divine learning. Moreover, he argued, although 'in matters of faith and religion our imagination raises itself above our reason', theology still had 'its seat…in the very citadel of the mind

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[120] *Ibid.*, pp. 398, 399.
[121] *Ibid.*, pp. 341-2.
[122] Bacon, *Works*, III, p. 218. Bacon repeated this maxim more than once in *Novum Organum*. On one occasion, he used it to show that if the mind was properly ordered and mindful of the evidence of God in nature, rational inquiry would pose no danger to faith. *The New Organon*, p. 12. On another occasion, however, it acted as a warning not to ascribe too much (philosophical) significance to scripture, which should only be referred to for spiritual matters. *Ibid.*, p. 53.

and understanding'.[123] To gain traction in the understanding, divinity sometimes drew upon the mental faculties used to establish philosophical knowledge. In the *Advancement*, Bacon outlined two such instances. The first, he said, involved ensuring that divine mysteries were 'sensible vnto vs' despite our limited capacity for comprehension. This was achieved by God 'grifte[ing] his Reuelations & holie doctrine vpon the Notions of our reason'.[124] These theological first principles, or mysteries, would remain arbitrary and 'exempted from examination of reason', but they would be sufficiently illustrated – by being made amenable to reason – to be graspable by our understanding.[125]

The second task of reason in theology was to deduce consequences, or further doctrine, from these first theological principles.[126] Thus, reason used fundamental doctrine (which was beyond reason) to affirm or establish peripheral theological issues or positions not self-evidently addressed by original precepts. The theology thus elaborated was, in some sense, reasonable. This had important methodological implications, addressed in the following section.

Here, I will discuss the former instance. For, although it does not imply reason was able to *fully* understand divinity (which, again, was beyond reason), it suggests that divinity could be packaged in a manner that made it *more* comprehensible to man. This suggestion is given greater import in *De Augmentis*. Following the claim that God made divine mysteries as 'sensible' to the understanding as possible, Bacon urged people to operate and expand their reason, or 'turn it every way', so 'that we may be more capable of receiving and understanding His mysteries'. As man's reason developed, and 'the mind be enlarged', so the conveyance of divine mysteries – which were never more than approximations serviceable to man's limited capacities – would be proportionately richer and more expansive.[127] Bacon did not claim (as Woolford says he did) that reason cognised theological truths – they were, after all, 'mysteries'. But, theology could be tailored to reason to secure its uptake in the human mind; and the more developed one's reason, the greater the uptake.

So, although Bacon made philosophy virtually independent of theology, the reverse did not quite apply. Theology was not reliant on philosophy. But it was more fruitfully conveyed to the mind when man's rational faculty – which was responsible for philosophising – was expanded, and divine mysteries had something larger to be grafted

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[123] Bacon, *Works*, IV, p. 406.
[124] Bacon, *Advancement*, p. 183.
[125] *Ibid.*, p. 184.
[126] *Ibid.*
[127] Bacon, *Works*, V, p. 114.

onto. However, according to Benjamin Milner, early recensions of Bacon's method and philosophy, namely *Valerius*, were theologically minded. It was only in *Novum Organum*, he argues, that natural philosophy became fully autonomous.[128] It is true that, in *Valerius*, Bacon was more confident that philosophy would restore Adamic knowledge than he was in subsequent works. That is to say, his philosophy had some theological motivation. But, in large part, the influence between the disciplines went the other way. In both his early and late works, Bacon suggested that philosophy could and would facilitate theology. In the *Advancement*, he argued (in much the same way he did in *De Augmentis*) that theology was indebted to philosophy insofar as it was grafted onto reason. The *Advancement* was published fifteen years prior to *Novum Organum*, so the notion that theology drew upon reason predated the latter text. In the *Advancement*, Bacon also claimed the book of nature (which evinced God's power) was a necessary hermeneutic tool for understanding the book of scripture (which contained God's will).[129] By better understanding nature, one became more receptive to God's manner of communicating the incomprehensible. Bacon thus developed the claim that theology used reason to make itself intelligible, and that the best theology was, to some degree, based on natural philosophy (the study of the book of nature).

Notwithstanding these minor points of overlap or affinity, natural philosophy and theology had dissimilar cognitive foundations. Philosophy proceeded by sifting and dissecting sense data; theology was based on faith in revelation. Broadly speaking these cognitive differences prescribed different subject matter; natural philosophy studied nature (which, of course, could tell you something about God), and theology dealt with divine mysteries. To fulfil their respective functions, each discipline required a method suited to their different foundations and preoccupations. Bacon famously advocated an inductive approach to natural philosophy, discussed in the following section. Induction reflected and enhanced man's natural epistemic tendencies. First, it valorised individual sensory observation, and second, it established rational ways to collate, compare and contrast those experiences, educing something more general and abstract about nature. As we will see, by contrast, theology relied on deductive, rather than inductive, reasoning. The disciplinary gulf between Bacon's natural philosophy and theology is therefore embodied in, and demonstrated by, their separate methods.

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[128] Milner, 'Theological Foundation'.
[129] Bacon, *Advancement*, pp. 37-8.

III. Inductive method

Bacon's inductive method was designed to redefine natural philosophy.[130] As he said in *Novum Organum*: 'before one can sail to the more remote and secret places of nature, it is absolutely essential to introduce a better and more perfect application of the mind and understanding'.[131] As discussed, Bacon's psychological taxonomy was not entirely watertight (because of theology's incongruous placement), and his theory of cognition was not as rigorous as some of his scholastic predecessors or mechanistic successors. Both of these shortcomings – but particularly the latter – were, to some extent, casualties of Bacon's preoccupation with method. For our purposes, however, Bacon's method is significant insofar as it drove a wedge between natural philosophy and theology. Theology, according to Bacon, was also governed by a particular method – reason, after all, was used to elaborate divine doctrine. But, as we shall see, theological practice was dissimilar to the inductive method of natural philosophy.

Bacon's early works express optimism that, within his lifetime, the application of his philosophical method would bear fruit. In *Valerius*, he said that 'it [induction] cannot fail in much less space of time to make return of many singular commodities towards the state and occasions of man's life'.[132] However, by the end of his life, Bacon realised his reformation of natural philosophy had not properly been inaugurated, let alone completed. He therefore decided to identify and clarify his salient insights in order to ensure their use for posterity. Thus, he contended in *Historia naturalis et experimentalis* (1622), the central plank of the advancement of learning was not his novel manner of interpreting nature, but rather natural histories, without which no induction and no philosophy was possible.[133] Understanding this priority gives some indication why the psychology of cognition was never Bacon's major concern. He was of the 'opinion', he said in *Novum Organum*:

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130 Bacon's method provided an idea platform from which to criticise and adapt principles of Aristotelian logic. See Michel Malherbe, 'Bacon's method of science', in Markku Peltonen (ed.), *The Cambridge Companion to Bacon*, (Cambridge, 1996), 75-98. Natural histories formed a key part of this method, see Paula Findlen, 'Francis Bacon and the Reform of Natural History in the Seventeenth Century', in Donald R. Kelley (ed.), *History and the Disciplines: the Reclassification of Knowledge in Early Modern Europe*, (Rochester, 1997), 239-60.

131 Bacon, *The New Organon*, p. 11.

132 Bacon, *Works*, III, p. 250

133 Francis Bacon, *The Oxford Francis Bacon, XII: The Instauratio magna Part III: Historia naturalis et experimentalis: Historia ventorum and Historia vitæ & mortis*, edited with introduction, notes, commentaries, and facing-page translations by Graham Rees, with Maria Wakely, (Oxford, 2007), p. 13.

> 'that men could hit upon our form of interpretation simply by their own natural force of intelligence, without any other art, if they had available a good history of nature and experience, and worked carefully on it, and were able to give themselves two commands: one, to lay aside received opinions and notions; the other, to restrain their minds for the time being from the most general principles and the next most general. For interpretation is the true and natural work of the mind once the obstacles are removed'.[134]

Bacon supposed that man's understanding would operate efficaciously provided it was free of 'obstacles'. Good philosophy was therefore contingent upon one's ability to overcome the mental conditions – innate, learned and environmental – that inhibited the mind's rational functioning. Unlike most Aristotelians, whose methodologies took account of the physiology of the mind, Bacon's method was simply a means of ensuring the mind was unencumbered, and operated in its normal fashion. Of course, the passage just quoted distinguishes histories from induction (the interpretation of nature), and suggests the latter – the truly philosophic part of Bacon's method – was of marginal importance. However, two things should dissuade us from doubting the centrality of induction. First of all, it was slightly disingenuous of Bacon to dissociate natural histories from the inductive method; they were two sides of the same coin. Natural histories were only valued as the foundations of induction-based natural philosophy, and induction was only doable with proper natural histories. Bacon therefore justified the application of his method – 'which proceeds by induction' – to a variety of sciences, on the basis that one could make histories and tables of discovery for each of them.[135] Second, despite suggesting that, in theory, the mind could intuitively interpret nature if it was denuded of corruptions and aware of good natural histories, Bacon denied that this was possible in practice. As we shall see, distempers might be lessened, but they were never obliterated. Philosophic method was always required to offset the ineradicable underpinnings of man's idols, or mental misapprehensions. Thus, following his remark about interpretation being the natural act of an unencumbered mind, Bacon conceded that 'everything will certainly be more in readiness because of our instructions, and much more secure'.[136]

In his unpublished *Descriptio Globi Intellectualis* (1612), Bacon defined philosophy as whatever the mind digested into axioms from particulars. Philosophy, as such, was

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[134] Bacon, *The New Organon*, p. 101.
[135] *Ibid.*, p. 98. According to Malherbe, Baconian induction was 'a ministration of the understanding', one part of which involved the construction of natural histories. 'Bacon's method of science', pp. 76, 83.
[136] Bacon, *The New Organon*, p. 101

constructed by induction.[137] Bacon thereby inverted Aristotelian methodology, which syllogistically deduced particulars from universally and intuitively known general principles.[138] Aristotle said general principles or causal definitions were guaranteed by simple experiences. For Bacon, this was nonsensical – normal experiences were contingent and particular.[139] According to Bacon, the only way to properly establish axioms was by an inductive process that gradually distilled various sensory experiences into increasingly abstract propositions.

These methodological distinctions are played out in Bacon's accounts of natural philosophy and theology. In the *Advancement*, he said that, once apprised of 'the Articles and [first] principles of Religion…It is then permitted vnto vs to make deriuations and inferences from, and according to the Analogie of them'. In natural inquiries, however, this practice 'holdeth not'.[140] Theology, in other words, used conventional (syllogistic) logic to elaborate doctrine from divine mysteries, or theological first principles. Theological rationality was top-down; it started with revelation, or predetermined doctrine, and resulted in the particulars deduced from those first principles. Philosophical knowledge, on the other hand, was established from the bottom up, in a manner that Bacon repeatedly described as pyramid-like.[141] At the base were natural histories. These histories were vast, empirical, and recorded in plain language; however data collection was not indiscriminate, and Bacon advised against obsessing over minutiae.[142] Purposeful natural histories, he said, ought to deal with species, not infinitesimal, inconsequential natural differences.[143] Correctly assembled natural histories were streamlined into elaborate series of tabulated particulars, which would, when compared and analysed, yield affirmative truths about nature. In *Novum Organum*, Bacon said 'True *induction* is founded on *exclusion*, but is not completed until it reaches an affirmation'.[144] The first step was to compile a table of instances (a list of instances in

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137 Francis Bacon, *The Oxford Francis Bacon, VI: Philosophical Studies c.1611-c.1619*, edited with introduction, notes and commentary by Graham Rees, (Oxford, 1996), pp. 97, 99.
138 See Lisa Jardine, *Francis Bacon, Discovery and the Art of Discourse*, (London, 1974), pp. 76-9; Peter Dear, *Discipline and Experience: the Mathematical way in the Scientific Revolution*, (Chicago, 1995), pp. 22-5.
139 Malherbe, 'Bacon's method of science', pp. 79-80.
140 Bacon, *Advancement*, p. 184.
141 *Ibid*., p. 85, Bacon, *Works*, IV, pp. 362-3.
142 Bacon has repeated been accused of advocating random data accumulation. See, for example, D.H. Pennington, *Europe in the Seventeenth Century*, (London, 1989), p. 160. However, Bacon clearly took umbrage with such an approach. See *The New Organon*, p. 9; *Advancement*, p. 109.
143 Bacon, *Works*, IV, p. 292.
144 Bacon, *The New Organon*, p. 130. Bacon wrote long before Hume demonstrated that causation was only perceived concomitance, and that there was no absolute logical connection between sequential historical events and laws of causation. Consequently, Bacon mistakenly believed induction yielded universal truths. However, the charge – levelled at Bacon by certain twentieth century philosophers – that he promoted the

which the simple nature being studied – say, heat – is present). Next, create a table of absence (instances where, though the simple nature in question is absent, other conditions are similar), followed by a table of variation (establishing degrees of presence). Finally, eliminate between the cases of presence and absence until what is called a '*first harvest*' or preliminary interpretation of the particular simple nature or form is established.[145] Only after the establishment of the three tables, known as 'the Presentation of instances to the intellect', can 'induction itself…[be] put to work'.[146] By a process of exclusion, natural histories disclosed, first, the material and efficient causes of natures (making physics), and later, their formal causes (making metaphysics). At the summit of the pyramid of knowledge was the law of nature. Natural knowledge therefore moved from analyses of particulars to higher and higher levels of generality. Bacon called this ascending the ladder of axioms. This was the diametric reverse of theological knowledge, which began from divine principles (derived from revelation), and later used logic to determine lower species of doctrine.

Allowing for the fact that Bacon said theology was not a science, the methodological distinction between theology and natural philosophy mirrors Bacon's contention that there was 'one method for cultivating the sciences [syllogism] and a different method for discovering them [induction]'.[147] On this basis, there was a considerable discrepancy between the methodological rigour of natural philosophy and theology. Theology was based on principles that were revelatory and peremptory; they were not discovered, and their elaboration was done by simple deduction. In short, theology involved next to no art. Natural philosophy, on the other hand, invented its principles, guiding the mind from particular empirical information towards more abstract generalities. Problematically, this meant getting the mind to operate in a way contrary to its habituated fashion, which lurched to quick, appealing and familiar generalisations. By placing such great demands on the mind, natural philosophy needed a method capable of policing the recalcitrant mental habits that disrupted the search for truth. Theology, conversely, was a matter for clerical authorities, so – at least from Bacon's perspective – the demands it made on the

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notion that general principles were established by enumerating vast quantities of positive instances of a particular phenomenon, is false. On the contrary, Bacon argued, general principles were arrived at via exclusion or elimination. See Zagorin, *Francis Bacon*, pp. 91-3.

[145] Bacon, *The New Organon*, pp. 110-35. For a précised version, see, Jardine, *Francis Bacon*, pp. 123-6.

[146] Bacon, *The New Organon*, p. 126. Bacon's personal forays into inductive inquiry halted at this point. However, there were further 'aids to the intellect' – prerogative instances, for example – capable of reducing tables of presentation to small numbers of suggestive cases. Used judiciously, they would expedite and hone subsequent eliminative procedures, see *Ibid.*, p. 135.

[147] *Ibid.*, p. 30.

mind were of less concern. He therefore denied it a method of comparable sophistication.

Mental distempers had acutely disabling effects on inquiries into nature. Self-adoration led to vain speculations and prideful obduracy; a propensity for ill-considered assent resulted in precipitous judgments and deference to authority; and preconceived conclusions and opinions held the understanding captive. These and other tendencies were causally responsible for the idols of the mind, which Bacon described in *De Augmentis* as the 'ill-ordered predisposition[s] of mind', which perverted 'all the anticipations of the intellect'.[148] Listed, they were the idols of the tribe (cognitive failings present in all humanity); the cave (cognitive failings specific to individuals); the marketplace (linguistic corruptions); and the theatre (erroneous theories).[149]

Bacon's new logic or method was a response to the problems posed by these distempers. Stephen Gaukroger and, more recently, Sorana Corneanu have explored the nature of the relationship between Bacon's method and the human mind.[150] Corneanu argues, quite rightly, that because the aim of natural philosophy was a collective good – the improvement of man's estate – it embodied the highest virtue.[151] From this general view of natural philosophy, Corneanu makes two inferences about Bacon's method. First, that it had a curative function, and was capable of purging or removing man's distempers. And second, that it had a moral function, replacing the mind's defects with virtues like modesty and humility.[152] These two notions have some *prima facie* plausibility, but, starting with the putative moral function, I will demonstrate that both are reductive. It is of course possible that Bacon's method had *some* edificatory potential. Making philosophy was a painstaking business – it involved the compilation of natural histories and careful induction. By 'not flatter[ing] intellectual prejudices', Bacon's method may well have cultivated qualities like humility.[153] It also discouraged idle speculation and stale fidelity to pre-held conclusions. However, Bacon did not think method was the principal or best way to inculcate virtue – he sought to replace distempers with virtues, but his weapon of choice was Christian charity, not a curative philosophical method.[154] Acting

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[148] Bacon, *Works*, IV, p. 431. Gaukroger claims the concept of the idols was absent from early writings like *Valerius* (1603), and introduced only in later works, such as *Novum Organum* (1620) and *De Augmentis* (1623). See *Francis Bacon*, pp. 115-16. However, in *Valerius*, Bacon does in fact refer to the idols. *Works*, III, p. 245.
[149] See Bacon, *The New Organon*, pp. 40-53; Bacon, *Works*, IV, pp. 431-4.
[150] Gaukroger, *Francis Bacon*, pp. 118-30; Sorana Corneanu, *Regimens of the Mind: Boyle, Locke, and the early modern Cultura Animi tradition*, (Chicago, 2011), pp. 36-7.
[151] *Ibid*., pp. 29-34.
[152] *Ibid*., pp. 38-43.
[153] Bacon, *The New Organon*, pp. 29-30.
[154] Bacon, *Works*, V, pp. 28-9.

charitably was, according to Bacon, the most comprehensive way to combat the distempers – pride, vanity, self-adoration etc. – that subverted virtuous activities, not least inquiries into nature. It was by 'relying and resting on God's help', he said in *Novum Organum*, that one's mind could be 'fortified…against violent attacks from the armed forces of opinion, and against our own internal hesitations and scruples'. However, it was only *after* acquiring this mental equanimity that one could 'provide more reliable and secure directions' for studying nature.[155] So, to say Bacon's method engendered humility is to put things the wrong way round. Compiling histories and conducting experiments were actually activities best pursued by those of an *already* modest disposition. Perturbations must be dislodged prior to, and independently of, any attempt to interpret nature, because, as Bacon put it, 'we use humility in discovery'.[156] This differentiated Baconian logic from syllogistic practices, which, by failing to address mental disturbances, acted as, 'a remedy…applied too late'.[157]

Describing Bacon's method as curative is similarly short-sighted, as it implies that the mind's distempers were capable of total eradication. Bacon denied this in *De Augmentis*, saying that the idols of the tribe, cave and marketplace, (but not the theatre) 'cannot wholly be removed', springing as they did from defects inherent in man's mental makeup.[158] Elsewhere, he seemed more sanguine about man's epistemic impediments – in *Novum Organum* he said that 'true induction is certainly an appropriate way to banish idols'.[159] These remarks appear contradictory, but they actually speak to the difference between overturning idols and falsity, and eradicating the distempers that underpinned and caused them. Bacon was optimistic about achieving the former. However, he gave scant indication that the latter was possible, bemoaning in *Novum Organum* that the mind has 'no even, polished surface available to receive the true rays of things'.[160] Bacon's method was therefore palliative, not curative: a response to man's mental diseases, but not a panacea. He claimed, for example, that it provided a way to 'assist' the senses and 'regulate' the understanding.[161] And he argued that the formation of axioms was impossible unless the mind was 'governed and directed'.[162] To aid something (the

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155 Bacon, *The New Organon*, p. 11.
156 *Ibid*., p. 11. As Prior argues, charitableness and humility are important for Bacon because, as traits, they respectively underpin the aims of Baconian learning (the improvement of man's estate), and the rigours of his method (slow and careful induction). 'Bacon's man of science', p. 154.
157 Bacon, *The New Organon*, p. 28
158 Bacon, *Works*, IV, p. 431.
159 Bacon, *The New Organon*, p. 41.
160 *Ibid*., p. 18
161 *Ibid*., p. 97.
162 *Ibid*., p. 109.

understanding) in this fashion implied that, while it was not incapable of achieving its predetermined goal (the discovery of true axioms), it was, and remained, capable of erring; hence the aid.

Bacon wanted to liberate the understanding, as far as possible, from man's mental distempers; but total emancipation was impossible. His method – a set of regulatory procedures that guided the understanding – did not shut down distempers (which were ineradicable), but sidestepped them, thereby avoiding the idolatrous thinking that sprung from them. Bacon said that in order to collect natural histories, compile tables of presentation, and eliminate instances by induction, people had to forego any (residual) impulse to either vainly speculate, precipitously generalise, or conform to known, or authoritatively endorsed, ideas. The prescriptiveness of Bacon's method ensured man's mental proclivities did not become epistemic hindrances; it did not 'give men's understandings wings, but rather lead and weights, to check every leap and flight'.[163] The rules of induction would overturn idolatrous thinking. But the efficacy of these rules depended on them circumventing, not curing, man's distempers.[164] The regulatory (rather than curative) aspirations of this method are laid bare in Bacon's claim that, in order to arrive at truth, the mind must be 'constantly controlled' and its 'business done (if I may put it this way) by machines'.[165] Knowledge production was mechanical, not by dint of an altered mind, but because it was the result of directed human behaviour and controlled thought processes. 'Method', Bacon concluded, 'more or less equalises intellects'.[166] Every individual was subject to some degree of mental perturbation, but by charting a course that neutralised such instances, Bacon's logic ensured all people were equally equipped to investigate nature.[167]

Given what we know about Bacon's method, the question naturally arises: what, in Bacon's view, was man's cognitive potential? Put another way: what was the goal of a

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163 *Ibid*., p. 83.

164 Despite what has sometimes been reported (see R.F. Jones, 'The Bacon of the Seventeenth Century', in Brian Vickers (ed.), *Essential Articles for the study of Francis Bacon*, (London, 1972), 3-27, p. 12), Bacon did not regard the human mind as irreparably defective. Nor did he doubt reason's ability to deliver knowledge faithfully. Exclusionary inductive methods obviated the problems of sense, and safely guide the workings of reason. As Bacon said: 'we do not detract from the senses, but assist them; we do not discredit the understanding, but regulate it'. *The New Organon*, p. 97.

165 *Ibid*., p. 28.

166 *Ibid*., p. 95.

167 According to Corneanu, Bacon's method aspired to make every individual's mind equally perfect and virtuous. *Regimens of the Mind*, pp. 36-7. However, Bacon had misgivings about philosophers who attempted to 'make men's minds too uniform and harmonical'. Such philosophers were 'dedicated to a private life, free from business and from the necessity of applying themselves to other duties'. Bacon's method made people equally competent in natural philosophy, in spite of their unequal mental capacities, virtues and defects. *Works*, V, p. 14.

natural inquiry guided by a suitable method? The answer to this question, and the subject of the following section, was formal knowledge. Forms illuminate the structure of several Baconian disciplines. They were the centrepiece and goal of his natural philosophy: clarifying its subject matter (forms were material) and method (forms were discovered by induction). But they also forced a split in natural philosophy – between metaphysics (which sought after formal knowledge), and physics (which investigated efficient and material causation). As such, forms demonstrate how Bacon grouped and ordered clusters of disciplines. For many scholastics, forms were metaphysical entities, and thus connected or related to theology. Bacon likewise situated forms in metaphysics. But because metaphysics dealt with physical subjects and was worked by induction, it was assimilated to natural philosophy; and both disciplines (along with forms) were detached from theology. The latter, after all, was concerned with non-material entities, and established doctrine deductively.

IV. Forms

In *Novum Organum*, Bacon said the purpose of natural philosophy was the discovery of forms.[168] This complemented his oft-stated aim of (re)establishing man's dominion over nature. To know the form of something was to have knowledge of its essence or fundamental character. Anyone who dissected nature in this way acquired the ability to fabricate that form at any time and in any material. This, Bacon argued, left the knower with virtually no practical restraints, and thus constituted the highest power over nature. Formal knowledge was therefore the aim of Bacon's philosophy because it harvested the greatest operational potential. Furthermore, the practical use of knowledge – either in the establishment of more facts and works, or axioms – was a necessary (although not sufficient) condition for the truth of that knowledge. As the type of knowledge with the greatest practical application, forms were situated in a positive relation to truth.[169]

Because forms were the endpoint of Bacon's natural philosophy, we can use them to better understand the character of that discipline. Thus, in the following analysis I will use forms to show how, in practice, Bacon was able to distinguish natural philosophy

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[168] Bacon, *The New Organon*, p. 102.

[169] For Pérez-Ramos, this was a maker's theory of knowledge. However, this is not quite right, as Bacon did not directly connect philosophical truth with the production of works. Instead, he made the production of works a criterion for truth, which meant axioms that failed to produce works were false. See *Maker's Knowledge*.

from theology. As evidence of their philosophical, rather than theological nature, I will discuss the materiality of forms, and their discovery by induction. I will also compare Baconian forms to similar scholastic doctrines to show how Bacon kept metaphysics tied to natural philosophy, but separate from theology.

Forms may be indispensible for understanding Bacon's natural philosophy. But the scholarship on this area is not always clear. To some degree this is a symptom of Bacon's unsystematic exposition. The bulk of his natural philosophic writing was programmatic. Bacon probed, noted and commented on the deficiencies of current learning, and offered an alternative model for acquiring, cataloguing and using knowledge. Concrete philosophical doctrines are scattered throughout his writings. But Bacon's efforts were largely spent on devising a new *approach* to natural philosophy.[170] As a result, forms have been variously interpreted as laws of motion, causal essences, material substructures, and the law of nature.[171] In light of these and other discrepancies, Virgil Whitaker concluded that Bacon's adumbrations of forms were at best inconsistent, and at worst incoherent.[172]

So, before using forms to analyse the disciplinary relationship between natural philosophy and theology, I will need to shed some light on what Bacon thought forms actually were. To this end, I will do three things. First, I will sketch out the intellectual tradition that influenced Bacon's theory of forms. Second, I will gather Bacon's remarks about forms from the *Advancement*, *De Augmentis*, and *Novum Organum*, and demonstrate how they may be reconciled. And third, I will rule out different interpretations of forms by showing that they have been confused with other parts of Bacon's philosophic schema. Much of this exercise will be expository. But it should demonstrate that Bacon's philosophy was more coherent than is sometimes assumed. Moreover, the payoff will be to show that Bacon's natural philosophy was largely independent of theology.

The immediate context for understanding Baconian forms is the scholastic doctrine of substantial forms. The doctrine(s) Bacon and other so-called new philosophers most likely engaged with were those found in scholastic textbooks, dispersed widely in

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170 Rees, for example, has demonstrated that Bacon was an advocate of the so-called Pneumatic theory of matter. See 'Atomism and 'Subtlety".

171 These views are sketched out in Mary Hesse, 'Francis Bacon's Philosophy of Science', in Brian Vickers (ed.), *Essential Articles for the study of Francis Bacon*, (London, 1972), 114-39, pp. 126-9. According to Virgil K. Whitaker, 'Bacon's doctrine of Forms: a study of Seventeenth-Century Eclecticism', *Huntington Library Quarterly*, 33 (1970), 209-16, these facets of forms were either unresolved or handled inconsistently. Jardine presented a sophisticated interpretation of forms, but nevertheless associated them with the law of nature. *Francis Bacon*, pp. 120-1.

172 Whitaker expresses this sentiment despite remaining generally positive about Bacon. See 'Bacon's doctrine of Forms'.

sixteenth and seventeenth century Europe.[173] These texts were written and received as contributions to the Aristotelian tradition. However, regarding forms (as with much else), the Aristotelian corpus was merely a starting point from which complex and rich variation ensued. For Aristotle, physics or natural philosophy dealt with the four elements and their qualities. Metaphysics was a separate discipline, concerned with more basic principles, like forms and prime matter.[174] There was some open-endedness in Aristotle's doctrine of forms, but basically, they were metaphysical principles that accounted for the essences of things.[175]

The "substantial" in substantial forms was a scholastic accretion. Though theorised in the fourteenth century by thinkers like John Buridan (1295-1363) and Marsilius of Inghen (c.1340-1396), it was only being vigorously defended in the sixteenth, by, for example, Domingo de Soto (1494-1560).[176] During this period, some scholastics blurred Aristotle's disciplinary distinctions, while others left them relatively intact. Therefore, substantial forms came to mean one of two things. Either, they were whatever individuated substances. Thus, forms abstractly determined the unity of substances in and across time, and explained why they existed in the way that they did. Or, they acted as internal efficient causes. As such, they arranged the parts already present in bodies, and produced particular properties.[177] There is some disagreement regarding the respective successes of these two strands of thought. For instance, Norma Emerton – who described them as high and low concepts of forms – regarded both as featuring strongly throughout the scholastic period.[178] Robert Pasnau, contrarily, argues that, despite certain terminological discrepancies, most scholastics assumed substantial forms were concrete causal entities responsible for accidental forms and properties.[179]

Bacon was linguistically indebted to this tradition. But, as Pérez-Ramos notes, the largely sympathetic reception of Bacon's writings by critics of substantial forms suggests certain differences.[180] The most obvious difference between Bacon and the scholastics was Bacon's indifference to the forms of substances. Bacon acknowledged that the mind was wont to apprehend substances – lion, tree, gold etc. – and that substances had forms

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173 Pérez-Ramos, *Maker's Knowledge*, pp. 76-7.
174 See *Ibid*., p. 72.
175 Pasnau, *Metaphysical Themes*, pp. 551, 559.
176 *Ibid*., pp. 552-7.
177 For an excellent summary of the general Aristotelian and scholastic views of forms, see Pasnau, *Metaphysical Themes*, pp. 549-64. See also, Pérez-Ramos, *Maker's Knowledge*, pp. 72, 74-5, 90.
178 Norma E. Emerton, *The Scientific Reinterpretation of Form*, (Ithaca, 1984), pp. 58-9.
179 Pasnau, *Metaphysical Themes*, pp. 560-5. This may, in part, be connected to another of Pasnau's assertions: that Platonism was peripheral to the history of medieval and early modern philosophy (especially seventeenth century philosophy). *Ibid*., pp. 77-8.
180 Pérez-Ramos, *Maker's Knowledge*, pp. 70-1, 81-2.

or essences. But, as he said in the *Advancement*, forms of substances are like '*Soundes which make wordes*, which by composition and transposition of Letters are infinite'.[181] For Bacon, all substances were composed of more basic entities, known as simple natures. These were qualities like heat, colour, density and sense. As such, while it was a 'vaine pursuite' to search for the forms of substances, the forms of simple natures were finite in number and like the '*Soundes or Voices which make simple Letters*…easily comprehensible'.[182] In *Cogitationes de Natura Rerum*, Bacon associated nature's basic building blocks – the 'few simple letters' – with what he called simple motions.[183] According to some scholars, simple motions were early versions of forms.[184] However, this is not quite right, as, in *Cogitationes*, Bacon referred to the forms of simple motions.[185] He also discussed forms in *Valerius*, which predated the composition of *Cogitationes*. Instead, simple motions were what, in his later works, Bacon called simple natures.[186]

Let us turn to forms themselves. There was a direct correspondence between forms and their respective simple natures. This was put most expressly in *Novum Organum* where Bacon wrote:

> 'the form of a nature is such that if it is there, the given nature inevitably follows. Hence it is always present when the nature is present; it universally affirms it, and is in the whole of it. The same form is such that when it is taken away, the given nature inevitably disappears. And therefore it is always absent when that nature is absent, and its absence always implies the absence of that nature, and it exists only in that nature'.[187]

Forms were the sufficient and necessary causes of simple natures. As a result, they were equal in number and they were relatively few. Forms therefore constituted simple natures: the latter owing their existence and identity to the former. The form of a simple nature (like heat) was its 'true difference, or causative nature or the source of its coming-to-be'.[188] Here we find echoes of the low, or physical, scholastic account of substantial forms as the internal cause of external qualities. As the constitution of simple natures, forms were embedded in the bodies they determined. Bacon made this clear in the *Advancement* when, having praised Plato for recognising the salience of formal knowledge,

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[181] Bacon, *Advancement*, p. 84.
[182] *Ibid.*, p. 84.
[183] Bacon, *Works*, V, p. 426.
[184] Anderson, *The Philosophy of Francis Bacon*, p. 77.
[185] Bacon, *Works*, V, p. 426.
[186] Bacon slightly updated his conception of simple natures. Thus, in *De Augmentis*, simple natures were associated with motions *and* configurations of matter. *Ibid.*, IV, p. 356.
[187] Bacon, *The New Organon*, p. 104.
[188] *Ibid.*, p. 102.

he then admonished him for assuming that forms were 'absolutely abstracted from Matter, & not confined and determined by Matter'.[189] Although some late scholastic authors had blurred the boundary between substantial forms and material components in bodies, Baconian forms were identifiable by their physicality.[190] This physicality meant that forms were amenable to natural inquiry. They fell exclusively within the ambit of natural philosophy, and outside the remit of theology.

However, in *Novum Organum*, Bacon expanded his notion of forms, saying that, 'nothing exists in nature except individual bodies which exhibit pure individual acts in accordance with law'.[191] Somewhat confusingly, he identified these laws with forms; 'It is [also] this *law* which we understand by the term Forms'.[192] Here, forms were governing principles, ordering and exerting control over matter and motion. Taking these two definitions together, Bacon made forms both constitutive of simple natures, and the law that governed them. This duality has been likened to the tension within the scholastic understanding of substantial forms. Whitaker, for example, said that Bacon was claiming contradictory things. How, he argued, could forms inhere in bodies, and govern over them? This seemed to suggest both that matter controlled forms, and that forms conditioned matter.[193] However, this problem largely dissolves if we remember that Bacon's forms were entirely physical.[194] Simple natures were material. So, as the cause or constitution of simple natures, forms were embedded in body, and thus limited by materiality. But forms were also the law by which one bit of matter was different from another bit. Therefore, forms could also be said to determine matter. As Bacon put it in *Novum Organum*: 'When we speak of forms, we mean simply those laws and limitations of pure act which organise and constitute a simple nature, like heat, light or weight, in every

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189 Bacon, *Advancement*, p. 83.
190 See Pérez-Ramos, *Maker's Knowledge*, pp. 90-1; Zagorin, *Francis Bacon*, pp. 93-4.
191 Bacon, *The New Organon*, p. 103.
192 *Ibid*., p. 103.
193 Whitaker, 'Bacon's doctrine of Forms', p. 214.
194 Whatever the exact label given to Bacon's ontology, his account of reality was decidedly corporeal. For example, in *Novum Organum*, he denied the possibility of a vacuum. *The New Organon*, p. 108. Anderson argues that, although Bacon became less preoccupied with motion later in life, he remained a materialist whose philosophy rested on the twin notions of bodily structure and motion. *The Philosophy of Francis Bacon*, p. 289. Others, like Rossi and Zagorin, qualify this position, arguing that Bacon is more aptly described as an atomist, albeit one whose later works account for nature in formal, rather than strictly atomistic, terms. See, respectively, *From Magic to Science*, p. 100; *Francis Bacon*, pp. 36, 97. Rees, on the other hand, denies Bacon had any atomic affiliation, even at the beginning of his writing career. Instead, he locates Bacon's interests in his so-called pneumatic theory of matter; a speculative philosophy that divided the world into two types of corporeal matter – tangible and pneumatic – of which the latter could either be a free spirit, or attached to tangible bodies. These two bodies had sufficient explanatory potential for the majority of natural phenomena. But, Rees argues, Bacon acknowledged atomism was a useful hermeneutical device insofar as it helped conceptualise the instrumentality of microscopic processes. It also acted as a rebuke to Aristotelian abstraction, and encouraged philosophers to dissect nature. 'Atomism and 'Subtlety'', pp. 552-3, 561-2, 567-71.

kind of susceptible material and subject'.[195] He thus united his two definitions, and cast forms as the physical causes of simple natures, whose determinacy worked in a law-like fashion.

Having established that Baconian forms were not conceptually incoherent, I will now outline the process by which Bacon tried to discover them. This will highlight the methodological gap between natural philosophy and theology, as well as philosophy's general estrangement from matters divine. For Bacon, natural philosophy was composed of two parts – speculative and operative – the former involved the ascertainment of causes, the latter, the operation of effects. Speculative philosophy comprised physics *and* metaphysics – both inquired after causation, the former, material and efficient, the latter, formal (and final).[196] Formal knowledge was the pinnacle of his natural philosophy, and the outcome of Bacon's inductive method. To acquire knowledge of forms was to pinpoint the most fundamental causal explanation of a given simple nature. However, to reach this level of understanding, an inquirer needed to advance through several stages or directions. 'God alone', Bacon said in *Novum Organum*, has 'direct knowledge of forms by affirmation, and from the outset of…[His] thought'.[197]

Human inquiry began by discovering local, materially specific causes of a simple nature. With several experimental refinements, more general explanations were uncovered. These causes would be increasingly free from temporal, spatial and material specifics. Finally, at the highest level of abstraction, one would reach the form or definition of that phenomenon. In *De Augmentis*, Bacon said 'the Common Forms of natures' are 'the proper subject of Metaphysic, which is itself a part of Physic, or of the doctrine concerning nature'.[198] So, although formal inquiry ended in metaphysical knowledge, it began by considering more ordinary phenomena. In other words, the proper study of a

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195 Bacon, *The New Organon*, p. 128.

196 The placement of final causes within Bacon's philosophy of science is contested. Bacon himself is not clear. In *De Augmentis*, he disputed the idea that 'final causes are not true and worthy to be inquired in metaphysical speculations'. But then, only a page later, he insisted 'the inquisition of Final Causes is barren, and like a virgin consecrated to God produces nothing'. *Works*, IV, pp. 364, 365. Bacon associated final causes with metaphysics. However, the connection was weak, if not non-existent, because final causes were not revealed by Bacon's inductive method, which culminated in metaphysics. As Hesse notes, unlike natural causes, final causes did not produce works, and should therefore be left to theology. 'Francis Bacon's Philosophy of Science', pp. 117-18. According to Whitaker, banishing final causes from philosophy, and leaving them in theology, had the advantage of making philosophy value-free. 'Bacon's doctrine of Forms', p. 212. See also, Virgil K. Whitaker, 'Francis Bacon's Intellectual Milieu', in Brian Vickers (ed.), *Essential Articles for the study of Francis Bacon*, (London, 1972), 28-50, p. 48. According to Maxwell Primack, 'Outline of a Reinterpretation of Francis Bacon's Philosophy', *Journal of the History of Philosophy*, 5 (1967), 123-32, pp. 131-2, Baconian final causes represent the divine plan. Consequently, they differed from scholastic final causes, which tended to signify the immanent purposes in nature.

197 Bacon, *The New Organon*, p. 127.

198 Bacon, *Works*, IV, p. 404.

simple nature would pass through both physics and metaphysics; each stage becoming more certain and free, moving from manifest causation to increasingly imperceptible, universal causes. As Bacon put it in the *Advancement*: inquiring into '*the true formes*' of simple natures is 'part of METAPHISICKE', although 'PHISICKE doth make enquirie, and take consideration of the same Natures'.[199] This way of apprehending forms – working up from particulars to first principles – was the methodological opposite of deducing theological doctrine by reasoning down from principles already known.

Bacon provided a partial demonstration of this procedure in *Valerius*, when he inquired into the nature of whiteness. Forms were not clearly or definitively analysed in *Valerius*, but Bacon had begun developing a method of discovery, later codified in *Novum Organum*. This procedure began with base, manifest causations; namely, the observation that whiteness was producible if 'air and water be intermingled or broken in small portions together'.[200] This direction was 'very particular and restrained, being tied but to air and water'. Thus, the second direction required that air be 'mingled as before with any transparent body', and the third 'exclude or remove the restraint of an uncoloured body'.[201] After a long series of directions, Bacon arrived at a general definition: 'all bodies or parts of bodies which are unequal equally, that is in a simple proportion, do represent whiteness', adding that 'the bodies or parts of bodies so intermingled as before be of a certain grossness or magnitude'.[202] This was an approximate rendering of formal knowledge, and Bacon hoped to continue this refinement until he reached a cause of whiteness not contingent upon particular materials or conditions.[203]

Bacon's various remarks about this process have not been properly heeded in the historiography, leading to two common misinterpretations; that forms were either, simply, material microstructures or bodily motions.[204] During an inductive natural inquiry, one would generate knowledge of what, in *Novum Organum*, Bacon called latent processes and structures.[205] Unlike forms, which were situated in metaphysics, both phenomena belonged to physics, and were discovered after physical causations, but before forms – latent processes led 'from the manifest Efficient cause and the observable

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[199] Bacon, *Advancement*, p. 84.
[200] Bacon, *Works*, III, p. 236.
[201] *Ibid.*
[202] *Ibid.*, pp. 237, 238.
[203] I say 'approximate' because Bacon conceded that 'All that I do now mention confusedly by way of derivation and not by way of induction'. *Ibid.*, p. 237. He knew his natural histories were imperfect, and his interpretations provisional. Proper histories and valid interpretations required collective effort, were decades in the making, and, most important in the immediate term, required generous – presumably royal – patronage.
[204] See Gaukroger, *Francis Bacon*, p. 140.
[205] Bacon, *The New Organon*, pp. 106, 108.

matter to the acquired Form', and latent structures were the 'anterooms' to the 'inner chambers' of forms.[206] Knowledge of latent structures harnessed a different type of power than formal knowledge. The former enabled one to transform particular bodies into other particular bodies.[207] The latter, 'comprehends the unity of nature in very different materials' and granted the power to superinduce any nature in any body.[208] Thus, although forms were both connected to, and a part of, material sub-structures, they were not one and the same thing.

Similarly, in *De Augmentis*, Bacon said the configuration and motion of matter were subjects of physics. However, he added, 'all these above mentioned [configurations and motions] are to be no further handled in Physic than the inquiry of their Material and Efficient causes; for as to their Formal and Final causes they are rehandled in Metaphysics'.[209] So, forms and motions were not synonymous because the latter *had* formal causes.

In sum, forms were causes or types of motion, bedded in material structures, constituting simple natures. This level of abstraction has led some commentators to conflate forms with the law of nature.[210] Clearly, there are similarities – it is not entirely obvious where one begins and the other ends. Nevertheless, it is clear that Bacon distinguished them. Forms were located in metaphysics. The law of nature, however, was the most refined stratum of knowledge, situated above metaphysics.[211] The latter was therefore more abstract than the former. Consequently, Bacon was far more confident of attaining knowledge of forms that he was knowledge of the law of nature.[212] In the *Advancement*, he said the law was '*The worke which God worketh from the beginning to the end*'.[213] Later, in *De Sapientia Veterum* (1609), a work in which Bacon used allegorical interpretations of ancient myths to elaborate philosophical methods and doctrine, he broadly defined it as the primal motion or 'impulse' of matter.[214] Most likely, Bacon regarded the general principle that matter had an original motive force as a crude rendering of the law of nature – hence its denotation as 'supreame or *summarie*'.[215]

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[206] *Ibid*., p. 102.
[207] *Ibid*., p. 108.
[208] *Ibid*., pp. 103, 105.
[209] Bacon, *Works*, IV, p. 357.
[210] See Jardine, *Francis Bacon*, pp. 120-1.
[211] Bacon, *Advancement*, p. 85.
[212] *Ibid*., p. 85.
[213] *Ibid*., p. 7.
[214] Bacon, *Works*, VI, p. 730.
[215] Bacon, *Advancement*, p. 7; see also p. 85.

Individual forms – which varied from one another, and corresponded to particular simple natures – were unique manifestations of that tendency.

The procedural element to Bacon's formal inquiries – refining causal explanations by moving between natural philosophy and metaphysics – flags up some disciplinary disparities with Aristotelian and, to a lesser extent, scholastic doctrines. In turn, this put some distance between Baconian forms and theology. Substantial forms were defined, either as what individuated substances, or as what accounted for the structure or physical properties of a thing. Advocates of the former – for example, Jean Fernel (1497-1558), who Bacon was familiar with – were metaphysically and theologically minded, and associating forms with God, the heavens and the soul (human or world).[216] Advocates of the latter, on the other hand, tended to include substantial forms in natural philosophic discourse. However, crucially, for Aristotle, and then Aquinas and many of his followers, metaphysics was a disciplinary bridge between natural philosophy and theology.[217] Bacon unmade this scholastic disciplinary setup, altering the character of forms, and separating them from theology. Like Aristotle and some scholastics, Bacon situated forms in metaphysics. Unlike the scholastics, however, Bacon did not regard metaphysics as a bridge between natural philosophy and theology. This was not just because their subject matter and methods were incommensurable. It was also because metaphysics was a part of natural philosophy, not distinct from it. Thus, despite being the object of metaphysics, Bacon's forms – unlike various scholastic conceptions – had no disciplinary connection to theology.

The discovery (and use) of formal knowledge was the purpose of natural philosophy. Forms therefore embody whatever was distinct about Baconian natural inquiry, and provide a tool by which to compare natural philosophy with theology. Specifically, studying forms brings the subject matter of natural philosophy (physical nature) and its method (induction) into sharper relief. Both features clarify philosophy's disciplinary separation from theology. Comparing Baconian forms with scholastic variants also highlights a peculiarity in Bacon's disciplinary taxonomy. In many cases, scholastic forms were connected to theology by dint of their metaphysical status. However, Bacon assimilated metaphysics (and formal knowledge) to natural philosophy, isolating both from matters divine. Bacon's primary philosophical ambitions were therefore insulated from theological considerations. However, not all Bacon's philosophical interests could so easily make such claims. In *De Sapientia Veterum* (1609), he described and analysed

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[216] See Emerton, *The Scientific Reinterpretation of Form*, pp. 51-8.
[217] Gaukroger, 'The Autonomy of Natural Philosophy', pp. 133-4.

various ancient myths, claiming they contained lost wisdom – philosophical and otherwise. Because these myths derived from sacred history, mythopoetics offered a vehicle for philosophy, tinctured by theology. The credibility and implication of this suggestion is what we shall now, finally, turn to.

V. Fables

Bacon found theoretical grounds to differentiate natural philosophy and theology – according to their respective psychological underpinnings – which, in turn, annexed particular subject matter and methods to each discipline. In the previous section, we saw how those disciplinary components – in the case of natural philosophy – might play out in practice in the search for formal knowledge. There was one context, however, in which Bacon was less scrupulous in his efforts to guarantee the separation of natural philosophy and theology. Betraying his Renaissance heritage, Bacon made several excursions into mythopoetics.[218] His first interpretations of fables are found in his unpublished *Cogitationes de Scientia Humana* (written in 1605 or earlier), and he publically defined parabolic poetry in *The Advancement*; following *De Sapientia Veterum*, he discussed myths again in *De Principiis Atque Originibus* (also unpublished), and *De Augmentis*.[219] Bacon used fables to convey difficult (philosophical) material to neophyte audiences, and play down the potentially dangerous novelty of his own ideas.[220] As such, forms only became an *essential* part of the *Instauratio* in 1623, once it was clear that his philosophical reforms were not being comprehensively instigated.[221] These allegorical expositions of ancient myths exposed Bacon to two charges. First, that the philosophy elaborated in the fables was drawn from a period of sacred history proximate to that described in the Old Testament and might therefore be sacred in some way itself. Second, and more importantly, analysing fables seemed to provide Bacon with an opportunity to violate his prohibition against lifting philosophical premises from scripture.

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[218] According to John Harrison, 'Bacon's view of Rhetoric, Poetry, and the Imagination', in Brian Vickers (ed.), *Essential Articles for the study of Francis Bacon*, (London, 1972), 253-71, p. 267, Bacon's understanding and use of allegory was in keeping with various other Renaissances authors. Charles W. Lemmi, *The Classical Deities in Bacon: A Study in Mythographical Symbolism*, (Baltimore, 1933), p. 45, says he borrowed primarily from Natale Conti (1520-1582).
[219] Rhodri Lewis, 'Francis Bacon, Allegory and the Uses of Myth', *The Review of English Studies*, 61 (2010), 360-89, pp. 364-5.
[220] *Ibid*., p. 368.
[221] *Ibid*., p. 375.

To understand this properly, we must return to Bacon's division of learning, and look in more detail at how he defined and used poesy.[222] In the *Advancement*, Bacon split poesy into three parts; narrative (that imitates history), representative (that makes history present), and parabolical (which either teaches or conceals religious, political or philosophical doctrine).[223] It is the latter which concerns us here, and also that which most exercised Bacon. In his extended treatment of poesy in *De Augmentis*, he recast parabolical poesy as having 'a higher character than the others', arguing that it was 'sacred and venerable…as religion itself commonly uses its aid as a means of communication between divinity and humanity'.[224] Fables therefore contained fragmented theological insights. Bacon also saw fit – for the first time – to place ancient parables among the desiderata of his philosophical program.[225] He had, however, already actively endorsed the idea that parables could act as vessels for philosophical truth when he published the collection of analysed fables, *De Sapientia Veterum*.[226]

Two recent articles on Bacon's fables should help frame the following discussion. The first, by Rhodri Lewis, adduces Bacon's fables to counter the suggestion that Bacon was uninterested in humanistic, textual research. Lewis also says that, although the fables did not disclose *scientia* or knowledge, they provided Bacon with access to ancient *sapientia* or wisdom. The second, by Anna-Maria Hartmann, claims Bacon used the fables to draw attention to, and instantiate, axioms of *philosophia prima*.[227] Bacon's adoption of fables into philosophic discourse was thus highly significant (though not, for the time, unusual) for two reasons. Firstly, it entailed the assumption that mythopoetics was a legitimate conduit for philosophical information of some kind; be it knowledge, wisdom or truth. Secondly, it was a medium whereby the philosophical information imparted bore a closer than usual relation to theology by dint of its sacred historicisation and/or derivation from scripture.

Bacon opened *De Sapientia* thus;

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[222] For the general importance of poetry in Bacon's scheme of learning, see Harrison, 'Bacon's view of Rhetoric, Poetry, and the Imagination'.
[223] Bacon, *Advancement*, p. 74.
[224] Bacon, *Works*, IV, p. 316.
[225] *Ibid*., p. 318.
[226] *De Sapientia* ended the ambiguity that Bacon had displayed towards fables in works like the *Advancement* (1605) and *Redargutio Philosophiarum* (1608). In these earlier works Bacon expressed doubts over the importance of fables in learning, and appeared unsure whether fables predated the allegorical meanings attributed to them, or vice versa. In *De Sapientia* (1609), however, Bacon was both sure that fables were important, and convinced that the allegorical meanings of fables predated the fables themselves. See Rossi, *From Magic to Science*, pp. 85-95.
[227] See Lewis, 'Francis Bacon, Allegory and the Uses of Myth'; Anna-Maria Hartmann, 'Light from Darkness: The Relationship between Francis Bacon's *Prima Philosophia* and his concept of the Greek Fable', in *The Seventeenth Century*, 26 (2011), 203-20.

> 'The most ancient times (except what is preserved of them in the scriptures) are buried in oblivion and silence: to that silence succeeded the fables of the poets: to those fables the written records which have come down to us. Thus between the hidden depths of antiquity and the days of traditions and evidence that followed there is drawn a veil, as it were, of fables, which come in and occupy the middle region that separates what has perished from what survives'.[228]

The fables were compiled and documented by the Greeks, who were consequently ascribed authorship privileges. But the myths were actually far older – echoing a lost period of learning. As Bacon put it, they were 'sacred relics and light airs breathing out of better times'.[229] Referring to mythopoetics in *De Augmentis*, Bacon admitted that, in his opinion, the 'secrets' of philosophy and religion (as well as policy) were 'involved in no small number of them'.[230] Not only were fables parcels of ancient truth, they also provided knowledge whose origin was proximate to sacred learning.[231] This, as Lewis and Hartmann rightly point out, suggests that Bacon thought myths or fables contained fragments of Edenic learning otherwise lost in the Fall.[232]

Fables, in other words, embodied bits of the prelapsarian truth that Bacon was trying to recover in his *Instauratio*. The only other vessel of knowledge of comparable historical placement was the Old Testament. Thus, the fables contained theological truth, but also natural philosophy that was either sacred or bore a theological stamp. In *De Sapientia*, for example, the three versions of the story of the birth of Pan (nature) were shown to represent the three-fold stages of material existence expounded in Bacon's work of confessional theology, *A Confession of Faith*.[233] Similarly, Bacon used a discussion of Coelum (the origin of all things), to highlight the closeness of Democritean matter theory to scriptural accounts of the creation.[234] The fables, therefore, enabled Bacon to convey theological truths through the medium of ancient philosophy. Although this might suggest that Bacon was closing the disciplinary gap between philosophy and theology, a fairer assessment would recognise that early modern Christian thinkers had no reason to reject, and no plausible alterative to, the Hebraic account of the world's origins. It was therefore habitually invoked.

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[228] Bacon, *Works*, VI, p. 695.
[229] *Ibid*., p. 698.
[230] *Ibid*., IV, p. 317.
[231] *Ibid*., p. 317.
[232] See Lewis, 'Francis Bacon, Allegory and the Uses of Myth', p. 383; Hartmann, 'Light from Darkness', p. 215.
[233] Bacon, *Works*, VI, p. 709.
[234] *Ibid*., p. 723.

There were at least two instances, however, when Bacon appeared to extend the influence of theology over philosophy in a manner that contradicted his own disciplinary guidelines. Namely, he used mythopoetics to lift important philosophical premises from theological postulates. This would represent a considerable inconsistency, for as Bacon reminds us; those 'that haue pretended to finde the truth of all naturall Philosophy in the Scriptures' are guilty of 'traducing all other Philosophie…Neither doe they giue honour to the Scriptures, as they suppose, but much imbase them'.[235] If the fables were an opportunity to abnegate this principle, they could be regarded as a Baconian variation of Mosaic Physics – the extraction of natural philosophy from scripture, and the partial elision of philosophy and theology.[236]

Let us turn to these instances. The first was the subject of a paper by Silvia Manzo, which – citing the fables of Pan and Coelum mentioned above – argued that Bacon used a particular biblical reference in his cosmogony because it furnished a philosophical principle that was necessary for his renewal of learning, but indemonstrable by its methods.[237] Namely, present within both the Pan and Coelum myths – and derived from purely scriptural sources – was the idea that 'the sum total of matter remains always the same and the absolute quantum of nature suffers neither increase nor diminution'.[238] In *Cogitationes de Natura Rerum*, Bacon gave a clear account of why this principle was crucial to his philosophy. He began by outlining why, given that only God could reduce something to nothing, or make something out of nothing, the sum of existent matter was necessarily unchanging. Turning then to a discussion of experimentation, Bacon said that to induce the most profound transformations in matter, it was important to vex the subject matter considerably, without affecting its mass.[239] This was especially pertinent for accessing forms – the heart of Baconian natural philosophy. Discovering the form of a simple nature required much experimentation, and the fruitfulness of such inquiry relied on the matter in question not disappearing in the process.[240]

The second, and perhaps less clear-cut example, concerns Bacon's summation of the law of nature – the most refined type of natural knowledge. Bacon was usually sceptical of the law of nature's epistemic accessibility. For example, he said in *De Augmentis* that 'it

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235 Bacon, *Advancement*, p. 188.
236 I say 'variation' because, although Bacon allegorised ancient myths, strictly speaking, Mosaic Physics involved stripping philosophy of ancient influences. See Blair, 'Mosaic Physics', pp. 47-8.
237 See Manzo, 'Francis Bacon's Principle of the Constancy of Matter'.
238 Bacon, *Works*, VI, p. 723.
239 *Ibid*., V, pp. 426-8.
240 Manzo, 'Francis Bacon's Principle of the Constancy of Matter', p. 123.

may fairly be doubted whether man's inquiry can attain to it'.[241] He was far more forthcoming, however, in his analysis of Cupid (the atom) in *De Sapientia*. Though he maintained the law could only be glimpsed, not fully taken in, Bacon nevertheless defined it as 'that impulse of desire impressed by God upon the primary particles of matter which makes them come together, and which by repetition and multiplication produces all the variety of nature'.[242] Bacon did not prefix this definition with the lengthy inductive reasoning required (by his own method) to justify such a claim. Nor did his inductive steps ever reach such heights on other occasions. He simply provided a (partial) definition of a key philosophical concept, worked up from a theological standpoint. Thus, in a mythopoetic context – a context informed by sacred history, and thus associated with theology – Bacon drew philosophical conclusions that elsewhere he was reluctant to commit to.

Bacon listed mythopoetics as a philosophical desideratum, and therefore the philosophical discrepancies between the fables and the *Instauratio* are worth considering. However, their significance should not be over-egged. For one thing, *De Sapientia* was published prior to, and was never intended to be a part of, the *Instauratio*. Moreover, two features of the *Instauratio* take the sting out of Bacon's apparent violation of disciplinary boundaries. First, Bacon was unable to fully carry out his own inductive procedures. And second, he placed clear limitations on the role of fables within this schema.

Bacon's *Instauratio* is an unfinished project. Neither Bacon nor his contemporaries were able to exploit his method and practices fully. Natural histories compiled by one man were necessarily limited, and inductions based upon such histories were limited also. In *Novum Organum*, Bacon adumbrated an inductive investigation into the form of heat. However, he called this 'first attempt an *authorisation of the intellect*, or a *first approach to an interpretation*, or a *first harvest*', not a full-blown interpretation of nature.[243] Baconian methodology was incapable (at this moment in time) of supporting or validating various philosophical principles. However, that did not mean those principles were inherently unsupportable or impossible to validate. What Bacon owed to theology (on account of his project's intellectual infancy) might later be explicable on its own terms, once natural histories were complete and inductions properly pursued. In other words, though the ancient philosophical truths delivered by the fables were not currently explicable, they might be so later, after further inductive research. For this reason, Bacon's occasional

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[241] Bacon, *Works*, IV, p. 362.
[242] *Ibid*., VI, p. 730.
[243] Bacon, *The New Organon*, p. 130.

reliance on theology need not undermine the legitimacy of his philosophical programme (which avowedly eschewed reasoning from theological premises).

The idea that intractable philosophical problems might later be knowable – courtesy of advances in Baconian discovery – is suggested in Bacon's treatment of the law of nature. Bacon's remarks about the law were not entirely consistent. In the *Advancement*, he said 'wee knowe not whether Mans enquirie can attaine vnto it'.[244] He went on to clarify: God 'did knowe foure things which noe man attaines to knowe', one of which was the law of nature.[245] The latter comment is curious, as it associates the unlikeliness of knowing the law of nature with the cognitive pretensions of one individual. It is possible, therefore, that Bacon was dismantling individualistic, rather than collective attempts at such knowledge. Further comments in the *Advancement* lend credence to this suggestion. First, Bacon said the law of nature '*is not possible to be found out by Man*; yet that doth not derogate from the capacitie of the minde; but may bee referred to the impediments as of shortnesse of life, ill coniunction of labours, ill tradition of knowledge ouer from hand to hand, and many other Inconueniences, whereunto the condition of Man is subject'.[246] These inconveniences were precisely what Bacon's method, and his advocacy of cross-generational collaboration, was designed to overcome.[247] He later expanded this thought, saying that, 'touching impossibilitie, I take it, those things are to bee held possible…which may be done by many, though not by any one: and which may be done is succession of ages, though not within the houre-glass of one mans life'.[248] On this account, Bacon's method made the impossible possible. The labours of one individual would never be enough to access the law of nature. But such knowledge might become available if Baconian practices were pursued collectively and for long periods of time.

This notion reappears in *De Principiis Atque Originibus*, which returned once again to the fables of Cupid and Coelum.[249] Here, Bacon stressed that searching after the cause of the law of nature was futile because – beyond the obvious point that God was responsible for everything that existed in nature – the law of nature was uncaused.[250] However, in his analysis of Cupid (the law of nature) – in which Cupid was hatched from an egg laid by

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244 Bacon, *Advancement*, p. 85.
245 *Ibid*., p. 187.
246 *Ibid*., p. 7.
247 Bacon accepted sceptical arguments against man's ability to know, as an individual. However, he argued, these problems were overcome by his collaborative and inter-generational method of studying nature. See Prior, 'Bacon's man of science', pp. 142-3.
248 Bacon, *Advancement*, p. 61.
249 Rossi dates this work to 1623-24. *From Magic to Science*, p. 122. However, Rees says we cannot be sure when it was written, other than it was composed after *De Sapientia Veterum* (1609). 'Atomism and 'Subtlety", p. 550.
250 Bacon, *Works*, V, pp. 462-3.

Night – Bacon gave some hope that the law might be amenable to inductive investigation:

> 'Now that point concerning the egg of Nox bears a most apt reference to the demonstrations by which this Cupid is brought to light. For things concluded by affirmatives may be considered as the offspring of light; whereas those concluded by negatives and exclusions are extorted and educed as it were out of darkness and night. Now this Cupid is truly an egg hatched by Nox; for all the knowledge of him which is to be had proceeds by exclusions and negatives'.[251]

Bacon advocated a method based on exclusionary induction. And, as this passage reveals, knowledge of the law of nature 'proceeds by exclusions'. Bacon was never totally candid about the epistemic potential of his philosophic method. But given the present reconstruction, it is not inconceivable that Bacon hoped human reason – guided by correct practices, and yoked to collective endeavour – would one day ascend to the highest knowledge of nature.

The second reason why one need not read too much into Bacon's apparent commingling of natural philosophy and theology relates to the function Bacon ascribed to parabolic poetry in human learning. Bacon said that 'the secrets and mysteries of religion, policy and philosophy are involved in fables or parables'.[252] Moreover, the philosophical information found in fables bore a theological imprimatur – either by its sacred historicism or its direct derivation from scripture. However, whatever the nature of the learning parcelled in mythopoetics, Bacon was clear that the fables themselves were not philosophy. As he said in the *Advancement*: 'I finde not any Science, that doth properly or fitly pertaine to the IMAGINATION…[and] as for Poesie, it is rather a pleasure, or play of imagination, than a worke or dutie thereof'.[253] Poesy could not produce philosophic knowledge because the mental faculty it invoked – the imagination – had a different field of operation. Strictly speaking, then, mythopoetics was not a form of theological philosophy because the fables were a type of poesy.

Fables, therefore, were capable of containing philosophy yet did not constitute philosophy themselves. This paradox rests on a distinction Bacon made between two ways of transmitting knowledge. 'The magistral [method]' Bacon said, 'requires that what is told should be believed; the initiative [method] that it should be examined'. Furthermore, 'The end of the one [magistral] is the use of knowledges…of the other

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[251] *Ibid.* p. 463.
[252] Bacon, *Works*, IV, p. 317.
[253] Bacon, *Advancement*, p. 106.

[initiative] the continuation and further progression of them'.[254] Bacon favoured the latter, saying that:

> 'knowledge that is delivered to others as a thread to be spun on ought to be insinuated (if it were possible) in the same method wherein it was originally invented. And this indeed is possible in knowledge gained by induction; but in this same anticipated and premature knowledge (which is in use) a man cannot easily say how he came to the knowledge which he has obtained'.[255]

The knowledge begotten by induction was initiative – it was heuristic and probative, and designed to co-opt others into the task of learning. The knowledge furnished and transmitted this way was derived from identifiable chains of reasoning, and could be checked against its own method. This inbuilt reflexivity gave the initiative method a progressive character, and meant it encouraged further developments in learning. Conversely, knowledge delivered by the magistral method was peremptory. This method stated but did not explain the truth, and it made use of extant knowledge, without troubling to uncover further truths. The magistral method was capable of transmitting philosophical truth, but was unaccountable to a process of 'cognition or consent'.[256]

According to Lewis, Bacon's fables are an example of the initiative method. The fables, he argues, were probative devices that encouraged readers to infuse the myths with individual meanings.[257] As a general point about the potential of fables to inhabit various meanings, this is correct. However, Bacon's parabolic interpretations were not couched speculatively. Instead, he precisely outlined the meaning of the fables *qua* philosophy or theology, assuming that his interpretations would be accepted and used, not queried or tested. Bacon actually used mythopoetics according to the magistral method – vehicles for peremptory philosophical and theological postulates. This structure enabled him to import premises into his philosophy that were undemonstrated by induction. As discussed, these premises were not philosophically valid – because they were still awaiting inductive proof – but they may, nevertheless, be philosophically true; the product of a lost era of philosophising.[258]

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[254] Bacon, *Works*, IV, p. 449.
[255] *Ibid.*
[256] *Ibid.*
[257] See Lewis, 'Francis Bacon, Allegory and the Uses of Myth', pp. 386-8.
[258] This idea chimes with the work of Hartmann, 'Light from Darkness', pp. 207-9, and Lewis, 'Francis Bacon, Allegory and the Uses of Myth', pp. 384-5, who both identify Bacon's mythopoetics with *sapientia*, or wisdom, thus drawing clear parallels between the fables and Philosophia Prima.

There is no getting around the fact that this represents a relaxation of Bacon's disciplinary boundaries. However, Bacon's view of the disciplinary relationship between natural philosophy and theology had not changed. He was merely exploiting the vagaries of another disciplinary context – mythopoetics – to push boundaries he would otherwise leave intact. Nevertheless, it was a minor aberration, and one with some pragmatic justification. Bacon said in *De Augmentis* that 'those whose conceits are already seated in popular opinions, need but to dispute and prove; whereas those whose conceits are beyond popular opinions, have a double labour; first to make them understood, and then to prove them; so that they are obliged to have recourse to similitudes and metaphors to convey their meaning'.[259] Fables, therefore, were a necessary way of communicating knowledge that might otherwise be resisted on account of its unfamiliarity. The passage quoted also explains why the magistral transmission of fables was acceptable. Sometimes the truth of a premise must be given to the understanding before its confirmation with proof. Fables fulfil the first part of that process, leaving the second to alternative methods. This does not absolve Bacon of the charge that he utilised premises in his philosophy that were untested by induction – quite the contrary. But the novelty of his philosophy was such that, in order to achieve any take-off, certain elements or justifications had to be smuggled in via mythopoetics. This was particularly true towards the end of Bacon's career – as he recognised that his philosophical programme was incomplete. Thus, in *De Augmentis*, he made parabolic poetry a desideratum of his restoration project.

VI. Conclusion

In *De Augmentis*, Bacon characterised his writings as 'offerings of the human intellect, seasoned with religion as with salt, and sacrificed to His Glory'.[260] Taking him at his (metaphorical) word, Bacon's work – usually natural philosophy – was not fundamentally shot through with religion. Rather, religion was supplementary, providing reinforcement and emphasis, much like salt. This, I think, is another way of saying Bacon's natural philosophy reflected common religious sensibilities, but, by and large, was independent of theology. It is important to understand the distinction between pious inflection and disciplinary separation because much of the literature on Bacon assumes they were

[259] Bacon, *Works*, IV, p. 452.
[260] *Ibid*., V, p. 119.

mutually exclusive. The scholars who detect impiety or even unbelief in Bacon's work often cite the estrangement of Bacon's natural philosophy from theology. Likewise, scholarship that tries to draw out Bacon's religious sympathies regularly concludes that his natural philosophy was perforce theological.

Bacon's thought was motivated, shaped and impinged on by religious concerns – charity, the doctrine of the Fall, millenarianism etc. But this had little bearing on the nature of the relationship between natural philosophy and theology. Each discipline was elaborated from particular cognitive or epistemic principles. (Natural) philosophy was established by reason working on sensory experiences; theology derived from faith in revelation. These foundations prescribed discipline-specific subject matter (nature or body, and divine mysteries) and methods (induction and deduction or syllogism). Thus, the structure of both disciplines was based on a close connection between cognition, method, and subject matter. Breaking these chains by, say, imposing the methods of one discipline on the subject matter of the other, would force man's mental faculties to assess notions beyond their capacity, and result in error and fallacy. So, in the main, Bacon respected disciplinary boundaries and kept natural philosophy and theology separate from one another. He did, however, offer a couple of exceptions. Theology, he argued, relied on natural philosophy for the development of natural theology, and was best served by an exercised and expanded reasoning faculty. Moreover, Bacon used fables to elucidate philosophical principles, legitimised by their proximity to sacred truth, but untested by induction. Aside from these mythopoetic excursions, however, Bacon refrained from drafting in philosophical premises from theology, which was perhaps his preeminent disciplinary injunction.

His decision to sequester natural philosophy from theology appears particularly important and innovative given his rebirth as the patron saint of the Royal Society some forty years after his death. In the *History of the Royal Society* (1667), Thomas Sprat (1635-1713) felt obliged to 'onley mention one great Man, who had the true Imagination of the whole extent of this Enterprize, as it is now set on foot; and that is, the *Lord Bacon*'.[261] The Society's appropriation of Bacon was selective; its members largely eschewed Baconian interest in form, focusing instead on probable knowledge of appearances. Still, virtuosi like Boyle and John Wilkins (though not, in fact, Sprat), cautiously advocated a

[261] Thomas Sprat, *The History of the Royal-Society of London for the improving of natural knowledge*, (London, 1667), p. 35. For the history of Sprat's involvement with the Royal Society, and his sometimes misleading, and frequently tendentious apologia, see Michael Hunter, *Establishing the New Science: the Experience of the early Royal Society*, (Boydell, 1989), pp. 46-67.

corpuscular natural philosophy, governed by experience and observation, and free of other disciplinary or socio-political considerations. Whether or not they adhered to these principles in practice is debatable.[262] What matters is that the Society, avowedly indebted to Bacon, *purported* to support natural philosophy's disciplinary independence.

Of course, as well as inspiring a new philosophical culture, Bacon was also firmly tethered to Renaissance philosophical traditions.[263] Alongside mythopoetics, he subscribed to animistic principles. Philosophers like Marsilo Ficino (1433-1499) and Bernardino Telesio (1509-1588) said the natural world was invested with *spiritus*, granting it purpose, and thus intelligibility.[264] Bacon, similarly, argued that matter had the power of perception, even if it lacked sensory faculties.[265] Unlike mechanists – Hobbes, for example – he claimed matter was not simply acted upon, but could elect to move itself.[266] This sheds additional light on Baconian forms.[267] Identifying forms as the deepest metaphysical part of nature, Bacon assumed the existence of a type of motion that was deeper and prior to the type of matter in motion cherished by mechanists and which he himself identified with simple natures. Simple natures *qua* configurations and motions of matter had different layers of causation – physical and formal. The forms of the motions (and configurations) of matter that made up simple natures must themselves embody a more refined conception of matter and motion. Animism may well have accounted for this level of analysis. As 'perception may take place without sense…there could be motion at discretion without sense'.[268] Matter, in other words, would have a basic level of self-motion. As such, Bacon's affinity to Boyle should not be overstated. Forms were not simply corpuscular sub-structures, and they were more abstract and less ontologically parsimonious than subsequent corpuscular matter theories.[269]

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[262] See Hunter, *Science and the Shape of Orthodoxy*.
[263] See, for example, Rossi, *From Magic to Science*.
[264] See Alfonso Ingegno, 'Natural Philosophy: The new Philosophy of Nature', in Charles B. Schmitt, Quentin Skinner, Eckhard Kessler, with Jill Kraye (eds.), *The Cambridge History of Renaissance Philosophy*, (Cambridge, 1988), 236-63, pp. 238, 245; Brian P. Copenhaver, 'Astrology and Magic', in Charles B. Schmitt, Quentin Skinner, Eckhard Kessler, with Jill Kraye (eds.), *The Cambridge History of Renaissance Philosophy*, (Cambridge, 1988), 264-300, pp. 296-7. Rees argues that Bacon's 'semi-Paracelsian' cosmology was predicated on the idea that all matter was suffused with pneumatic matter or spirit. See 'Atomism and 'Subtlety".
[265] See, for example, Bacon, *Works*, IV, pp. 402-3.
[266] For a good account of the gulf between Bacon's metaphysics and the metaphysics of materialists like Hobbes and Descartes, see Primack, 'Francis Bacon's Philosophy', pp. 129-31.
[267] Bacon's concept of forms bears some resemblance to the explanatory frameworks later championed by corpuscularians and mechanists. Pérez-Ramos, for example, says Baconian forms represented a move towards phenomenologist types of knowledge. Moreover, because of their close conceptual relation to material configurations and motions, Baconian forms left the door open for later theorists to offer purely mechanical explanations for physical phenomena. *Maker's Knowledge*, pp. 81-2.
[268] Bacon, *Works*, IV, p. 403
[269] See Emerton, *The Scientific Reinterpretation of Form*, p. 69; Pasnau, *Metaphysical Themes*, p. 6.

Pigeonholing Bacon is therefore futile. His fairly strict separation of natural philosophy and theology upended scholastic convention. But, his disciplinary interest in mythopoetics, and conceptual commitment to animism, kept him partly rooted in other intellectual traditions. Thomas White offers an even starker reminder that early modern philosophers often drew upon a range of (seemingly antagonistic) sources. As both an Aristotelian and a corpuscularian, White defied easy categorisation. Nevertheless, despite his philosophical eclecticism, he subscribed, in outline, to familiar Thomistic disciplinary conventions.

Thomas White

Today, Thomas White is remembered both as the leader of the "Blackloists" – a renegade Catholic group that took its name from White's sometime pseudonym "Blacklo" – and as a friend and philosophical sparring partner of Thomas Hobbes.[1] After his death, he was described by Anthony à Wood as a 'noted Philosopher'.[2] Yet, following his ordination in Douai in 1617, White was a theologian by education and training. Moreover, throughout his life he published religious polemics, neither entirely philosophical nor theological. White was not unusual among early modern thinkers in participating in philosophical, theological and religious discourses simultaneously.[3] And, in common with his peers, he understood that different disciplines were structured according to different subjects, methods and priorities.

Francis Bacon was anxious to signal the piety of his philosophy, but lampooned his scholastic forbears for unduly mixing philosophy and theology.[4] Many of his acolytes in the Royal Society subsequently adopted similar attitudes. Nevertheless, among the seventeenth-century's self-conscious intellectual reformers, the relationship between philosophy, theology and religion was varied and uneven. This is demonstrated by the differences between two of White's major philosophical interlocutors. Joseph Glanvill and Hobbes agreed that Aristotelian philosophy was inimical to Christianity. (Tellingly, both mistakenly treated Aristotelianism as a single entity). However, Glanvill thought the Royal Society's experimental philosophy would secure religion against mechanistic atheism, while Hobbes claimed his mechanical philosophy accorded with Christian belief, but that proper philosophy was categorically distinct from theology.[5]

White was different from this sample of new philosophers in that he advocated a close intermingling of philosophy and theology. In fact, White's understanding of the

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[1] The longest account of White's life and preoccupations is found in Beverley C. Southgate, *Covetous of Truth: the life and works of Thomas White, 1593-1676*, (Kluwer Academic Publishers, 1993), pp. 21-33. Interest in White has picked up since the publication of Hobbes, Hobbes, *Critique du De Mundo*, also known as *Anti-White*.

[2] Anthony à Wood, *Athenae Oxonienses*, (2 vols., London, 1691-1692), II, p. 497.

[3] Although as Feingold has argued, clerical duties often placed limitations on one's ability engage with, and contribute towards, natural studies, at least publicly. See 'Science as a calling?'.

[4] Bacon, *Advancement*, pp. 9, 79.

[5] Joseph Glanvill, *The vanity of dogmatizing, or, Confidence in opinions manifested in a discourse of the shortness and uncertainty of our knowledge, and its causes*, (London, 1661), p. 136 and dedicatory epistle; Hobbes, *De Mundo Examined*, p. 306. For the original Latin, see Hobbes, *Critique du De Mundo*, p. 309.

philosophy/theology relationship highlights two countervailing historical trends. First, it illustrates the persistence (and mutability) of Aristotelian philosophy, despite – or even alongside – developments in the so-called new philosophy.[6] This has been noted in philosophers who disparaged their intellectual heritage, like René Descartes,[7] but it was also true of thinkers who acknowledged their indebtedness to the past, like White. And second, it shows that, in keeping with the Aristotelian tradition, the methods and concepts of philosophy were still being used in, or in support of, theology. Note, however, that White was not eliding philosophy and theology, as some commentators have suggested.[8] Philosophy established definitions and guided theological reasoning. But, in proper Thomist fashion, White based philosophy and theology on different foundations – reason and revelation/tradition respectively.

In order to make White's disciplinary set-up as clear as possible, this chapter will need to distinguish his view of religion from his view of theology. Theology, he argued, was elaborated *from* religion – the Catholic tradition – using the tools of philosophy. Religion and theology therefore stood in relation to one another, while remaining methodologically and epistemologically distinct. Religious discourse sought to establish the truth of faith. This was determined, in White's view, by the oral transmission of the apostolic tradition. Theology, on the other hand, investigated the meaning of faith. Consequently, religious argumentation was concerned with the historicity of particular doctrines or matters of faith, and thus had no connection to philosophical practice. Conversely, theology, which sought to understand faith, relied on philosophy (specifically Aristotelian logic) to discern the meaning of words and propositions. This interaction between philosophy and theology – evident in White, as well as Blackloists like Sir Kenelm Digby and John Sergeant (1623-1707/10) – is suggestive of the endurance, but also transformation, in the seventeenth and early eighteenth century of an Aristotelian-Thomistic conception of the structure, priorities and purposes of knowledge.

This chapter is split into six parts, and will look at all White's major English works of philosophy, theology and religion – *Peripateticall Institutions* (1656), *Controversy-logicke* (1659), *Reason and Religion* (1660), and *An exclusion of skepticks* (1665). I start by nuancing the common but simplistic view that White was an anti-sceptic. Although White argued

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[6] The classic work on this subject is Schmitt, *Aristotle and the Renaissance*.

[7] See, for example, Roger Ariew, *Descartes among the Scholastics*, (Leiden, 2011).

[8] Beverley C. Southgate, 'Excluding Sceptics; the case of Thomas White, 1593-1676', in Richard A. Watson and James E. Force (eds.), *The Sceptical Mode in Modern Philosophy: Essays in Honor of Richard H. Popkin*, (Dordrecht, 1988), 71-85, p. 74; Beverley C. Southgate, "A philosophical divinity': Thomas White and an aspect of mid-seventeenth century science and religion', *History of European Ideas*, 8 (1987), 45-59, pp. 50-1.

repeatedly with Glanvill about the extent and limitations of human knowledge, his first and foundational philosophical commitment was to Aristotle. The label anti-sceptic also obscures the variety of epistemic positions White developed in relation to different bodies of knowledge, or disciplines. In the second part, I sketch the logical foundations of White's Aristotelian philosophy. Philosophy, for White, was structured by syllogism, but should also take heed of the causes embedded in definitions. To draw out the distinctly Aristotelian tenor of White's logic, in the third section, I highlight parallels and dissimilarities with Hobbes's logic. According to White, knowledge was logically verifiable, and, as such, was reducible to basic Aristotelian metaphysics. In the fourth part, I turn to White's concept of religion. Religion was the skill of gaining salvation, or following God's commands. However, White argued, before believing articles of faith, one must be persuaded of their truth. This sort of truth could not be demonstrated by logic or philosophy, but instead was guaranteed by the oral transmission of doctrine by Catholic institutions. As I demonstrate in the fifth part, it was necessary that both the learned and unlearned felt convinced in their faith, even though they had different criteria for belief. Finally, in the sixth part, I review White's theology and its relationship to philosophy. I argue that when it came to *understanding* matters of faith – i.e. when doing theology – White drew upon the same logical tools that structured his philosophy. I conclude that, although theology did not originate in, or automatically grow out of philosophy, it was absolutely reliant on philosophy for its existence and coherence.

I. Anti-scepticism and Aristotelianism

Beverley Southgate has construed White's intellectual project as a constant, but doomed, effort to stem the flow of resurgent scepticism.[9] This argument followed Richard Popkin's thesis that, after the destabilising post-Reformation debates about the criteria for faith – in which both Protestants and Catholics were able to discredit the arguments of their rivals – all religious belief became doubtful. This sceptical current, Popkin claimed, was later transplanted onto debates about knowledge in general, thus undercutting all claims to certainty.[10] In England, the story goes, there was a shift in

[9] Southgate, *Covetous of Truth*; Southgate, 'Excluding Sceptics', pp. 71-85; Beverley C. Southgate, "Beating down Scepticism': The Solid Philosophy of John Sergeant, 1623-1707', in M.A. Stewart (ed.), *English Philosophy in the Age of Locke*, (Oxford, 2000), 281-315.
[10] Popkin, *The History of Scepticism*; Richard Popkin, *The High Road to Pyrrhonism*, (San Diego, 1980).

philosophical perspective, away from speculation about insensible essences, towards observation of sensible qualities, evident in the practices of the Royal Society.[11] White was unusual and did not surrender to scepticism. For historians like Popkin and Southgate, he was therefore an interesting counter-cultural case study.

In outline, this narrative has much to recommend it: there was an upsurge in sceptical thought following the retranslation of Sextus Empiricus' (160-210) *Outlines of Pyrrhonism* in 1562, and the epistemic disarray caused by religious conflicts.[12] It does not necessarily follow, however, that every subsequent thinker was primarily or self-consciously engaged with sceptical arguments. In England, things were more nuanced than Popkin and others suggest. For example, it is doubtful (*contra* Richard Tuck) that Hobbes's main intellectual objective was to formulate a systematic response to modern scepticism.[13] Tuck claims Hobbes's 'major contribution to philosophy', and what made him 'succeed where both Gassendi and Descartes had failed', was his demonstration of the necessary existence of material reality, despite the known fallibility of perception.[14] But Hobbes's anti-sceptical credentials are limited given his acknowledgement that little about the natural world could be known with demonstrative certainty.[15] Tuck's implicit and more plausible point is that anti-Pyrrhonism was a characteristically French story – sparked by the sceptical writings of Michel de Montaigne (1533-1592) and Pierre Charron (1541-1603). Hobbes's prolonged stays in Paris had (for Tuck) involved him in this discourse, but he was the English exception that proved the rule. Bacon, for example, had read Montaigne, but his place in the history of scepticism is far from clear.[16] Bacon was scabrously anti-scholastic, but he aimed to acquire (and then use) certain formal knowledge. The methods he proposed were laborious, but they presupposed that certainty was, in principle, possible.

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[11] See Popkin, *The History of Scepticism*; Henry G. van Leeuwen, *The Problem of Certainty in English Thought, 1630-1690*, (The Hague, 1963).

[12] Although it is possible Popkin overstates Sextus' importance. For example, Montaigne's scepticism may have owed more to his perception of the failure of his humanistic education than to his reading of Sextus. See Zachary S. Schiffman, 'Montaigne and the Rise of Skepticism in Early Modern Europe: A Reappraisal', *Journal of the History of Ideas* 45 (1984), 499-516.

[13] Richard Tuck, 'Optics and Sceptics: the philosophical foundations of Hobbes's political thought', in Edmund Leites (ed.), *Conscience and Casuistry in Early Modern Europe*, (Cambridge, 1998), 235-63.

[14] *Ibid*., p. 251.

[15] See Douglas Jesseph, '*Scientia* in Hobbes', in Tom Sorell, G.A.J. Rogers, and Jill Kraye (eds.), *Scientia in Early Modern Philosophy: Seventeenth-Century Thinkers on Demonstrative Knowledge from First Principles*, (Dordrecht, 2010), 117-27. Neither is it likely that Hobbes was exercised by a need to overcome Pyrrhonic arguments in the same way as Descartes. See Tom Sorell, 'Hobbes's Objections and Hobbes's System', in Roger Ariew and Majorie Grene (eds.), *Descartes and his Contemporaries: Meditations, Objections and Replies*, (Chicago: University of Chicago Press, 1995), 83-96, pp. 91-4.

[16] Bacon was 'friends' with Montaigne, according to M.A. Screech, 'Introduction', in Michel de Montaigne, *An Apology for Raymond Sebond*, translated and edited, with introduction and notes by M.A. Screech, (Penguin, 1987), ix-xxxiii, p. xxx.

In a technical sense, then, Bacon was not a sceptic. But labelling him an anti-sceptic is not quite right either; he was an anti-Aristotelian, which was not the same thing.

This distinction is worth bearing in mind when one considers White. Describing White as anti-sceptical is certainly not wrong – he was a vocal advocate of certain knowledge (and in support of Tuck's thesis, he also spent some time in Paris). But over-emphasising the label is misleading, for it effaces or disregards White's most pressing concern: to defend Aristotelianism (against sceptics, among others).[17] White's *oeuvre* therefore transcended, and was not bound by, an anti-sceptical outlook. The anti-sceptical cart has been put before the Aristotelian horse because Southgate overplays the importance of White's response to Glanvill's attack on philosophical dogmatising.[18] White became embroiled in a polemical exchange with Glanvill – an Anglican divine – when, in 1663, he published a response to Glanvill's *The Vanity of Dogmatizing* (1661) entitled *Sciri* (translated into English in 1665 as *An Exclusion of Scepticks*). Also in 1665 – partly in a bid to gain admittance into the nascent Royal Society – Glanvill reprinted *Vanity* under the Latin title *Scepsis Scientifica*. He also replied to White in *Sciri tuum nihil est*, which, tellingly, contained a digression on the demerits of Aristotle's philosophy. Finally, in the year of White's death (1676), Glanvill rehashed many of his arguments against White in an essay *Of Scepticism and Certainty*.

Glanvill consistently denied the charge of scepticism. He preferred 'modest and wary' knowledge to 'bold, and presuming' pyrrhonian ignorance.[19] In *Of Scepticism and Certainty*, he said he was not prepared to suspend all judgement and undermine all knowledge.[20] His target was dogmatism, which injured knowledge by terminating discussion and choking off investigation. Instead of vainly pretending to absolute certainty or absolute ignorance, judicious people ought to proportion their assent to the weight of available evidence.[21] Certainty, then, would acquire different meanings or degrees.[22] White had no

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[17] Of course, "Aristotelianism" was not a univocal designation. See Schmitt, *Aristotle and the Renaissance*; Pasnau, *Metaphysical Themes*; Blair, 'Natural Philosophy', pp. 372-9; Edward P. Mahoney, 'Aristotle and some late Medieval and Renaissance Philosophers', in Riccardo Pozzo (ed.), *The Impact of Aristotelianism on Modern Philosophy*, (Washington, 2004), 1-34, pp. 2-6; Grant, "Aristotelian' and 'Aristotelianism", pp. 335-8; Heikki Mikkeli, *An Aristotelian response to Renaissance Humanism: Jacopo Zabarella on the Nature of Arts and Sciences*, (Helsinki, 1992).

[18] Southgate, 'Excluding Sceptics', pp. 71-85

[19] Glanvill, *The vanity of dogmatizing*, p. 226.

[20] Glanvill, *Essays on Several Important Subjects*, pp. 40-1.

[21] *Ibid*., p. 46.

[22] Glanvill posited two variants. Certainty could either be indubitable – whereby one has no reason to doubt the truth of something – or it could be infallible – whereby one's conceptions of something could not possibly be contrary to the reality of that thing. While only God possessed the latter type of certainty, the former – which, for Glanvill, encompassed such wide-ranging and apparently certain propositions as

truck for these qualifications. He said that sceptics (or people like Glanvill) rejected the possibility of certitude, assuming that the appearance of truth was sufficient. The problem, he argued in *Exclusion*, was that discerning the likeness of truth was impossible if you did not know what truth was, or rejected the concept outright.[23] Scepticism could not even justify the denial of certainty, because, lacking criteria for *any* cognitive preferences, sceptics could not say why a particular tenet was illusory and why scepticism was necessary.[24] The heuristic or mitigated variety of scepticism advocated by Glanvill was trying to have its cake and eat it.

According to White, man was uniquely endowed with reason, the faculty that enabled the mind to travel from certain, known things to things hitherto unknown and uncertain. To deny certainty was to rob man of his reasoning faculty. Scepticism, therefore, 'utterly evacuates' man's nature, and is a betrayal of his humanness.[25] This was particularly loathsome to White because it disabled pedagogy. How, he asked, could masters profess to impart what they did not know, or disciples search for something they did not believe in?[26] Here we see evidence of the connection between disciplines and pedagogy. Not only did scepticism inhibit the development of philosophy, it threatened the general upkeep and maintenance of the entire learning establishment.

Pedagogy – especially the teachings of Aristotle – was critical to the embattled Blackloist religious mission. It was particularly important to White, who taught Catholic theology and Thomist philosophy at various Catholic seminaries on the continent.[27] The Blackloists had few clerical allies. The Jesuit mission was 'entrenched' in England following the forced departure of the vicar apostolic, Richard Smith (1568-1655) in 1631.[28] And the secular clergy – Blackloists included – blamed the Jesuits for the state's intermittently harsh treatment of English Catholics.[29] Matters worsened when, in 1647, the Jesuits sabotaged a Parliamentary deal (supported by White and Digby) to grant

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Descartes's *cogito*, logical tautologies, universal testimony and sensory data – fell within the human compass. See *Ibid*., pp. 47-50.

[23] Thomas White, *An Exclusion of Scepticks from all title to dispute: being an answer to the Vanity of Dogmatising,* (London, 1665), p. 11.

[24] *Ibid*., p. 15.

[25] *Ibid*., p. 16.

[26] *Ibid*., p. 14.

[27] See Robert I. Bradley, 'Blacklo and the Counter-Reformation: an Inquiry into the Strange Death of Catholic England', in Charles H. Carter (ed.), *From the Renaissance to the Counter-Reformation: essays in honour of Garrett Mattingly*, (London, 1966), 348-70, pp. 355-6; Beverley C. Southgate, "A medley of both': old and new in the thought of Thomas White', *History of European Ideas*, 18 (1994), 53-60, p. 54.

[28] John Bossy, *The English Catholic Community, 1570-1850*, (London, 1975), p. 60.

[29] Stefania Tutino, *Thomas White and the Blackloists: between Politics and Theology during the English Civil War*, (Aldershot, 2008), pp. 2-3; Alexandra Walsham, "Yielding to the Extremity of the Time': Conformity, Orthodoxy and the post-Reformation Catholic Community', in Peter Lake and Michael Questier (eds.), *Conformity and Orthodoxy in the English Church, c.1560-1660*, (Woodbridge, 2000), 211-36, pp. 214-17, 233.

Catholic toleration in exchange for rejections of Papal fealty.[30] Further, the Blackloists' hostility to any papal authority over the English clerical hierarchy eventually alienated the seculars as well. Estranged from Rome and other English Catholics, the Blackloists held tight to their particular ecclesiology and theology, supported, they claimed, by the teachings of Aristotle.[31] For White, then, scepticism was an epistemological problem; but it also threatened his, already scant, sense of institutional security.

The White-Glanvill polemic dominates the White historiography (itself dominated by Southgate). Yet it constitutes only a fragment of White's total output, and was written towards the end of his life. Moreover, White's case against Glanvill was largely a summation of arguments set out in 1656 in *Peripateticall Institutions* (and available to Latin readers nine years earlier). Setting out the foundations and structure of his philosophy, *Peripateticall Institutions* was, as the name suggests, a contribution to the Aristotelian tradition. It was an idiosyncratic text – White married school concepts like matter and form to more contemporary (corpuscularian and heliocentric) principles.[32] Still, it demonstrates that White's philosophy was not, in the first instance, anti-sceptical. The same arguments could be deployed against Glanvill, but they were designed, in their original context, to show the compatibility of Aristotelian first principles and corpuscular matter theory.

White was an eclectic Aristotelian. But the Aristotelian tradition had never been hidebound or monolithic. Medieval and Renaissance Aristotelians were not identifiable by their advocacy of specific doctrines, but by their rough alignment with a loose Aristotelian heritage.[33] Medieval Aristotelians were divided into Thomist, Scotist and Averroist schools (among others), each brimming with internal metaphysical and philosophical dispute.[34] Subsequent humanist scholarship cultivated alternative readings

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[30] See Bradley, 'Blacklo and the Counter-Reformation', p. 352; Bossy, *The English Catholic Community*, pp. 63-65; Jeffrey Collins, 'Thomas Hobbes and Blackloist Conspiracy of 1649', *The Historical Journal*, 45 (2002), 305-31, pp. 313-14.

[31] See John Henry, 'Sir Kenelm Digby, Recusant Philosopher', in G.A.J. Rogers, Tom Sorell, and Jill Kraye (eds.), *Insiders and Outsiders in Seventeenth Century Philosophy*, (London, 2010), 43-75; Tutino, *Thomas White and the Blackloists*, pp. 46, 53.

[32] See, for example, Southgate, 'A medley of both', 53-60; and Beverley C. Southgate, "Torn between Two Obligations': The Compromise of Thomas White, in Tom Sorell (ed.), *The Rise of Modern Philosophy: the tension between the new and traditional philosophies from Machiavelli to Leibniz*, (Oxford, 1993), 107-27.

[33] Grant, "Aristotelian' and 'Aristotelianism", pp. 335-8.

[34] Christoph Lüthy, Cees Leijenhorst, and Johannes M.M.H. Thijssen, 'The Tradition of Aristotelian Natural Philosophy. Two Theses and Seventeen Answers', in Cees Leijenhorst, Christoph Lüthy and Johannes M.M.H. Thijssen (eds.), *The Dynamics of Aristotelian Natural Philosophy from Antiquity to the Seventeenth Century*, (Leiden, 2002), 1-29; Mahoney, 'Aristotle and some late Medieval and Renaissance Philosophers', pp. 2-6.

of Aristotle based on Greek sources and his original commentators.[35] Moreover, throughout the Renaissance, the schools responded to, and absorbed elements of the other recently refurbished ancient schools – Platonic, Sceptical and Epicurean.[36] In the seventeenth century, several Aristotelians even accepted Copernican cosmology (either heliocentricism or a related, non-Aristotelian doctrine like elliptical orbits or celestial corruption). In *Peripateticall Institutions*, for example, White celebrated Galileo Galilei's astronomical observations – referencing the satellites of Jupiter and sunspots – and argued in favour of heliocentricism, describing the bodies in the 'Great Orbe' as either orbiting the sun (like earth) or other planets (like the moon).[37]

To varying degrees, Aristotelians also became amenable to various types of atomism. White, again, fell into this category, describing the world mechanically, as a 'Collection of…Bodies', in which variation was caused by degrees of rarity and density.[38] Glanvill derided White's philosophical synthesis, claiming 'our Author is one of the first that asserts *Aristotle* to have taught the *Corpuscularian* and Atomical *Philosophy*; for all the world hath hitherto taken *his*, to be the way of *Qualities* and *Forms*'.[39] Of course, White was not the first. Averroes set a precedent,[40] which was followed by alchemical Aristotelians like Niccolò Cabeo (1586-1650).[41] Closer to White, and doubtless his greatest influence, was Digby. In his *Two Treatises* (1644), Digby argued that immaterial souls were immortal because corruption was only attendant on material substances.[42] His argument hinged on a particular interpretation of Aristotle. 'Lett any man reade his [Aristotle's] bookes of Generation and Corruption', and see 'whether he doth not expressely teach, that mixtion…is done *per minima*; that is in our language and in one word, by atomes…[and]

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35 See Mikkeli, *An Aristotelian response to Renaissance Humanism*, pp. 9-10; Schmitt, *Aristotle and the Renaissance*, p. 92.

36 Charles H. Lohr, 'Latin Aristotelianism and the Seventeenth Century Calvinist Theory of Scientific Method', in Daniel A. di Liscia, Eckhard Kessler, and Charlotte Methuen (eds.), *Method and Order in Renaissance Philosophy of Nature: The Aristotelian Commentary Tradition*, (Aldershot, 1997), 369-80, pp. 371-3; Serjeantson, 'Proof and Persuasion', pp. 150-2.

37 Thomas White, *Peripateticall Institutions. In the way of that eminent person and excellent Philosopher Sr. Kenelm Digby. The Theoricall Part. Also a Theologicall Appendix of the Beginning of the World*, (London, 1656), pp. 125-126, 185-186. However, by some logical sleight of hand, White ensured that these doctrines never contravened or superseded his core Aristotelian beliefs. See Southgate, 'Torn between Two Obligations', pp. 114-18.

38 White, *Peripateticall Institutions*, pp. 118, 200, 43.

39 Joseph Glanvill, *Sciri tuum nihil est: or The Authors defence of The Vanity of Dogmatizing; Against the Exceptions of The Learned Tho. Albius in his Late Sciri*, (London, 1665), p. 67.

40 *Minima* were not mechanical particles, however. See Christoph Meinel, 'Early Seventeenth Century Atomism: Theory, Epistemology, and the Insufficiency of Experiment', *Isis*, 79 (1988), 68-103, pp. 70-1.

41 Although Cabeo wrote commentaries, he argued – like White – that physics was concerned with sensible qualities and must therefore be empirical. Unlike White, however, he denied abstract and insensible metaphysical properties any role in our understanding the natural world. See Craig Martin, 'With Aristotelians like these, who needs anti-Aristotelians: Chymical Corpuscular Matter Theory in Niccolò Cabeo's Meteorology', *Early Science and Medicine*, 11 (2006), 135-61.

42 See Henry, 'Sir Kenelm Digby', pp. 44-5; Tutino, *Thomas White and the Blackloists*, pp. 23-7.

that all the nature of bodies, their qualities, and their operations, are compassed by the mingling of atomes'.[43] The parallels with White are obvious. Taking his cue from that 'eminent Person and excellent Philosopher Sir Kenelm Digby', White likewise attempted to refurbish Aristotelian concepts like matter, form, and the four elements, along corpuscularian lines.[44]

From White's perspective, his dispute with Glanvill was basically an argument over Aristotelianism, with scepticism as proxy.[45] He thus ranted against Glanvill and others, who 'defame *Aristotle*…[so] that the ignominy of that one man may make way for them to tear *Science* it self out of the hands of the Learned, and throw it into the dirt of *Probability*'.[46] Equally, although Glanvill condemned all variety of dogmatism, he usually had specific targets in mind.[47] Namely, 'those high pretenders…the voluminous Schoolmen, and Peripatetical Dictators', whose science was nevertheless 'confin'd…within the compass of a penny'.[48] Even in light of man's deficiencies, scholasticism made an especially bad fist of philosophy. Thus, Glanvill remarked, 'The *Aristotelian Philosophy* is an huddle of *words* and *terms insignificant*…its Basis and Superstructure are *Chimærical*…[and its] *Verbosities* do emasculate the Understanding'.[49] His conflation of scepticism and anti-Aristotelianism became most evident when, in his reply to White's *Exclusion*, Glanvill appended a direct attack on Aristotle.

That White's anti-scepticism was a byproduct of his Aristotelianism is clear from the parameters he set for philosophy. In *Exclusion*, he said that for knowledge to qualify as philosophy it needed to satisfy several interlocking methodological requirements. First, it had to be demonstrative; second, like Euclid's method, it should start with self-evident propositions and develop into more complex ones; and third, it must interweave clearly established definitions with self-known truths. These criteria excluded scepticism from philosophical discourse. But their real import was that they 'may be observ'd in *Aristotle* and his antient interpreters, though not express'd in *Euclids* form'.[50] Philosophy was defined and legitimised by its demonstrative, geometric method. Other disciplinary components – subject matter, epistemic status etc. – were determined by this logical

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[43] Digby, *Two Treatises*, p. 343.
[44] White, *Peripateticall Institutions*, pp. 'The Authour's Design', 51-3, 193-9.
[45] This speaks to some of the problems with the Popkin thesis. Scepticism was certainly a visible and prominent intellectual issue, but, despite appearances, it did not fundamentally underpin *all* intellectual behaviour in the period.
[46] White, *An Exclusion of Scepticks*, p. 55.
[47] Glanvill, *The vanity of dogmatizing*, 'Preface'.
[48] *Ibid*., p. 14.
[49] *Ibid*., pp. 150-1.
[50] White, *An Exclusion of Scepticks*, pp. 75-6.

foundation. White claimed the existence and identity of certain knowledge derived, not, say, from Descartes's *cogito*, but from Aristotle's principle of non-contradiction, i.e. the truism, "what is, is".[51] Descartes discovered 'the very first thing falling under knowledge'; namely, that we think. White, however, sought to ascertain the general principle underlying all knowledge – 'what 'tis that fasten truth to our Minds, so that we cannot doubt or, as were, waver about it'.[52] As I will now discuss, White's esteem for Aristotle derived from the latter's development of a rigorous and comprehensive system of logic.[53]

II. Logic

For White, the foundation of philosophy must be Aristotelian. The governing principle of White's philosophy, and what attached him to the Aristotelian tradition, was the assumption that the entire world and the entirety of learning could be mapped and organised by logic.[54] Accordingly, philosophy was a linguistic practice – insofar as language accessed reality – based on the right ordering and explication of meanings and definitions. This is important, for it was White's conception of philosophy as definitional that made it a necessary condition for theology.

According to White, logic, or 'the Art of Discoursing', was the means whereby the understanding 'deduces and leads it self into the *knowledge* of something it was ignorant of'.[55] Following Aristotle, White thought the deductive process proceeded from the correct construction and linkage of syllogisms. Perfect logical structure was a route to *a priori* demonstrability, according to Aristotle.[56] Thus, the truth of a proposition was self-evident by virtue of its structure. For example, if it was true that *A* belongs to everything to which *B* belongs, and *B* belongs to everything to which *C* belongs, then, necessarily, *A* belongs to everything that *C* belongs to. 'This cannot be false', Aristotle said in *Prior*

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[51] *Ibid*., pp. 6-7.
[52] *Ibid*., p. 6.
[53] Tutino, *Thomas White and the Blackloists*, p. 28-30.
[54] In *Anti-White*, Hobbes upbraids White for claiming philosophy ought not to be treated logically, a position at odds with the characterisation of White's philosophy presented here. It is possible White simply changed his mind, developing a more logical, demonstrative methodology in his later works – *De Mundo* was published over 20 years earlier than *Exclusion*. However, it is worth remembering that when Hobbes quotes White as disavowing the use of logic in philosophy in *De Mundo*, he is actually referring to a marginal gloss. In the body of the text, White says philosophy has been undone by rhetorical conflict; he does not say philosophy should not be logical. See *De Mundo Examined*, p. 26. For the original Latin, see Hobbes, *Critique du De Mundo*, p. 107.
[55] White, *Peripateticall Institutions*, p. 1.
[56] Jonathan Lear, *Aristotle: the desire to understand*, (Cambridge, 1998), p. 218.

Analytics, 'for then the same thing will belong and not belong at the same time', which was impossible.[57]

According to Robert Bradley, White's commitment to demonstration meant he regarded the late scholastics – prone to probable or dialectical logic – as 'word-jugglers [who] were reducing truth into probability'.[58] Those who refrained from proper judgement were, for White, 'Apes cloaking themselves with *Aristotle*'s name.[59] In keeping with Aristotle, White defended a propositional logic built from utterances that either affirmed or denied something. This logic begat *scientia*; knowledge that necessarily followed from established causes or principles.[60] Aristotelian logic was therefore an obvious antidote to scepticism.

In *Exclusion*, White argued that all knowledge was founded on three types of basic certainty. First, it was 'invincibly known…that what terminates and specifies an Identical Proposition as its Object is self-evident'.[61] Self-evidence meant being reducible to the proposition "what is, is", but could be worked up into statements like "the whole is greater than the part". Second, "tis equally determin'd that Propositions term'd *self-known* are evident: for, if they be look'd into, twill be clearly seen, that a self-known Proposition is in some sort composed of an Identical Proposition and another otherwise evident, or taken for evident'.[62] Third, propositions that shared a particular term could be combined – their common term operating as a predicate in the first proposition and the subject in the second. This created a syllogism. White's guiding principle was that 'the light of an Identical Proposition shews it self both in self-known Propositions, and in those which are concluded by Sylogisms'. As such, either 'the truth of an Identical Proposition is not evident, or else that self-known propositions, and such as are concluded by a legitimate Sylogism are Evident and most certain'. In White's view, denying the truth of identical propositions foreclosed the very possibility of rational discourse; because this was the behaviour of a 'Mad Sot', syllogistic conclusions were basically unimpeachable.[63]

As well as these Aristotelian conventions, White's logic also shows glimmers of more geometric concerns to do with meaning and definition. White was no mathematician. Nor, unlike Marin Mersenne (1588-1648) or Galileo, did he elaborate a mathematically-

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[57] Aristotle, *Complete Works*, I, p. 86.
[58] Bradley, 'Blacklo and the Counter-Reformation', p. 362.
[59] White, *An Exclusion of Scepticks*, p. 62.
[60] Aristotle, *Complete Works*, I, pp. 118-119. See also Tom Sorell, 'Introduction', in Tom Sorell, G.A.J Rogers, and Jill Kraye (eds.), *Scientia in Early Modern Philosophy: Seventeenth Century Thinkers on Demonstrative Knowledge from First Principles*, (Dordrecht, 2010), vii-xiii, p. vii.
[61] White, *An Exclusion of Scepticks*, p. 5.
[62] *Ibid.*, p. 7.
[63] *Ibid.*, pp. 8-9.

based natural philosophy.[64] However, White was sympathetic to the idea that Euclidean order or method could be applied to subjects outside geometry. To some degree, then, he was aligned with thinkers like Hobbes (in *Leviathan* (1651)) and Baruch Spinoza (in *Ethica* (1677)). This view was compatible with orthodox Aristotelian logic because geometric reasoning could be formulated syllogistically.[65]

Geometric reasoning usually proceeded in two stages. First, one stated or established definitions and axioms, respectively expressing the essences of things (usually construed as their cause), and self-evident truths.[66] Second, a proposition was posited, and then demonstrated using the premises already stated. Geometrically-derived conclusions therefore rested on self-evident or already established propositions.[67] White's demonstrations were more Aristotelian-syllogistic than geometric-axiomatic – certain truth was educed from the *structure* of logical demonstrations, (i.e. if A is B, and B is C, then A is C). But he was impressed by the geometric injunction that reasoning should unspool from definitions.[68] He thus held that the conclusions wrought by syllogism should be implicit in the terms used in propositions. Logic, therefore, must take note of *meaning* as well as structure. As such, the geometric element in White's philosophy, insofar as there was one, came from the stress he placed on definitions.

As he argued in *Peripateticall Institutions*:

> 'those things which are demonstrated concerning another are, either in the *thing it self*, or else are *effects* or *causes* of it…now, a Definition explicates the thing it self: 'tis clear, that whatsoever is demonstrable of the thing is rooted in the very Definition: Whence, a Definition is a certain *principall Instrument* of *Science*; and all the solutions of difficulties depend chiefly upon Definitions…[for] all the connection of Notions is found in Definitions, and the connection of Terms is what makes *Science*'.[69]

It was philosophy's putative demonstrability that enabled White – by his own account – to dodge a major plank of Glanvill's sceptical critique. For Glanvill, scientific knowledge

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64 See Dear, 'Method and the Study of Nature', pp. 72, 76.
65 For example, the Jesuit mathematician Christopher Clavius attempted to rewrite Euclidean propositions syllogistically. However, not all his Jesuit colleagues shared his view that mathematics should be regarded as a science. See *Ibid.*, pp. 39, 65-9, 72. See also Paul Richard Blum, 'Aristotelianism more Geometrico: Honoré Fabri', in *Studies in Early Modern Aristotelianism*, (Leiden, 2012), 199-214.
66 Gabriel Nuchelmas, 'Logic in the Seventeenth-Century: Preliminary Remarks and the Constituents of the Proposition', in Daniel Garber and Michael Ayers (eds.), *The Cambridge History of Seventeenth-Century Philosophy*, (2 vols., Cambridge, 1998), I, 103-17, p. 114.
67 See Steven M. Nadler, *Spinoza's Ethics: an introduction*, (Cambridge, 2006), pp. 48-51.
68 For the lineaments of the geometric method, particularly in an Aristotelian context, see Blum, 'Aristotelianism more Geometrico, pp. 211-13.
69 White, *Peripateticall Institutions*, pp. 23, 25

pertained to immediate and necessary causation. But, he said, because physical causality was imperceptible, causation was established by inference. Something was *supposed* to be the cause of something else by dint of their frequent companionship. However, this was unwarranted because 'to argue from a concomitancy to a causality…is not infallibly conclusive'.[70] After all, it was possible that the 'causes' identified were no more than 'uninfluential attendants'.[71] We suppose fire to be the cause of heat because we frequently observe their concurrence. But we have no way of showing that one is the absolute and necessary cause of the other. He concluded, therefore, that because 'we cannot infallibly assure our selves of the truth of the *causes*, that most obviously occur…the foundation of *Scientifical* procedure, is too weak for so magnificent a superstructure' of certain knowledge.[72]

White acknowledged that to posit causality, it was not enough to have observed concomitancy. However, he circumvented Glanvill's argument by rejecting its implicit empiricism. (Glanvill's critique does much to unseat Bacon's method, which purported to uncover causal knowledge by observing and comparing different instances of the same phenomena, e.g. whiteness.) White established causality via definitions. The peripatetics, he said in *Exclusion*:

> 'conclude not A. to be the cause of B. till, defining both, they find, out of their very Definitions, that A cannot be, but it must follow out of its intrinsecals that B is. For example, a Peripatetick collects that Fire is the Cause of Heat; because Heat is nothing else but Atoms flowing from Fire: and on the other side, he knows that Fire cannot exist, but it must send out such particles'.[73]

For an Aristotelian, burning was the actualisation of a particular material's potentiality to burn or produce fire. That same event, however, was also the actualisation of fire's potential to cause heat. These two processes were not successive *events* that, according to Glanvill (and later David Hume (1711-1776)), had no necessary causal relation. Rather, they were constituents of the same event, which, depending on one's perspective, drew attention to alternative processes of actualisation. Absent the explicitly Aristotelian conceptual machinery, White adopted a more geometric approach – demonstrating 'out of…Definitions'. However, by claiming that two notions – fire and heat – contained one another in their respective

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[70] Glanvill, *The vanity of dogmatizing*, p. 190.
[71] *Ibid*., p. 191.
[72] *Ibid*., p. 192.
[73] White, *An Exclusion of Scepticks*, p. 75.

definitions, he mirrored both the Aristotelian attempt to view causality as working on a variety of levels simultaneously, and the geometric principle that demonstrations were made from definitions.[74]

Logico-linguistic certainty was the hallmark of geometry. Geometricians were 'excus'd from any necessity to resolve the Equivocation of their terms' because the meaning of geometric concepts commanded universal assent. To replicate this cogency, it was 'the first task in the other [less lucky] Sciences…to make the question clear between the opposite Parties, not only in Term, but also in meaning'.[75] By White's estimation, it was this capacity to establish, and then work from, clear definitions that made Aristotle worthy of commendation. 'If we consult *Aristotles* Works, or his ancient *Emulators*', it is obvious that 'none ever of the Philosophers so industriously, and by distributing so many of his Terms into obvious sences, took care for the clearness of his Dictates, and eluded the entanglement of *Equivocations*'.[76] An Aristotelian established a definition by dividing a genus into contradictory parts until they reached the subject of definition: stripped of its accidents, only the subject's essential predications would remain.[77] Aristotle's methodological influence on White was therefore twofold. First, he provided White with a logical system for making formal demonstrations. And second, he showed that, in order to secure the foundations of that logic, it was necessary to be mindful of the definitions in play. These methodological prescriptions had obvious applications in White's philosophy. But they were equally important in the governance of his theology. As we will see, the purpose of theology was to clarify and explicate matters of faith, and then deduce further doctrine from them. To complete these tasks, theology relied on philosophy, first to discern correct definitions and make deduction therefrom, and second, to show the compatibility of faith with natural knowledge.

III. Hobbes and Aristotle

To elucidate the structure of White's thought, it is useful to compare him with Hobbes. Both men were exiled together in Paris during the Civil War, and became members of

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[74] See Lear, *Aristotle*.
[75] White, *An Exclusion of Scepticks*, p. 23.
[76] *Ibid*., pp. 61-2.
[77] Nuchelmas, 'Logic in the Seventeenth-Century', pp. 113-14.

Mersenne's salon.[78] They also shared an admiration for Galileo, and, like him, advocated mechanism and the geometric method. However, fundamentally, they occupied different philosophical and theological spaces. Hobbes was an antic-clerical materialist; White was a Catholic polemicist and Aristotelian. Hobbes thus draws out the distinctly Aristotelian character of White's logic and metaphysics. Crucially, their differences were circulated in manuscript form and thrashed out in person. Between 1642 and 1643, Hobbes wrote a critique of *De Mundo* (1642) – White's first major statement of natural philosophy – known as *Anti-White*.[79] It was probably commissioned by Mersenne, and in it, Hobbes poured scorn on White's attempts to graft Galilean mechanics onto Aristotelian philosophical assumptions.[80] Once repatriated, they remained in contact, meeting in London several times to exchange views on philosophy and theology. It was said that Hobbes 'had a great respect for him [White]', but that during their meetings they would 'squabble…like young Sophisters'. Intriguingly, those who witnessed their disputes 'held that the Laurel was carried away by *White*'.[81]

In outline, Hobbes's method of reasoning is similar to White's. They both constructed knowledge by making inferences from definitions strung together in propositions. Both, in other words, thought the effects of a particular thing were embedded in its definition.[82] In *Anti-White*, Hobbes described reason, or syllogising, as the 'continuous linking of propositions' or the 'calculating of names'.[83] This was akin to White's assertion that 'the connection of Terms is what makes *Science*'.[84] Like White, Hobbes said this method guaranteed the certainty of its conclusions by a process of necessary deductions from clear definitions and self-evident propositions.[85]

However, notwithstanding these structural similarities, Hobbes and White built their logics on dissimilar foundations. Both advocated syllogistic reasoning. But they devised and used definitions (the basis of syllogisms) in very different ways. For White, logical tautology was the key to demonstration. All propositions were ultimately reducible to the Aristotelian truism that "what is, is", or "what is, cannot simultaneously not be".

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[78] Jürgen Overhoff, *Hobbes's Theory of the Will: Ideological Reasons and Historical Circumstances*, (Oxford, 2000), p. 17.
[79] Hobbes, *De Mundo Examined*, p. 3.
[80] Noel Malcolm, 'Thomas Hobbes and Voluntarist Theology', (unpublished PhD. thesis, University of Cambridge, 1983), p. 47.
[81] à Wood, *Athenae Oxonienses*, II, p. 497.
[82] Dorothea Krook, *John Sergeant and his circle: A study of three seventeenth-century English Aristotelians*, edited by Beverley Southgate, (Leiden, 1993), pp. 49-50.
[83] Hobbes, *De Mundo Examined*, p. 377. For the original Latin, see Hobbes, *Critique du De Mundo*, p. 358. Jones dates the composition of the *Anti-White* to c.1642/1643, see Hobbes, *De Mundo Examined*, p. 3.
[84] White, *Peripateticall Institutions*, p. 25.
[85] Hobbes, *De Mundo Examined*, p. 26. For the original Latin, see Hobbes, *Critique du De Mundo*, p. 107.

Hobbes, on the other hand, was more geometric. Science, he said in *De Corpore*, was the demonstration of causes. To demonstrate a cause, i.e. to guarantee its appearance in the conclusion of a syllogism, it must be present in the definition of one of the syllogism's premises.[86] Definitions, therefore, must express the cause of the thing defined; and, in proper syllogisms, the causes of the things being reasoned upon must be known. The causes of particular, contingent things were compounded of more general, universal causes.[87] And, according to Hobbes, 'the causes of universal things…are manifest of themselves, or (as they say commonly) known to nature; so that they need no method at all; for they have all but one universal cause, which is motion'.[88] For Hobbes, then, motion was the conceptual root of all demonstration, and natural philosophy was begotten by geometry, the discipline concerned with simple motion.[89]

A further difference between White and Hobbes was that, for White, language-based certainties reflected and encapsulated certainties that existed in reality. Generally speaking, the Aristotelian tradition regarded words as conventional signifiers of thought. Language varied, but individuals all engaged with and experienced the same world. The concepts generated by man's experiences were therefore common or universal. Moreover, it was assumed, this shared mental discourse revealed something true about the external world. Thus, as well as signifying concepts, words also signified *things*.[90] In medieval and early modern scholastic logic textbooks, the intricacy of this signification was often lost or hidden. As a result, concepts and things were sometimes elided, reducing what was a tripartite framework – of words, concepts and things – into a simple association of words and things.[91]

This haziness and elision was evident in White's writings. Discussing logic in *Peripateticall Institutions*, he shifted between concern for what someone might 'mean by such a word' – i.e. what concept a word was signifying – and concern for 'the thing as 'tis expressed by this word' – i.e. what part of physical reality a word was signifying.[92] White, it would seem, assumed language mapped both mental and physical terrains. Hobbes, on the contrary, carefully avoided this slippage, saying there was no guarantee that the linguistic signs used to denote conceptions of reality actually captured the essence of that

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[86] Hobbes, *The English Works*, I, p. 82.
[87] *Ibid*., p. 68.
[88] *Ibid*., p. 69.
[89] *Ibid*., p. 73
[90] Hannah Dawson, *Locke, Language and Early Modern Philosophy*, (Cambridge, 2007), pp. 7, 14-17, 25-7.
[91] *Ibid*., p. 29.
[92] White, *Peripateticall Institutions*, p. 22.

reality. 'Names', he said in *Leviathan*, 'are imposed to signifie our conceptions' only.[93] Hobbes agreed with White that truth or falsity resided in the validity or invalidity of propositions. But in *Anti-White*, he concluded that truth or falsity therefore referred 'not…[to] things themselves but [only] of names'.[94]

Hobbes, therefore, was a nominalist. If 'in every demonstration the term that forms the subject of the conclusion demonstrated is taken as the name, not of a thing that exists, but of one supposed to exist' it means that a 'conclusion…has a force that is not categorical, but is merely hypothetical'.[95] Famously, Hobbes said deductive demonstrations were logically sound *and* captured the nature of reality when used in geometry and politics, because these disciplines used man-made concepts and definitions, and so their causes were prescribed and known with certainty.[96] However, outside these disciplines – for example, in natural philosophy – wedding logical certainty to physical existence and truth was more problematic. Hobbes was arguably more optimistic about natural philosophy's potential in *De Corpore*. Yet he still observed that, 'concerning the causes of the phantasms of sensible things, it is not so easy to discern between the things themselves, from which those phantasms proceed, and the appearances of those things to the sense'.[97] So, despite advocating a natural philosophy engineered by deductive logic, Hobbes did not think logical certainty translated into certainty about the nature of reality.[98] White, by contrast, saw no problem with this, which helps explain the robustness of his anti-scepticism.

This disagreement over the relative gap between logic and reality was underpinned by more fundamental differences. For White, concepts and things had an unproblematic relationship because he subscribed to a theory of cognition whereby, after impinging on the sense organs, particles from external objects travelled to the brain and – after 'carrying away with them some little particle of the Brain' – were stored in the ventricles.[99] Hobbes rejected the notion that an external object could exist in the human mind (thus eliding things and thoughts). And, more fundamentally, he bridled at White's

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[93] Thomas Hobbes, *Leviathan*, edited by Richard Tuck, (Cambridge, 1991), p. 31.
[94] Hobbes, *De Mundo Examined*, p. 376. For the original Latin, see Hobbes, *Critique du De Mundo*, p. 358.
[95] *Ibid*., p. 305.
[96] See Noel Malcolm, 'Hobbes's Science of Politics and his Theory of Science', in *Aspects of Hobbes*, (Oxford: Clarendon, 2002), 146-155.
[97] Hobbes, *The English Works*, I, p. 75.
[98] Hobbes's interest in the field was undimmed, however. As Malcolm remarks: 'with the exception of his work on *De Cive*, Hobbes's intellectual activities during his decade-long stay in Paris had focused almost entirely on the areas of optics, physics, mathematics, logic, and metaphysics'. 'General Introduction', p. 3.
[99] White, *Peripateticall Institutions*, p. 104. See also Southgate, 'Beating down Scepticism', pp. 295-9. There is arguably a tension between White's physicalist theory of cognition, which seems to account for knowledge of particular things/sensations, and his logical method, which relied on the mind grasping universal truths.

attempt to make (erroneous) Aristotelianism compatible with corpuscularian cognitive theory.[100] Referring to his philosophy, or '*Institutions'*, White said, '*I call them* Peripateticall, *because, throughout they subsist upon* Aristotle'*s Principles; though the conclusions sometimes dissent*'.[101] White was not slavishly Aristotelian – he absorbed elements of the new philosophy because he acknowledged that, in places, but always ingeniously, Aristotle had erred, and he recognised the importance of allowing 'Philosophy its growing time'.[102] Unlike Hobbes, however, Aristotle remained the foundation of White's thought.

White was clear about his disciplinary priorities, and the manner in which some bodies of knowledge gave rise to others. At the beginning of *Exclusion*, he said knowledge only qualified as certain if it developed from, or was reducible to, basic metaphysical principles. Unlike physics, which relied on experimentation, metaphysics worked by demonstration – i.e. it invoked the intellect over the senses. Physics was beholden to metaphysics, for '*without her* [metaphysics] *help and Principles*', physics '*is able scarce to demonstrate any thing and advance by Causes connectedly*'. It was 'ignorance of this necessity', that produced erroneous science, for '*there's not a step can be made in Sciences without them* [metaphysical principles]'. According to White, Aristotle was the only reliable source of metaphysical principles, and thus the only guarantor of certain knowledge. '*They that slight* Aristotle's *Grounds must of necessity*, *being always in quest of Principles, ever fall short of Science*'.[103] Natural particulars were only intelligible in light of metaphysics, and the only source of proper metaphysics was Aristotle.[104]

Turning to what these principles were specifically, White referred to 'those common truths which *Aristotle* has demonstrated: such as are *Formal Divisibility*, that what *ever is mov'd is mov'd by another*, that *a* Continuum *or Bulk is divisible* in infinitum, that *there's no* vacuum: and such like'.[105] White had already fleshed out these topics in *Peripateticall Institutions*.[106] But his description of them in *Exclusion* as 'what *Aristotle* has demonstrated' was particularly telling. It suggests that Aristotelian principles were true and useful by virtue of their demonstrability. In other words, their truth and certainty was established by their status as products of formal logical reasoning. White's Aristotelianism thereby

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[100] However, beneath Hobbes's polemical blustering, he engaged, albeit patchily, with school metaphysics. See Michael Edwards, 'Substance and Essence', in Peter R. Anstey (ed.), *The Oxford Handbook of British Philosophy in the Seventeenth Century*, (Oxford, 2013), 192-212; Pasnau, *Metaphysical Themes*; Roger Ariew and Alan Gabbey, 'The scholastic background', in Daniel Garber and Michael Ayers (eds.), *The Cambridge History of Seventeenth Century Philosophy*, (2 vols., Cambridge, 1998), I, 425-53, pp. 430-1.
[101] White, *Peripateticall Institutions*.
[102] White, *An Exclusion of Scepticks*, p. 73.
[103] *Ibid*., 'To the Young Witts of both Universities'.
[104] White returned to these same arguments, see *Ibid*., pp. 74, 77.
[105] *Ibid*., p. 72.
[106] White, *Peripateticall Institutions*, pp. 32-47.

came full circle: Aristotle's system of formal demonstrability produced metaphysical principles, which in turn provided the foundation for all subsequent knowledge, which itself was logically verifiable. This was summed up when, regarding the existence or non-existence of vacuums, White simply reflected that '*Metaphysicks* declares [it] impossible, as for no-thing to be a thing'.[107] The impossibility of a vacuum was self-evident: a consequence of the truism (at the fulcrum of Aristotelian logic) that something cannot simultaneously be and not be.

In virtually every discipline, truth and meaning were established in relation to these logico-metaphysical foundations. As we will see, theology owed its procedures and intelligibility to these philosophical principles. Only one area of learning claimed certainty on different grounds (and remained indifferent to the meaning of its propositions). This subject – which was of particular interest for White – was religion.

IV. Rules of faith

Religious discourse served two purposes, according to White. On the one hand, it established the truth of faith; on the other, it provided a springboard for theological discussion. Religion and theology were therefore linked, but discrete, discourses. However, when the religion/theology distinction is noted in the literature, its full import, and possible tension, is not thoroughly explored.[108] Southgate seems to reject the distinction in his discussion of White, either eliding religion and theology, or not clarifying whether whatever applies to, say, religion, also applies to theology (or vice versa).[109] This is a mistake, for although White used terms like "religion" and "faith" interchangeably, he followed contemporary convention and regarded religion and theology as quite separate. In part, he prefigured the conventions elaborated in John Wilkins's *Ecclesiastes*. Wilkins described religion as a 'habit of reverence' towards God in 'a manner as we conceive most agreeable to his will', and theology as 'The *Doctrine* which delivers the Rules' of reverence.[110] White agreed that religion focused on reverence or obedience to God. Religious practice, he argued, did not require theological

[107] White, *An Exclusion of Scepticks*, p. 77.
[108] For example, Bradley mentions it only in passing. 'Blacklo and the Counter-Reformation', p. 364.
[109] Southgate, 'Beating down Scepticism', p. 305; Southgate, 'A medley of both', pp. 53-4; Beverley C. Southgate, "Cauterising the Tumour of Pyrrhonism': Blackloism versus Scepticism', *Journal of the History of Ideas*, 53 (1992), 631-45, pp. 635-6.
[110] Wilkins, *Ecclesiastes*, p. 121.

knowledge. However, in order to follow God's commands, other epistemic conditions had to guarantee their truth. Establishing these conditions was the main business of religion.

In many ways, the primary aim of this chapter is to explore White's particular take on the distinction between theology and religion. Not only did this distinction mediate White's understanding of the relationship between philosophy and theology, it also throws his broader intellectual agendas – namely, his post-Reformation polemical objectives – into sharper relief.[111] For White, the Catholic oral tradition was a more rational and secure method for transferring doctrine than Reformist scripturalism. Blackloism, however, was far from conventional Catholicism. By distinguishing faith (which was universally accessible) from theology (which required philosophical acumen), while also holding that the former worked independently of the latter, White aimed to undercut Romanist priestly authority.

'Religion', he observed in *Controversy-Logicke* (1659), 'signifieth a skill or art of doctrine coming to aeternall blisse'.[112] It was 'the most important and the most necessary businesse, that belongeth to Mans nature and action', because 'if a man chance to mistake in it [religion]…he is lost for ever'.[113] The promise of salvation superseded or encompassed the ends of other fields of learning, making the art of religion 'more necessary and more esteemable'.[114] However, as an art, religion was neither logical, nor demonstrative, nor philosophical. Skill in religion – or acquiring salvation – meant acting in accordance with faith. Only God knew anything of salvation, so 'This science should be delivered us from God himselfe', and 'it should be done by way of command'. Thus, the 'art of obtaining happinesse [religion], was now become a matter of obedience to Almighty God'.[115] Religion, therefore, was no more than the skill of following God's commands and acting rightly.

According to White, 'Religion ought to take possession of our hearts, euen before Reason'.[116] Parents and preachers should therefore inculcate faith in children as early as possible. For White, then, religion had a status similar to that traditionally attributed to logic. In the Port-Royal *Logique* (1662), Antoine Arnauld (1612-1694) and Pierre Nicole (1625-1695) construed logic as the art of thinking, and a necessary preparatory for all subsequent learning. Likewise, in his *Answer to the Lord Faulklands discourse of Infallibility* (1660), White described religion as the 'art of living, a rule of attaining unto eternall

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[111] For a general account of both the professional obligations and intellectual opportunities attendant to early modern clerical careers, see Feingold, 'Science as a calling?'.
[112] Thomas White, *Controversy-logicke, or, The method to come to truth in debates of Religion*, (Paris, 1659), p. 14.
[113] *Ibid*., p. 162.
[114] *Ibid*., p. 15.
[115] *Ibid*., p. 25.
[116] *Ibid*., p. 24.

blisse, [and] a practicall doctrine whose end is to informe our action'.[117] At first glance, this seemed problematic. 'How', White asked in *Controversy-logicke*, 'can it be supposed, that Religion ought to be studied and learned like a science or skill, when as, it ought to be possessed even then when we begin to study; and, that our very study ought to be regulated by it?'.[118] The answer lay in a distinction between the method of delivering religion, and its uptake in the understanding. Religion, White argued, was 'apprehended generally to be a knowledge above nature, and to be derived by authority from a source of higher understanding then ours'. Therefore, it was appropriate that it be instilled authoritatively by parents or preachers, rather than discursively or by rational argumentation. This, moreover, meant religious instruction could take place before, and subsequently inform, other fields of learning. However, it was equally true that religion 'can not be planted in us, otherwise then that the roote of it must of necessity be in Reason, seeing that Reason is our nature'. Further, because 'the roote and basis of believing, is manifestly from this, that we are perswaded we ought to believe…[it] importeth as much, as that it is reasonable we should believe'.[119] Religion was administered via authority, but was accepted because believing those authorities was reasonable. Faith and reason were therefore compatible.

This was not an altogether remarkable position. The dynamic between reason and revelation, or faith, had been the touchstone for religious controversy since Antiquity. Tertullian (160-220), for example, argued that rational inquiry was impious, detracting from man's obedience to God. Augustine (354-430), on the other hand, although he denigrated vain curiosity, urged Christians to deploy humane learning against enemies of the faith.[120] However, during the Reformation, the idea that reason and faith worked together came under sustained attack. The theologies of Martin Luther and John Calvin were based on the idea of God's omnipotence, not the assumption of God's reasonableness. Free will, according to Luther, was 'a term applicable only to the Divine Majesty'.[121] Man's cognitive and moral faculties were sullied by the Fall, turning his will into 'the permanent prisoner and bondslave of evil, since it cannot turn itself to good'.[122] Good works, rationally conceived, could not expunge the stain and earn salvation

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[117] Thomas White, *An Answer to the Lord Falklands Discourse of Infallibility*, (London, 1660), p. 11.
[118] White, *Controversy-logicke*, pp. 48-9.
[119] *Ibid*., pp. 126-7.
[120] Morgan, *Godly Learning*, p. 41.
[121] Martin Luther, *The Bondage of the Will*, translated and with introduction by J.I. Packer and O.R. Johnston, (London, 1957), p. 105.
[122] *Ibid*., p. 104.

because man was incapable of goodness.[123] Salvation was bestowed by acts of divine mercy, meted out to the faithful. The recipients of grace may do good works as an outward expression of their faith, but it was not the works, or reason, that secured their salvation.[124]

Calvin also pressed for the decoupling of reason and faith, arguing that, for man, God would always be inscrutable, and appear arbitrary.[125] God, he said, was the immediate (not merely secondary) cause of everything; thus, when he permitted something to exist, he willed it to exist. Consequently, God was directly responsible for (what humans designated) good *and* evil. This radical voluntarism undermined man's attempt to fathom divine behaviour – 'all of us born of Adam are ignorant and bereft of God, perverse, corrupt, and lacking every good'.[126] Divine mercy, where it existed, was gratuitous, and as such the mysteries of salvation 'cannot in themselves and by their own nature…be discerned'.[127] It was not man's place to understand God; all he could do was 'serve him for his nature's sake alone…keep his rule, accept his majesty, and in obedience recognize him as Lord and King'.[128]

However, by the seventeenth century, most English Protestants were distancing themselves from the early Reformers. Instead of denigrating reason, William Chillingworth (1602-1644) and John Tillotson (1630-1694) offered qualified endorsements of man's cognitive potential. Not only was reason allowed a larger role in religious discourse, they also assumed reason took various forms. These claims were aired in the so-called rule of faith debates, in which different Christian denominations legitimised their faith-claims by appealing to different criteria for truth – Catholics cited papal infallibility, and Protestants relied on man's native capacity to comprehend scripture.[129] Speaking of these denominational fissures, White reflected that 'their first Division must necessarily be, into Believers of the Word taught or delivered *orally*, and Believers of the Word taught or delivered *in paper*'.[130] Thus, the rule of faith controversies

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123 Hoopes, *Right Reason*, pp. 52-3, 98-9.
124 *Ibid*., pp. 100-3.
125 See *Ibid*., pp. 106-114.
126 John Calvin, *Institutes of the Christian Religion*, translated and annotated by Ford Lewis Battles, (London, 1986), p. 16.
127 *Ibid*., p. 43.
128 *Ibid*., p. 15.
129 For the Rule of Faith debates, see Popkin, *The History of Scepticism*; van Leeuwen, *The Problem of Certainty*. For a particular Blackloist intervention, see Beverley C. Southgate, '"The Fighting of Two Cocks on a Dung-Hill": Stillingfleet Versus Sergeant', *Judaeo-Christian Intellectual Culture in the Seventeenth Century*, 163 (1999), 225-35.
130 William Rushworth, *Rushworth's Dialogues, or, The Judgment of common sence in the choyce of Religion*, last edition corrected and enlarged by Thomas White, (Paris, 1654), 'Preface', unpaginated.

were not fought over the righteous source of faith – agreed to be God's word, disseminated by the apostles. Rather, in England, Blackloists and latitudinarians[131] argued about how, given the time that had elapsed since God's revelation, doctrine could be verified as an authentic fragment of the divine word.[132]

English latitudinarians were wary of claims to absolute certainty – be it Catholic (via authority) or Reformist (via grace and scripture) – but opposed to full-blown scepticism. Therefore there was a strong conceptual connection between latitudinarianism and the sceptical-hypothetical philosophy espoused by Glanvill and others.[133] God, they argued, was capable of infallible judgements. But man, whose fallible senses and erring reason frequently disclosed falsities, could never be totally assured of any truth. Instead, he must make do with probabilistic, or moral, certainty. Such assurance usually derived from the senses or testimony, and was capable of yielding indubitable belief, sufficient for use in everyday existence.[134] For example, and most importantly, moral certainty was sufficient for religious belief. Chillingworth said the truth of scripture, 'though not so certain, in some sort, as sense or science, may be able to sway our will to obedience'.[135] Tillotson agreed. In *The Rule of Faith* (1666), he said it was not 'impossible in the nature of the thing that this Rule should fail, that is, either that these [scriptural] Books should cease to descend, or should be corrupted'. Nevertheless, this 'Rule of Faith, is…abundantly sufficient…to convey the Christian Doctrine to all successive Ages'.[136] By presiding over miracles – enacted by God – biblical authors acquired unimpeachable credibility. In addition, scriptural testimony could be verified by correctly compiled ancient histories.[137] For both men, rational individuals ought to believe in the Bible. However, this did not mean – and this was a crucial distinction – that every doctrine found in scripture was obviously rational.

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131 Though usually used to designate non-dogmatic, creedal minimalism, the labels "latitude-men" and "latitudinarian" are often applied un-reflexively and too rigidly. See Richard Kroll, 'Introduction', in Richard Kroll, Richard Ashcraft, and Perez Zagorin (eds.), *Philosophy, Science, and Religion in England 1640-1700*, (Cambridge, 1992), 1-28, pp. 1-3.

132 See Ruth A. Jordan, 'The Blackloists 1640-1688: Ecclesiastical, Theological and Intellectual Authority in English Catholic Polemic', (unpublished PhD. thesis, University of Cambridge, 1999), pp. 90, 99.

133 See van Leeuwen, *The Problem of Certainty*.

134 *Ibid*., pp. 13-14, 22-5.

135 William Chillingworth, *The Religion of Protestants a Safe Way to Salvation, made more generally useful by omitting Personal Contests, but inserting whatsoever concerns the common Cause of Protestants, or defends the Church of England*, (London, 1687), p. 330.

136 John Tillotson, *The Works of the most Reverend Dr. John Tillotson*, (London, 1699), 653-755, p. 667.

137 Gerard Reedy, *The Bible and Reason: Anglicans and Scripture in late Seventeenth-Century England*, (Philadelphia, 1985), pp. 10, 41-3, 46-50.

White was familiar with, and hostile to, these sentiments.[138] After debating Chillingworth, he wrote witheringly in *Reason and Religion* (1660) that he 'has his Religion tackt on him with such slight pins that he may change it *a la mode*'.[139] White and Tillotson also knew of each other, and latter wrote *The Rule of Faith* against White's protégé, Sergeant.[140] Latitudinarianism, in White's view, was based on two related falsities. First, it mistakenly claimed that the Bible, alone, could serve as an adequate rule of faith; and second, it argued (dangerously) that moral certainty provided sufficient assurance of religious truths. Biblical criticism became particularly prominent in the seventeenth century. Hobbes and Spinoza famously questioned Moses' authorship of the Pentateuch, while new geographical data, and research into Asian and Greek histories, challenged the monogenetic origins story found in Genesis.[141] White's Catholic judgment, recorded in the preface to (William) *Rushworth's Dialogues* (1654), was that 'private conceit' was all too often used to interpret scripture, resulting in 'as many Rules [of faith], as Heads'. He thus concluded that 'the Letter…without a *determinate sense*, is nothing'.[142] The problem, he argued, was that no one in good conscience could assent to, and wager their salvation on, something that was only probably true, and therefore possibly false. The truth of religion must be certifiable in order to generate right actions and a chance at salvation. Clerics who failed to provide absolute proofs for religious verities were abandoning their calling. For if religion was not known with certainty, it was possible that 'the very way God himself has shewn to Heaven may possibly lead to Hell'.[143] 'Faith', White argued in *Controversy-logicke*, was:

> 'of unchangeable verities…It is a parallel to science; I meane, to true science; such as we se exercised in *Geometry*…And to expect that faith should depend on probabilities, is no lesse ridiculous then to thinke the like of *Geometry*; since it is more necessary, and more important then *Geometry*…Therefore it were a great folly to imagine, that faith should not be as certaine, and as easy to arrive unto, as *Geometry* is'.[144]

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138 See van Leeuwen 1963, pp. 16-17, 37, esp. footnote no. 59.
139 See *Ibid*., pp. 16-17; White, *Reason and Religion*, p. 5.
140 See van Leeuwen 1963, p. 37, esp. footnote no. 59; Dmitri Levitin, 'Reconsidering John Sergeant's Attacks on Locke's *Essay*', *Intellectual History Review*, 20 (2010), 457-77.
141 Noel Malcolm, 'Hobbes, Ezra and the Bible: The History of a Subversive Idea', in *Aspects of Hobbes*, (Oxford, 2002), 383-431. pp. 386-9; Popkin, *The History of Scepticism*, pp. 223-4.
142 Rushworth, *Rushworth's Dialogues*, 'Preface', unpaginated. For White, the 'living voice' of the Catholic Church provided this determinate sense – overcoming exegetical problems, and sorting truth from the corruptions cause by copy errors, translations and interpolations. *Reason and Religion*, pp. 117-18.
143 Rushworth, *Rushworth's Dialogues*, 'Preface', unpaginated.
144 White, *Controversy-logicke*, p. 166.

How, though, did White think faith could be made certain? Scripturalism was inadequate, and so, as we will see, was philosophical demonstration. After all, establishing and finessing meaning had no bearing on whether information could be transmitted, uncorrupted, over time. The only way to be certain that one's beliefs were authentically God's teachings, was to trace them back to the oral preaching of the apostles.[145] Religious certainty was therefore found in 'Tradition', defined by White as 'the delivery of the Doctrin preach't and taught by our forefathers', handed down from the '*Doctrine universally taught by the Apostles*'.[146] In his *Answer* to Falkland, White said this doctrine or tradition was bequeathed to, and protected by, the Catholic Church:

> 'which layeth claime to Christ his doctrine, as upon this title, that she hath received it from his Apostles without interruption, delivered ever from Father to Sonne, from Master to Scholler, from time to time, from hand to hand, even unto this day'.[147]

Tradition guaranteed the authenticity and authority of sacred doctrine. As White explained in *Controversy-logicke*:

> 'if the scanning of ambiguous wordes will not serve to settle the beliefs of Christian doctrine in the hearts of mankinde. It is cleare, that nothing but Tradition can performe that worke, since there remaineth nothing else that can pretend there to: and consequently, nothing but Tradition can be the meanes to plant and continue Religion in the world'.[148]

Further, if religion originated in the 'word of mouth' preaching of the apostles, who 'propagated…[the] faith which themselues had learned from Jesus Christ', it was logical that the 'methode of the first institution' would be 'Ideall to the following continuation'.[149] Thus, 'the conseruation of Religion ought to be likewise effected by original deliuery; that is to say, by Tradition' – i.e. oral transmission.[150]

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[145] John Henry claims that from around 1660 – i.e. well after White's objections to Falkland's Protestantism had been answered by Falkland and Chillingworth – White (and Digby) toned down their emphasis on tradition. According to Henry, in order to achieve toleration for English Catholics, the Blackloists tried to devise a new ecumenical Christian faith, purged of overtly Catholic elements – purgatory, indulgence etc. – and less reliant on tradition. (Be that as it may, tradition remained the means by which White thought that religious truths could be known). See John Henry, 'Atomism and Eschatology: Catholicism and Natural Philosophy in the Interregnum', *The British Journal for the History of Science*, 15 (1982), 211-39, pp. 217-19.
[146] White, *Reason and Religion*, p. 81; White, *An Apology*, p. 44.
[147] White, *An Answer*, p. 8.
[148] White, *Controversy-logicke*, p. 48.
[149] *Ibid*., pp. 43-4.
[150] *Ibid*., p. 44.

As Ruth Jordan notes, tradition did not shed light on the meaning of religious doctrine; it was merely a process that ensured the apostolic doctrine endured, unadulterated through time, and was capable of being received by people in the present day.[151] This sort of religious argumentation was not based on definitions, and was not a formal demonstration. It was, instead, a form of historical reasoning, based on the transmission of knowledge, first from the apostles to their audiences, and then from fathers to sons. According to White, this guaranteed the certainty of faith in two ways: first, fathers would have no reason to dissemble to their children in matters they knew to be of grave importance (i.e. salvation); and second, by following the Apostles' oral example, tenets could not be misinterpreted or misunderstood.[152] Of course, for many, face-to-face communication was as potentially unreliable as textual transmission.[153] Luther famously attacked Catholic tradition.[154] And Hobbes later described 'Traditions' or 'the unwritten Word of God' as 'old Wives Fables'.[155] Similarly, the non-conformist and controversialist, Edward Bagshawe (1629-1671), likened tradition to '*old stories*, (which serve only to the advantage of the teller, and therefore may justly be suspected to be forged by him)'. Consequently, he argued, it was 'unreasonable…to use them as Motives, to perswade us unto the belief of that, which in Reason is ridiculous; and in Scripture, the most authentick and allowed Tradition, is not so much as once mentioned'.[156] Nevertheless, for White, tradition – shepherded by the Catholic Church – was the vehicle for Christian truth, and the best means to interpret scripture.

This had implications for the character of Church authority. For most Catholics, the Church was spiritually mandated to authenticate and verify tradition. White, however, claimed the Church *acquired* its authority by participating in the transmission of tradition. Human institutions were always capable of erring. Popes, fathers or councils were all fallible insofar as they were human. However, they cloaked themselves in infallibility if and when they limited themselves to the continued dissemination of tradition. As such, the practices of the church (conducted by potentially erring individuals or institutions)

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151 Jordan, 'The Blackloists', pp. 102-3, 107-8.
152 White, *An Answer*, pp. 4-7.
153 White and his Blackloist colleagues attempted to discredit truth-claims premised exclusively on textual sources – namely, the Bible. However, according to Southgate, Protestant opponents like Tillotson, Locke and Stillingfleet eventually turned these arguments back against the Blackloists' tradition-based claims for religious truth. It is therefore probable that the Blackloists inadvertently contributed to a general pattern of historical Pyrrhonism. See Beverley C. Southgate, 'Blackloism and Tradition: from Theological Certainty to Historiographical Doubt', *Journal of the History of Ideas*, 61 (2000), 97-114, pp. 111-14.
154 Popkin, *The History of Scepticism*, pp. 3-5.
155 Hobbes, *Leviathan*, p. 473.
156 Edward Bagshawe, *A Brief Enquiry into the Grounds and Reasons, whereupon the infallibility of the Pope and the Church of Rome is said to be founded*, (London, 1662), p. 16.

were separated from the tradition of the church (the doctrines infallibly transmitted down from the apostles to the present day).[157] This (at least theoretical) distinction between the institutions of Christianity and the truth of Christianity, allowed White to dodge Tillotson's wry observation that White and the Pope 'have so manifestly declar'd themselves to differ in Points of Faith'.[158]

The advantage of White's rule of faith was that it avoided circularity. Protestants usually cited the sanctity of the Bible to validate Mosaic scriptural doctrine. Traditional Catholics, on the other hand, said the Church must interpret the Bible because the Church had scriptural backing.[159] White was different. Scripture, he said, was measured against and answerable to tradition, which, in turn, was supported by a cluster of historical and psychological presuppositions. White did not beg the question because tradition was not certain *by virtue* of its propagation by the Catholic Church.

However, some scholars reject the idea that White's arguments for tradition were historical, and prefer to think of them as rational or geometric demonstrations. Dorothea Krook, for example, argued that White proved the apostles' teaching had been transmitted in their entirety and without corruption to the present Church, by a deduction from self-evident definitions.[160] Krook's evidence for this claim is largely taken from the beginning of White's *An Apology for Rushworth's Dialogues* (1654). White praised the *Dialogues* for their method of reasoning; deducing conclusions from clear definitions. White specifically endorsed Rushworth's definition of tradition as '*the delivery of Christs doctrin from hand to hand*', and his definition of Christ's doctrine as '*that* which was *generally* preach'd by the *Apostles*, and contains *all* such points as are *necessary* to the salvation of the *World*; not only in particular, to *single* persons, but [also] for *government* of the Church'. Proceeding from these definitions, Rushworth demonstrated the 'general Position, that *All Christ taught, of the Holy Ghost suggested to the Apostles, of this nature, is, by a direct uninterrupted line, entirely and fully descended to the present Church.*[161]

At first glance, this lends support to Krook's view that, for White, the success of the Catholic tradition was knowable by unpacking and uniting particular definitions apodictically. However, we must be careful not to overstate the importance of this one passage. Indeed, with a greater spread of textual evidence, a different picture emerges.

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[157] White, *Reason and Religion*, pp. 72-3, 82; Jordan, 'The Blackloists', pp. 133-6.
[158] Tillotson, *Works*, p. 660.
[159] Reedy, *The Bible and Reason*, p. 53.
[160] Krook, *John Sergeant*, pp. 49-54.
[161] Thomas White, *An Apology for Rushworth's Dialogues wherein The Exceptions of the Lords Falkland and Digby are answer'd: and The Arts of their commended Daillé Discover'd*, (Paris, 1654), pp. 7-8. See Krook, *John Sergeant*, pp. 49-50.

Important, too, is the fact that although White wrote the above passage, it was a summary of *someone else's* argument for tradition, not his own. Clearly White approved of Rushworth's method of framing the argument – it chimed so well with his philosophical method (outlined earlier in this chapter) that he wrote an apology for it. By flattering Rushworth's reasoning, White flirted with a syllogistically reimagined version of this argument. But as I will show, it is clear that the argument was not, in the first instance, designed as a syllogism.

The notion that Catholic truths were guarded by tradition was bound up with a set of historical and political assumptions about the role of fathers in family life. Extracting the logical implications of terms like "tradition" or "doctrine" would not, and could not, adequately capture the historical principles responsible for the safe and uncorrupted transmission of information, across time, from one generation to the next. This comes across most obviously in White's *Answer to the Lord Falklands discourse of Infallibility*. Explaining how the Christian tradition was created, White guided his reader through a speculative history, charting the transmission of doctrine from Christ to the Apostles; and its subsequent dispersal throughout towns, cities and countries. Here, White did not characterise the incorruptibility of tradition as an apodictic deduction, but rather as an intuition born of basic historical and psychological assumptions. Namely, White adhered to the notion that there existed no 'better instrument to breed faith' than having 'heard him [Jesus] speak', and that, more generally, 'If Faith must be common to learned and unlearned, what better meanes, then by hearing?'.[162] White recounted a history in which those who had 'been taught by Christs own mouth', then 'preached over and over again the same doctrine', in order that their listeners were properly 'endoctrinated', so that each generation 'could not tell their children otherwise then what they had heard and understood'. Fundamentally, 'what here is most evidently certaine, in the children of those who heard the Apostles, may be derived with as much evidence again in the grand-children, and so in every age even to our present'. Without too much explanation, White endeavoured to show that the Catholic Church had, at some point, taken responsibility for this process. 'The Church', he claimed, had 'for so many ages be[en] perpetually preserved in this principle, that what she received from her forefathers is, that she must beleive, and deliver unto her posterity'.[163] This argumentation, though schematic, was decidedly historical, not philosophical.

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[162] White, *An Answer*, p. 4.
[163] *Ibid*., pp. 5-7.

Further, White's story was littered with questions that, though assertively answered, remained speculative. For example, referring, hypothetically, to a period several generations after the original apostles' preaching, White wondered whether, in debates about the content of doctrine, 'will not there be a quick end of their dispute?'[164] White assumed the affirmative. But he arrived at this answer via the empirical assumption that sense experience guaranteed comprehension, and the psychological/political assumption that fathers do not lie to their sons. It was not a definitional deduction, because rational demonstration did not proceed by question and answer. White therefore refrained from the language of demonstration, describing and championing the oral transmission of doctrine variously as 'fitting', 'expedient' and 'efficacious'.[165]

A non-syllogistic formulation of the tradition argument accords with remarks made by White in *Peripateticall Institutions*. In lesson II, entitled 'Of a Syllogism and its Conclusions', White adumbrated the sorts of propositions amenable to syllogistic structure. He concluded that:

> 'such propositions are to be excepted which assume for proof the *knowledge* of another person: for, since Knowledge is adequate to the Thing it self; 'tis, as it were, a *proper Accident*: and the knowledge of a thing attain'd by these propositions is call'd *Faith*. Which kind of knowledge may arrive to a *certainty*, if the Authority assum'd be out of all question: yet it is not Science, because not *evident*; since the thing appears but in the knowledge of *another*'.[166]

This passage highlights two things. First, unlike philosophical demonstrations – whose proofs or evidence were internal – faith had recourse to authority to prove its claims. White's view of tradition as doctrine deriving from, first the apostles, then fathers (to their sons), and latterly also the Church, fitted perfectly with this model of authority-driven faith. Second, faith could still be certain, despite shunning demonstrative proof. In *Controversy-logicke*, White said that it would be a 'great folly to imagine, that faith should not be as certaine, and as easy to arrive unto, as *Geometry* is'.[167] This was not, *pace* Krook, a call for geometric or logico-linguistic demonstrations in religion. It was a plea that certainty in religion – the nature of which was as yet unspecified – be *as* certain as geometry.

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[164] *Ibid*., p. 5.
[165] *Ibid*., p. 4.
[166] White, *Peripateticall Institutions*, p. 8.
[167] White, *Controversy-logicke*, p. 166.

This marks a fundamental point of difference between religious and theological argumentation. For White, the point of theology was to show the *content* of religious beliefs were logically verifiable and accorded with philosophical truth. Theology and philosophy were therefore methodologically interwoven and conceptually harmonious. Religious claims, on the other hand, were historical not logical, and thus fell outside the remit of philosophical demonstration. However, religious beliefs had to be certain, despite not being philosophical. To this end, White invoked tradition, which, though indifferent to (philosophical) meaning, was capable of generating certainty. The upshot was that there was no methodological or functional overlap between religion and philosophy, and neither, correspondingly, between religion and theology.

V. The psychological foundations of faith

This leads us to two questions; how, exactly, should religious certainty be characterised, and what mental processes were involved in its generation? These themes have been touched upon already. But a more thorough examination will further illustrate why religious argumentation had to eschew philosophical demonstration and look elsewhere for sources of certainty. White's answers to these questions ultimately stemmed from the notions that faith must be 'for [all] humane kind, that is, for learned and unlearned…[and that] it should be a rule of our life and actions'.[168]

In *Rushworth's Dialogues* – for which White wrote a preface and fourth dialogue – he argued that the cognitive state of certainty had particular psychological precursors or underpinnings. This was a commonplace assumption, and most logical treatises began by outlining the faculties of the soul involved in intellection. White characterised certainty as a quality of the understanding, not the will. One could will oneself into resoluteness – i.e. one could resolve to do something by force of will – but it was impossible to will oneself to certainty. White thereby differentiated actions (which were the product of the will), from assent (which was the movement of the understanding). He then identified the cognitive stimuli required for either event. Actions, he argued, were executed or avoided according to probabilistic judgments. Buying and selling, raising an army, and beginning a long journey were all actions based upon judgements or speculations – probable outcomes, in short. Assent, on the other hand, could only be stimulated by the

[168] White, *An Answer*, p. 3

understanding's recognition of certainty or truth.[169] In daily life, it was often important to act on something without prior assurance of the truth of that thing. This meant decoupling the mental operations that occasioned actions (for which probability was enough) from the mental operations that occasioned assent (which was only moved by recognition of truth). Failure to do this could result in dangerous inertia. For example, if a general only raised his army when he was absolutely certain that an enemy was close, his actions would always come too late.

However, as discussed, when it came to faith (or *acting* in accordance with faith), probabilism – no matter how likely – was never enough. According to White, it was impossible that people would endure the sacrifices entailed by religious observation if they were not certain of the truth of religious precepts. Moreover, it was wrong and destructive to religion to assent to precepts not certified as true. To ensure one acted in accordance with the rules commanded for salvation (religion), the truth of those rules needed to be certifiable. Consequently, faith must spring from the understanding, never the will. Action, in this case, was contingent on assent. The learned, White said, understood the infallible underpinnings of the Church's authority and the veracity of tradition. As such, they could assent to religious precepts and act in accordance with them. However, this appeared to leave scant chance for people of less advanced cognition to acquire faith or act righteously. Keen to avoid this implication, White proposed that faith was actually supplied to people in a manner 'proportionate to their capacity'. Those not able to understanding the complex justifications for the authority of tradition could make do with lower, or less watertight grounds for certainty generated by the natural inclination to believe one's parents or clergyman.[170]

This idea reappeared in *Controversy-logicke*, looking conspicuously like a concession that, for the unlearned – normally women, children, and men without leisure – moral certainty was all that could be hoped for in matters of faith. '*Learning* in Religion' is the 'skill of shewing the path to heaven'.[171] But, White said, 'he who is not of an art, must…trust those whose particular skill and profession that art is. And thus it is euident, that the People…must rely vpon an Authority, for knowing what is the true Religion, and what is not'.[172] Still, provided they acted as instructed, the unlearned were as capable of salvation as their instructors. The reason for this parity – and also the reason why White could

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169 Rushworth, *Rushworth's Dialogues*, 'Preface', unpaginated.
170 *Ibid.*
171 White, *Controversy-logicke*, p. 162.
172 *Ibid.*, pp. 45-6.

group obedience to one's father and obedience to the church under the same psychological category – was that each and every person's religion was 'delivered them by their Teachers'.[173] Religion was bequeathed, not devised; thus White said in his *Answer* to Falkland, 'no unlearnednesse can excuse [not knowing religion], nor learnedness be exempt'. 'Children naturally believe what their parents tell them, unlearned men what Doctors teach them, absent men, what those who were present doe report'.[174]

On the face of it, these remarks call to mind the argument – associated with Chillingworth and Tillotson – that there existed a variety of certainties, each determined by the object of knowledge (its quantity of evidence) and the capacities of the subject or knower. Thus, Southgate says White differentiated vulgar religion from learned religion by holding that the former was merely a means to generate enough certainty in faith to produce action, whereas the latter was predicated on true understanding.[175] Although this looks like a credible assessment, it actually distorts White's understanding of religion. Religious actions were unusual in that their performance *always* required prior assent to their truthfulness. It was psychologically impossible to follow religious commandments until one had apprehended their veracity. The way of generating certain belief (capable of causing actions that accorded with faith), varied from person to person, depending on their capacities. But the purpose of religion was to ensure that *everyone*, not just the unlearned, acted in accordance with faith. White, therefore, rejected any qualitative difference between vulgar and learned religion, but argued that the vulgar and the learned assented to religion on different grounds.

However, neither was White saying that, due to their different grounds for assent, the unlearned felt less secure in their faith. Although they fell short of the absolute certainty sought by the learned, the unlearned – or anyone who had not meditated on why an oral tradition was a secure way of transmitting doctrine – were not aware of, or not effected by, their cognitive deficit. They knew that their understandings had been captured by the truth of faith, and, as such, their assent was as unerring, and their faith as genuine, as a learned person's. As White explained in the preface to *Rushworth's Dialogues*: 'that which is necessary to Christian action', which, unlike normal action, must be accompanied by assent based on certainty, was merely 'the firm resolution of the assent to the verities believ'd'. A child could thus join their beliefs to the church's and, without knowing why

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[173] White, *An Answer*, p. 5.
[174] *Ibid*., p. 4.
[175] Southgate, 'Beating down Scepticism', pp. 308-9.

the church was righteous, still understand – as well as they were able – that the church was indeed right.[176]

For religion to serve its purpose – to get *all* people to act in accordance with faith – the methods used to inculcate and persuade potential believers had to be more flexible than, for example, theological arguments that were strictly governed by philosophical demonstration. The threshold of one's belief was set by the capacity of one's understanding. For the unlearned that threshold was lower, and their assent was consequently provoked in a different manner to a learned person's. White's rule of faith was therefore theoretically sound (according to its own historical-psychological assumptions), and thus accepted by the learned. But it was also practically effective, allowing people with lesser capacities to feel certain in their faith, without understanding why exactly such faith was secure. Religion for the unlearned was therefore a matter of moral certainty. But moral certainty defined, not as 'certainty that seldom fails, or such as human action is generally grounded on', but as 'a certainty as makes the cause always work the same effect, though it take not away the *absolute possibility* of working otherwaies'. This, according to White, was tantamount to '*true certainty*', not probabilism.[177] It obtained, both when fathers were passing doctrine to their sons, and contemporaneously, when the unlearned were instructed by their teachers. The advanced capacities of the learned would not yield assent on this basis. But learned assent, when eventually given, was no different in character to the assent given by the variety of people of lesser capacities. According to Chillingworth, the nature of assent (reflexive or deliberative) determined the type of cognition (knowledge or belief). But, he said, both were basically as certain as each other.[178] White agreed with the second part of this claim – thus, the unlearned were as certain as the learned in matters of faith – but he rejected the notion that they underwent different cognitive experiences. By making do with moral certainty in matters of faith, the unlearned did not delegitimise their assent, nor diminish their faith.

White's rule of faith was based on assumptions about humanity's common relationship to authority. People were therefore affected by religious belief in an equitable manner. The parity between the learned and unlearned did not carry over into theology, however. The fundamental difference between religion and theology, and the reason why there

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[176] Rushworth, *Rushworth's Dialogues*, 'Preface', unpaginated.
[177] *Ibid.*
[178] See van Leeuwen, *The Problem of Certainty*, p. 25.

existed differences in theological ability, was theology's close disciplinary connection to philosophy.

VI. Theology

In his *Ecclesiastes*, Wilkins said theology worked to establish God's will (which could then be followed in religious practice or worship). This view of theology did not presuppose or guarantee a philosophical basis – exegesis might be its preferred method. In fact, according to Wilkins, acquiring divine truth or morality by reason was constitutive of natural religion (as opposed to instituted or revealed religion).[179] White, however, made fewer distinctions. For him, theology derived from religious faith (transmitted by tradition), and was developed using the methods and principles of philosophy. This resulted in two discourses: historical religion/faith and philosophical or logical theology. On this basis, one might conclude that White's theology was merely a gloss of faith, by which point the really important intellectual work – i.e. the acceptance of the truth of faith – was over. Indeed, Ruth Jordan claims that White's concern with establishing a rule of faith all but eclipsed his interest in theology.[180] Jordan rightly notes that "glossing" entailed a role for philosophy – to establish concepts and definitions necessary for understanding faith. However, as we will see, she misconstrues and oversimplifies the disciplinary relationship between philosophy and theology, and overlooks theology's professional and practical significance.

In his *Apology* for Rushworth, White characterised theology as the practice of clarifying or defining faith. '*Defining*', he said, 'is nothing els but the *acknowledging and clearing a Tradition*, from the dirt and rubbidg opposers had cast upon it'.[181] This appears to corroborate Jordan's view of theology as a relatively unimportant subsidiary to faith. However, White's comments are aimed, more broadly, at establishing correct intellectual practices, not the nature of theology. It was irrational, he argued, to define anything of uncertain verity; not only should the opinion one set out to define be 'certain, before the

[179] Wilkins, *Ecclesiastes*, pp. 121-2.
[180] Jordan, 'The Blackloists', p. 117.
[181] White, *An Apology*, p. 55.

Definition', it should be certain 'on some ground precedent to, and independent of it; and so, not made certain by the definition'.[182] Therefore, 'what is *defin'd*, must be, before, certain, either by *Scripture*, or [in White's case] by *Tradition*'.[183] It was not simply that tradition/religion preceded definition/theology. Belief in the certainty of one's religious tenets was a precondition for proper theological contemplation. In a word: theology only took place within pre-established religious *certainties*. This sequencing is laid bare in an undated manuscript, held in the Bodleian library, entitled 'Of Transubstantiation'. According to White, the doctrine of transubstantiation was 'held by us to be of Faith, [which] depends on Authority', namely, the Catholic tradition. Thereafter, 'all that Reason has to do…is to shew that tis Possible, without violating any Maxim, either of Logick, Nature, or Xanity'.[184] The doctrine is shown to be reasonable or logical – i.e. it becomes an object of theological inquiry – only after it has been established as true.

Theology was also charged with extrapolating new doctrine from articles of faith. Again in his *Apology* for Rushworth, White described how 'disputing [in religious matters] cannot chuse but bring to light some deductions, consequent to the first & principally-defended Position', or articles of faith. The result, he said, was that 'the Church may come to know somwhat, which haply before she never reflected on. But then those new truths belong to the science we call *Theology*, not to Faith'.[185] Because theological truths were consequences drawn from religious truths, they ought not to contradict one another. But because theology did 'emerge from doctrines deliver'd by Tradition', it could be said to transcend religion.[186]

This split in religious discourse created different theological vocations. Some divines, according to White in *Reason and Religion*, were 'onely *Historicall*, not *Scientificall*'.[187] This distinction echoed Hobbes's division of (historical) knowledge of fact, and (demonstrative or philosophical) knowledge of consequences – a division that covered both the objects of knowledge and the means of establishing them.[188] Historical divines, White argued, 'can tell you after the manner of an history of Narrative what the most celebrated Doctors teach'.[189] Such divines merely acted as custodians of tradition, transmitting doctrine down the ages. Though not a direct reference to his Church of

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[182] *Ibid*., p. 76.
[183] *Ibid*., p. 77.
[184] Oxford, Bodleian Library, MS Gough Norfolk 15. Fols. 246-9.
[185] White, *An Apology*, p. 37.
[186] *Ibid*., p. 37.
[187] White, *Reason and Religion*, p. 15.
[188] Hobbes, *Leviathan*, p. 60.
[189] White, *Reason and Religion*, p. 16.

England antagonists, this remark nevertheless implicated those who, in White's view, were largely interested in establishing the truth or divinity of doctrine, but refrained from unpacking its meaning. Chillingworth, for example, strove to demonstrate the rationality of believing what scripture taught, but made no attempt to show that scriptural doctrines were explicable by human reason.[190]

However, if 'Divinity [also] be a *Science*', there must, White argued, 'of necessity be, or be possible a sort of Divines who in true speaking *know* Theologicall Truths'.[191] This second group of divines was not just interested in protecting the integrity of tradition as it passed from generation to generation. They were also committed to understanding the meaning and true sense of religious doctrine. Take, for example, the phrase; "the saviour sat at the right hand of the father". As a matter of faith, it is 'certainly known those words are true'. However, its literal meaning – the 'materiall sence' grasped by the unlearned – fell short of the full and proper import. Only scientific divinity, which 'consult[ed] some other skill than that of Faith', would disclose its 'true sence', that Christ rested by God after his time on earth, but remained the chief minister of the temporal realm.[192] White described the practice of comprehending doctrine as '*true divinity*', and said that only those engaged in this second (theological) activity 'will properly and with Justice claim the title of *Divines*'.[193]

The notion that certain divines needed skills or learning to perform their professional obligations was reminiscent of Meric Casaubon's (1599-1671) call for Anglican ministers to be versed in various humanistic disciplines. Casaubon stressed philology as a means to validate scripture. But, like White, he was committed to a rational religion, grounded in 'general learning'.[194] According to White, proper theological understanding was largely reserved for an educated elite, and 'assent to every one, nay to the greatest part of such deductions, is not requir'd from the *generality* of Christians'.[195] This distinguished theology from religion; only a few comprehended the former, whereas it was paramount that everybody, not just the educated, apprehended the latter.[196] But it also gestured at the closeness of theology and philosophy. For White, the learned were responsible for

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[190] Reedy, *The Bible and Reason*, pp. 10.
[191] White, *Reason and Religion*, p. 16.
[192] *Ibid*., p. 14.
[193] *Ibid*., p. 16.
[194] Serjeantson, 'Introduction'.
[195] Rushworth, *Rushworth's Dialogues*, Fourth dialogue, p. 275.
[196] *Contra* Southgate, White posited a learned-unlearned distinction in theology, not in religion.

establishing and clarifying the terms used in syllogisms.[197] Likewise, theology was the preserve of experts.

For non- and anti-Blackloist Catholics, the question of meaning in religion or theology was settled by the Church, sanctioned and guided by the Holy Spirit. White's approach – which incurred Roman censure – was more individualistic. Naturally, in *Reason and Religion*, he promised to disavow anything that violated 'any authority constantly acknowledg'd for infallible in the Catholick Church'.[198] But just as the Church spoke truth in religion, not because it was the Church *per se*, but because it was a conduit for tradition, so in theological matters, the Church established meaning, not by majority (i.e. Roman) rule, but by adherence to reason. Speaking of authority in *A Letter to a Person of Honour* (1659), White said:

> 'If it be pretended *infallible*, I ask whence are we assur'd thereof. If by any other authority than their own; let us beg the favour to see it produc'd; if by their own only, we shall then submit when they shall have extricated themselves of the maze, or circle, in which they dance'.[199]

The Church could not claim biblical endorsement for its theological authority if it possessed exclusive exegetical rights. For White, certainty had two sources – 'besides that of *Faith*', there was 'no other then such as springs from *Demonstration*'. This reaffirms the non-demonstrative character of faith-based religious argumentation. But it also shows that theology was not simply a matter of arbitrary institutional authority. Rather, 'a Doctors authority reaches no further than the force of the reason he brings', i.e. his ability in demonstration. There was, moreover, 'no reason why any *Divine* should forfeit the right his degree and quality gives him of interpretation, because others of the same Profession dissent from him'. Claiming theology was governed by the rules of demonstration, White effectively freed himself of ecclesiastical constraint. The real theology of the Catholic Church, as White understood it, 'preferr'd the substance of reason before the shadow of popularity'.[200] It was this theology that he claimed to be doing, and which he promised never to contradict.

Theology strove to understand the truths contained in faith. This, as I will now show, meant it shared with philosophy an interest in logic and the ascertainment of meaning.

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[197] White, *Peripateticall Institutions*, pp. 23-4.
[198] White, *Reason and Religion*, p. 5.
[199] Thomas White, *A Letter to a Person of Honour, in Vindication of Himself and his Doctrine*, (Douai, 1659), unpaginated.
[200] *Ibid.*

According to White, philosophy grew out of, and was reducible to, a set of Aristotelian metaphysical precepts. These precepts, and the doctrine deduced from them, were true and certain by virtue of their derivation from formal geometric logic. Truth was thus captured in language, and philosophy was an exercise in discovering meaning. Theology worked by the same principles – like philosophy, it was concerned with establishing definitions and formally teasing out the consequences embedded within them. Theological practice was split into two parts: understanding articles of faith, and extrapolating further doctrine from them. Philosophy was integral to both. In *A Letter*, White said it was necessary to explicate 'the mysteries of our *Faith* by Principles of *Nature*, and *Philosophy*', in order to overcome the 'obscurity which overshadows them, by the light and conformity of *Reason*'.[201] More specifically, in *Reason and Religion*, he argued that: 'To find out then the true sense [of faith]…Philosophy [was] a fitting instrument', because 'by Philosophy we come thus to understand our Faith, and by understanding it, to be able to both defend it and propagate science out of it'.[202] Philosophy governed the correct use of language; it therefore facilitated the comprehension of faith, and the extrapolation of further doctrine. In fact, theology began when modes of philosophical reasoning were transplanted into discussions about the meaning and elaboration of matters of faith. Not only did theology borrow, methodologically, from philosophy, it also relied on philosophy for conceptual coherence. As White explained: if 'our Divinity be grafted into the stock of our naturall Speech and words, whose meanings and Definitions Philosophy must open up to us…[and] If Definitions be the Principles of Science, and Philosophy defines the words Divinity uses, it [philosophy] must needs have a material priority to it [theology]'.[203]

Such was theology's reliance on philosophy that White exhorted Divines to '*find out the Truths in Philosophy, and then the Mysteries of our Faith will square well enough with them*'.[204] This reflects White's view that church authority should derive from the intellectual capacities of its theologians, not from church-sanctioned scriptural sources. But it also exposes White's belief that, because theology drew its method and conceptual grounding from philosophy, philosophical proficiency must precede theological study. This widespread pedagogical injunction was evident in curricula priorities dating back to the early medieval period. Undergraduate and MA arts courses were philosophically-oriented,

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[201] *Ibid.*
[202] White, *Reason and Religion*, p. 10.
[203] *Ibid.*, pp. 24-5.
[204] *Ibid.*, p. 8.

covering topics in logic, natural philosophy and metaphysics. The purpose of this education, however, was not simply to verse students in philosophy. Instead, the arts course was a propaedeutic to the three professional postgraduate courses: medicine, law and theology. It was one of philosophy's jobs to provide conceptual preparation for the more important business of theology.[205] White experienced these educational and vocational imperatives first hand: his Aristotelian schooling in Douai was designed to produce Catholic clergy. Philosophy's role as preparation and grounding for theology is also evident in the structure of White's subsequent writings. In the *Theological Appendix* to his *Peripateticall Institutions*, White followed the lead of thinkers like Mersenne (although Protestant authors did likewise), and made a series of philosophical digressions followed by biblical interpretations in an attempt to demonstrate the compatibility of his philosophy with the story of Genesis.[206] In each case, the philosophy preceded the exegesis (in terms of textual organisation), and the theology was shown to fit with the philosophy (although the former represented the culmination of the ideas present in the latter).

For White, the conceptual foundations used to establish the meaning of any form of natural or written speech – theological or otherwise – were philosophical. This was polemically significant – if the understanding relied on the arbitration of definitions by philosophy, it was hard to sustain the Protestant argument that the Bible, alone and without prior learning, could be a source of edification. But it also adds texture to Jordan's somewhat simplistic claim that theology was merely the philosophical glossing of religious truths.

In White's view, philosophy and theology were, in large part, coterminous. He therefore accepted a characterisation of his writings in which 'Philosophy and Divinity are *so perfectly squar'd, that if I had not made a Division of the Books it had been impossible to know where one ended and the other began*'.[207] This has a double significance, historical and historiographical. First, it positioned White within an Aristotelian tradition that, following Thomas Aquinas, thought 'Sacred doctrine can borrow from philosophical disciplines…in order to make itself clearer'.[208] Consequently, however, it put him at odds with his non- or anti-Aristotelian countrymen. For example, Thomas Sprat – ostensibly speaking on behalf of the Royal Society – wrote that philosophy's conscription into

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[205] See Serjeantson, 'Becoming a Philosopher', pp. 10-17.
[206] White, *Peripateticall Institutions*, 'Theological Appendix'.
[207] White, *Reason and Religion*, p. 25.
[208] Aquinas, *Summa Theologiae*, p. 10.

'speculative Warrs' of theology/religion had caused 'the knowledge of Nature…[to be] very much retarded'.[209] Bacon had set the tone for this line of argument, claiming that, despite theology's sometime reliance on the concepts and vocabulary of natural philosophy, the subject matter and methods of each discipline were radically differentiated.[210] The disciplinary boundary was even more stringent for Hobbes, who held that religion and theology were laws to be obeyed, not propositions amenable to philosophical inquiry.[211] Engaging with White directly, Hobbes argued that the admixture of philosophy and theology was a categorical confusion, for once 'a demonstration persuades us of the truth of any proposition, that is no longer faith, but is natural knowledge'.[212] In addition, Hobbes said, philosophical inquiry would eventually reach a point of conceptual tension with theology. For example, it would be difficult, in Hobbes's view, to assimilate the idea of an unmoved mover into a philosophical investigation of the nature of motion. At such a moment, the only appropriate course was to accept one's incapacity to understand, and forbear judgement on truth or falsity.[213] White disagreed: not only could philosophy and theology occupy the same conceptual space, it was also philosophy's function to explain and develop theology. As he put it in *Peripateticall Institutions*, it is '*the highest pitch of* Philosophy, *to wait on and be subservient to the* Traditions *deriv'd from* God'.[214]

However, it was not true – and here we come to the historiographical point – that White simply conflated philosophy and theology. Southgate repeatedly asserts as much, saying that White made science and religion indistinguishable.[215] Somewhat confusingly, he also claims that, for White, science and Christianity were two *parts* of an *undifferentiated* whole.[216] White certainly conceived of philosophy and theology as compatible and enmeshed. But his entire disciplinary framework was, in a sense, characterised by discontinuity. Thus, in *Controversy-logicke*, he said:

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[209] Sprat, *The History of the Royal-Society*, p. 25.
[210] See Bacon, *Advancement*, pp. 5-9, 183-4.
[211] Hobbes, *De Mundo Examined*, p. 307. For the original Latin, see Hobbes, *Critique du De Mundo*, p. 310.
[212] *Ibid.*, p. 306.
[213] *Ibid.*, pp. 307-8.
[214] White, *Peripateticall Institutions*, 'Theological Appendix'. This undermines Southgate's claim that they enjoyed equal status for White. 'A philosophical divinity', p. 46.
[215] Southgate, 'Excluding Sceptics', p. 74; Southgate, 'A philosophical divinity', pp. 50-1. At times Southgate was less rigid, claiming only that science and religion were mutually compatible and supportive. 'Beating down Scepticism', p. 305. See also Beverley C. Southgate, "White's Disciple': John Sergeant and Blackloism', *Recusant History*, 24 (1999), 431-6, p. 432.
[216] Southgate, *Covetous of Truth*, pp. 130-3.

> 'there are divers sortes of learning: And that it doth not follow, that he who is eminent in one sort, must therefore (of necessity) excel in another. *Geometry, Physicke, Law, Philosophy, Metaphysikes, and Divinity*; are all of them different sorts of learning; all, so independent of one another, that he who is excellent in one of them, may have but a small share in any of the rest'.[217]

Proficiency in one discipline did not guarantee comprehension of another. The implication of this argument is best inferred by reviewing the sort of counter-assertion (Glanvill's) that White was likely engaging with. Although the above remark was made before *The Vanity of Dogmatising* was published, it reflects a line of thought present in White's later responses to Glanvill.[218] Glanvill held that everything in existence was part of an uninterrupted chain of causes. To have true knowledge of a particular cause in a particular field therefore required prior knowledge of all the other causes or fields of learning with which it intersected. In other words, it was 'necessary', first, 'to know the whole Syntax of Causes'. And because 'every Science borrows from all the rest…we cannot attain any single one, without the *Encyclopaedy*'.[219]

Although White did not intend to radically disunite learning, he rejected Glanvill's argument because it undercut the idea that some knowledge could and had been established, despite the absence of total knowledge. This sheds new light on White's view that philosophy was instrumental in explicating faith and elaborating theology. Philosophical skill did not guarantee theological acumen; philosophy was a necessary, but not a sufficient condition. White therefore denied that 'the strength of Divinity comes from Philosophy'. Theology was derived from tradition, and drew its strength from the truth of faith. Instead, 'Philosophy is the wax into which the seal of Divinity is printed' – theology needed philosophy, but did not automatically grow out of it.[220]

Philosophy was subservient to theology. That alone testifies to their disciplinary separation. However, in *Reason and Religion*, White also drew attention to their dissimilar source materials and epistemic foundations. The mysteries of religion, he said, 'could not be known without Revelation; though, after they are revealed, they may by nature be explicated, and new truths be propagated out of them'.[221] The core and basis of theology was revelation, not philosophy. Philosophy gave rise to theology insofar as it established the concepts and definitions used in theological reasoning. But philosophy could not "do" theology by itself, independent of revelation, because ultimately theology derived

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[217] White, *Controversy-logicke*, p. 151.
[218] See White, *An Exclusion of Scepticks*, pp. 77-8.
[219] Glanvill, *The vanity of dogmatizing*, pp. 217-18.
[220] White, *Reason and Religion*, p. 25.
[221] *Ibid*., p. 11.

from tradition, not philosophy. The roots of each discipline were different, even oppositional. Thus, White said, 'revealed propositions' were 'explicated by Philosophical ones known without Revelation'. The source of theology or the articles of faith was revelation, while the source of philosophy – here, simply 'without Revelation' – was reason. As White went on to say – not a little exasperatedly – there was a 'difference between inventing Divinity-truths and finding out the Meanings of the Words in which they are deliver'd'.[222] Divinity-truths were revelatory, "invented" by God. They were known to be true by virtue of their protection and dissemination by the Catholic apostolic tradition. Discovering the meaning of divinity was procedurally different. It was the job of theology, a task it performed with the resources of philosophy. These relationships entailed great overlap – philosophy and theology shared a method and a preoccupation with meaning – but they also implied difference – philosophy was based on natural principles, while theology derived from faith.

A further point of difference between philosophy and theology – one which, to my knowledge, is largely overlooked in the literature – concerns their respective intelligibility. Philosophical truths were certain *because* they were intelligible – i.e. because they were the products of logical reasoning. Theological truths, on the other hand, were certain because of their presence within the Catholic tradition, which had no bearing on their intelligibility. White accepted that '*Reason* [alone, or without revelation] *could never have reach't these mysteries*' of faith. In addition, he claimed that 'even assisted by Revelation we cannot penetrate into the Deity nor any Mystery, *thorowly*'. He added, as a concession, that 'some Predicates and truths concerning them' may be discovered.[223] But, it seems, there remained a kernel of mystery to theological truths, untouchable by human inquiry.

The reason for this residual unintelligibility was never made entirely clear. There was possibly some polemical purpose; challenging White's detractors who claimed he '*evacuate*[d] *faith* by Demonstration, evidence, knowledge'.[224] Moreover, in *Controversy-logicke*, White disparaged English intellectual culture and education, claiming the reasonableness of divine mysteries was lost because 'neither the propounder, nor the auditory, have (usually) Philosophy enough to understand the solution'.[225] This implies a more epistemologically-minded justification for why theology lacked absolute intelligibility. According to White, a 'Mystery is difficult, not for it selfe, but because wee

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[222] *Ibid.*
[223] *Ibid.*, p. 113.
[224] *Ibid.*, p. 114.
[225] White, *Controversy-logicke*, p. 130.

understand not nature'. Mysteries were not intrinsically unknowable, but adequate natural (philosophical) knowledge was needed to properly comprehend them. Thus, he said: 'As he who perfectly understandeth Logick, will have no difficulty to believe in Trynity: who knoweth the composition of body and soule in Man, will easily admitt the Incarnation. And who comprehendeth how living Creatures do nourish themselves, will not sticke at the Mystery of the Eucharist'.[226] Theology's reliance on philosophy therefore ran deeper than their shared methodological interest in meaning and deduction. They were conceptually entwined also; the mysteries of faith unlocked and explicated by a correct and proper understanding of nature. Elsewhere, White showed an appetite for such an investigation, and gave a partial example of how philosophy could conceptually illuminate theology. In 'Of Transubstantiation', he said the explanatory power of corpuscularian theories of body was so great that the Eucharist ought to 'breed no difficulty, much less be deem'd an Impossibility'. This was because 'it was not Gods Intention to make the Mysteries of Faith Ridiculous, & absurd to common sense, but as congruous as the nature of y^{e} mystery would bear'.[227]

Nevertheless, the idea that the quality of philosophical knowledge determined the scope of theological knowledge raised two problems. First, imperfections in our philosophical knowledge would result, necessarily, in imperfections in our theological knowledge. This was particularly concerning because 'not every Catholike, nor yet every Catholike disputant, is necessarily a great Philosopher'.[228] The second, connected problem was that only total knowledge in a particular philosophical field ('he who perfectly understandeth') would enable one to comprehensively understand divine mysteries. White endeavoured to show that some natural truths could be known with certainty, but he recognised his limits; 'I pretend not to set downe all: For…there is no All'.[229] Without this total knowledge, divine mysteries would never be totally explicable.

In the fourth of *Rushworth's Dialogues*, White pointed to another potential impediment to our comprehension of particular theological topics; the inadequacy of language. White argued that it was impossible for man to please God, because that implied man was also able to displease him; and God was never the subject of displeasure. Echoing Hobbes, White held that:

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[226] *Ibid*., p. 186.
[227] MS Gough Norfolk 15. Fols. 246-9.
[228] White, *Controversy-logicke*, p. 131.
[229] *Ibid*., pp. 186-7.

> 'when 'tis said we please and displease him [God], those expressions must be taken in such a signification as both may be proportionably apply'd to him; that is, neither must be understood in the ordinary signification, in which we use them, when we talk of our selvs'.[230]

Problems associated with language were fairly limited – they would not affect the areas of theology that dealt with ethics and human nature, for example. Moreover, as discussed, language was adequate for philosophy – accurately capturing human thought and the natural world. But linguistic confusion or imprecision would, to some extent, disable the philosophical mechanisms employed to understand and expand upon articles of faith to do with the nature of God. White again followed Aquinas, who argued that, because we only know God through his creation, the words we use to describe him are lifted from our understanding of temporal, material things. Thus, 'no word used of God is appropriate to him in its way of signifying'.[231]

White did not pursue these issues – the incompleteness of philosophy and the inadequacies of language – in great depth. But they both worked to make individual theological conclusions less secure and more contingent than individual philosophical ones. Or, at the very least, theology was only as certain as the philosophy (and linguistic faculties) upon which it relied. Consequently, in *Controversy-logicke*, White accepted that 'As for the arguments from reason, to prove Catholike Truths: They may have as much strength, as the disputant is capable of. For, no argument is so strong, but that if it be shott from a weake hand, it may prove wholly blunt and impenetrant'.[232] Theology could be undone by philosophical misapprehension or linguistic imprecision. A Catholic polemicist must therefore be careful not to discredit Catholicism, and 'not engage himselfe in it [a dispute], unlesse he be assured, both that his dart is a good one, and that he hath the dexterity to ayme it right, and the strength to throw it home'.[233]

VII. Conclusion

According to White, it was essential that before engaging in theology one either understood the historical reasons why tradition guaranteed truth, or one knew the doctrines delivered by tradition were true because one believed one's father or priest.

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[230] Rushworth, *Rushworth's Dialogues*, Fourth dialogue, p. 231.
[231] Aquinas, *Summa Theologiae*, p. 165.
[232] White, *Controversy-logicke*, p. 132.
[233] *Ibid*., p. 132.

(Given that theology was an intellectual activity, and theologians were learned people, it was likely to be the former, but the point was that all people could, and must, have certitude in religion). After these habits of mind had certified the truth of religious doctrines (but abstained from querying their actual meaning), theology came into play. It was the job of theology to uncover the proper meaning of matters of faith – which could be quite different from their literal, commonsensical meaning – and to deduce further doctrine from these first religious principles. Both these functions required theology to in some sense coalesce with philosophy.

For White, philosophy was a linguistic practice concerned with meaning and the truths of nature. It was governed by formal logic, and reducible to Aristotelian metaphysics. Theology drew upon philosophy in two ways. First, it harnessed philosophy's method. This allowed scientific divines to establish the correct meaning of the terms used within articles of faith, and to logically deduce further doctrine from them. And second, theology turned to philosophical doctrine – corpuscularianism, for example – to unlock and explicate theological mysteries, like the Eucharist. As such, theology relied on philosophical doctrine for conceptual coherence, and was only as certain as the language and logic used in demonstration. 'Philosophy', as White put it, 'is the wax into which the seal of Divinity is printed'.[234] However, notwithstanding these methodological and conceptual overlaps, philosophy and theology were separate disciplines, distinguished by their source materials and epistemic potential. Theology sprang from faith, or the Catholic oral tradition. Philosophy, on the other hand, was reducible to Aristotle, and based entirely on reason and logic. Thus, while language and logic were sufficient for philosophical purposes, some theological topics (God) transcended human definitional capabilities and were beyond the scope of philosophical reasoning.

White, in sum, cleaved to traditional Thomistic assumptions about disciplinary remits and hierarchy. Philosophy (of an Aristotelian bent) had non-theological applications – the study of nature, for example. But it was principally a propaedeutic to theology. Theology, on the other hand, was developed by philosophical methods and explicable by philosophical doctrine; but it was a discrete discipline, based, fundamentally, on faith. Ultimately, White argued, all knowledge was born of logical deductions from Aristotelian metaphysics.

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[234] White, *Reason and Religion*, p. 25.

These logico-metaphysical principles were picked up by White's disciple Sergeant, and used to counter John Locke's scepticism about natural knowledge of substances.[235] Hence, they endured, in some form, into the eighteenth century. White and the Blackloists therefore demonstrate the flexibility, and to some degree, compatibility, of various intellectual or philosophical systems philosophy in early modern England – combining Aristotelian logic with corpuscular matter theory and the mechanical philosophy. They also show that, amid the seventeenth century's manifold intellectual upheavals, it was still argued that philosophy had a foundational role in, and was important insofar as it facilitated, theology. It is also apparent, however, that much of England's post-Reformation inter-faith polemic did not rely on theology, or philosophical reasoning. These debates revolved around establishing the truth of religious tenets, rather than unpacking their meaning. As such, they often refrained from philosophical discussion, focusing instead on historical or exegetical argumentation.

Many of these themes are also present in the following chapter. Arguing from a very different religious standpoint, Henry More said the truth of faith (in this case, faith in the sanctity of the Bible) was historically verifiable. More also demonstrates the continued vitality in the seventeenth century of other ancient philosophical traditions (in this case, Platonism). However, More's belief in *prisca theologia*, and the pervasive influence of his Origenist theology, meant the Cambridge divine argued for an even more comprehensive intermingling of natural philosophy and theology.

[235] Krook, *John Sergeant*, pp. 102-3.

Henry More

Henry More was a Platonist theologian and philosopher, based, for most of his life, in Cambridge. He entered Christ's College in 1631, was ordained and made a fellow in 1641, and stayed until his death.[1] At Cambridge, he developed an anti-Calvinist theology, based on the notions that God's actions were constrained by the idea of goodness, and that man's reason was improvable. Consequently, he argued, God's laws and creation were potentially intelligible to man. However, More was un-persuaded by the most stringently mechanistic iterations of the new philosophy. He therefore balanced mechanical or corpuscular natural philosophy with a Platonic metaphysics based on immateriality. In sum, More established a relationship between natural philosophy and theology in keeping with his theological Platonism: both disciplines were rational, and thus compatible; but the former was also incoherent without the latter, as More regarded material accounts of nature as necessarily partial.

From the 1630s, when he studied under Robert Gell (1595-1665), More's theological views stayed relatively unchanged. His early platonic poetry – *Psychozoia* (1640) and *Psychodia Platonica* (1642/7) – refuted atheism by differentiating matter and spirit, and argued for the possibility of spiritual perfectionism against Calvinist predestination. The same themes governed More's substantial theological works, *An Explanation of the Grand Mystery of Godliness* (1660), and *Divine Dialogues* (1668).[2] Importantly, all More's writings subscribe to the doctrine of the pre-existence of the soul.[3] In the main, More was also consistent philosophically. He was exposed to Cartesianism in the 1640s, and, in 1646, published *Democritus Platonissans*, arguing that Cartesian mechanism and experimental philosophy was compatible with Platonic mysticism.[4] Although More became increasingly vocal about the atheistical implications of Descartes's philosophy, he had

[1] See Robert Crocker, 'A Biographical Essay', in Sarah Hutton (ed.), *Henry More (1614-1687): Tercentenary Studies*, (Dordrecht, 1989), 1-17, pp. 1-2.
[2] *Ibid.*, pp. 1-6; Robert Crocker, *Henry More, 1614-1687: a biography of the Cambridge Platonist*, (Dordrecht, 2003), p. xxiii.
[3] Sarah Hutton, 'Henry More and Anne Conway on Preexistence and Universal Salvation', in M.L. Baldi (ed.), *Mind Senior to the World*, (Milan, 1996), 113-25, p. 116.
[4] Alan Gabbey, 'Henry More and the Limits of Mechanism', in Sarah Hutton (ed.), *Henry More (1614-1687): Tercentenary Studies*, (Dordrecht, 1989), 19-35, p. 20.

longstanding reservations about mechanics, raised in their correspondence in the late 1640s, and given full vent in *Divine Dialogues*.[5]

The changes in More's output were mainly changes in genre, and were directed by shifts in English religious sentiment. His poetry – which was a reaction to the Calvinism in Cambridge in the 1640s – evolved, in the tolerant climate of the Interregnum, into thoroughgoing philosophical and natural theological treatises: *An Antidote against Atheism* (1653) and *The Immortality of the Soul* (1659). However, after the Restoration, high churchmen accused More of political disloyalty and excessive rationalism – i.e. of trying to show that religious and theological doctrine could be understood by reason. Therefore, in the 1660s, he gave more weight to revelatory theology,[6] and, in general, his work become less philosophical, and more apologetic and theological.[7] He defended the rationality, though not the truth, of his theology in *The Apology of Dr. Henry More* (1664). And in *A Brief Discourse of the true Grounds of the Certainty of Faith in Point of Religion* (1668), he set out a scriptural account of faith. Thereafter, he translated works into Latin – in order to reach a wider, European audience – and began, but did not finish, a synoptic metaphysical text, *Enchiridium Metaphysicum* (1671).

Due to his range and depth of thought, More is considered 'the most vital and interesting of all the Cambridge School' of divines.[8] Jasper Reid even calls him '*the* most eminent' English philosophical authority of his day.[9] Nevertheless, More has evaded extensive scholarly study, in part, ironically, because of his close association with other seventeenth-century figures.[10] He was a member of the so-called "Cambridge Platonists" – a label that obscures as much as it reveals.[11] Benjamin Whichcote, Ralph Cudworth, More and others were, from mid-century, colleagues at Cambridge who shared an

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[5] Alan Gabbey provides the best accounts of More's association with Cartesian mechanics. He argues that, although More's initially enthusiastic response to Cartesianism, morphed, over time, into disapprobation, his particular criticisms of Cartesian physics remained fairly constant following the pair's correspondence in the late 1640s. What More increasingly feared, according to Gabbey, was that "Cartesianism" was vulnerable to atheistical appropriation and exploitation. See Gabbey, 'Henry More and the Limits of Mechanism'. For other accounts, see Marjorie Nicolson, 'The Early Stage of Cartesianism in England', *Studies in Philology*, 26 (1929), 356-74; Charles Webster, 'Henry More and Descartes: Some New Sources', *The British Journal for the History of Science*, 4 (1969), 359-77; Leonora D. Cohen, 'Descartes and Henry More on the Beast-Machine – A Translation of their Correspondence pertaining to Animal Automatism', *Annals of Science*, 1 (1936), 48-61.

[6] A. Rupert Hall, *Henry More and the Scientific Revolution*, (Cambridge, 1990), pp. 121-2.

[7] John Gascoigne, *Cambridge in the Age of Enlightenment: Science, Religion and Politics from the Restoration to the French Revolution*, (Cambridge, 1989), pp. 41-4.

[8] John Tulloch, *Rational Theology and Christian Philosophy in England in the Seventeenth Century, vol. II*, (Edinburgh, 1872), p. 303.

[9] Jasper Reid, *The Metaphysics of Henry More*, (Dordrecht, 2012), p. 1.

[10] Crocker provides one of the few monographical accounts of his life and thought. See *Henry More*.

[11] The label has nevertheless gained much currency. See Henry Robert McAdoo, *The Spirit of Anglicanism: a survey of Anglican Theological Method in the Seventeenth Century*, (Black, 1965); C.A. Patrides (ed.), *The Cambridge Platonists*, (Cambridge, 1969); Hutton, 'The Cambridge Platonists'.

interest in Platonic philosophy. However, their differences were manifold, and More was singular. Not only was he was the only "professional" philosopher, he was also the only student of the Church Father, Origen of Alexandria (184/5-253/4).[12]

Recent scholarship has stressed More's engagement with more august seventeenth-century thinkers.[13] For example, he challenged Descartes's mechanism,[14] and repudiated Robert Boyle's voluntarism.[15] His engagement with Thomas Hobbes remains understudied – something I address below.[16] More's place in the history of the English Church is also recognised: as an embodiment of so-called latitudinarian theology, and an example of the Church's diversity.[17]

Though useful, these comparative studies do not tell the whole story, and More deserves to be studied in his own right. He was a preeminent Platonist and metaphysician – a leading Cambridge authority and member of the Royal Society. He also articulated perhaps the most radical unity between natural philosophy and theology in seventeenth-century England. Their unity, he argued, owed to both disciplines' origin in a Mosaic cabbala – a single, united textual tradition. As such, More is proof that much seventeenth-century thought relied on ancient wisdom, combined or retooled with newer doctrine. Specifically, he offers an example of how ancient theological doctrine shaped formulations of the disciplinary relationship between natural philosophy and theology.

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12 Levitin, *Ancient Wisdom*, p. 16. More also wrote and published across a greater number of disciplines than the other Platonists. For example, Whichcote focused on sermonising, and Cudworth was preoccupied with ancient learning. For Whichcote, see Robert A. Greene, 'Whichcote, the Candle of the Lord, and Synderesis', *Journal of the History of Ideas*, 52 (1991), 617-44.

13 See Sarah Hutton (ed.), *Henry More (1614-1687): Tercentenary Studies*, (Dordrecht, 1989).

14 See Webster, 'Henry More and Descartes: Some New Sources'; Nicolson, 'The Early Stage of Cartesianism in England'; Cohen, 'Descartes and Henry More on the Beast-Machine'; Alan Gabbey, *Philosophia Cartesiana Triumphata: Henry More (1646-1671)*, in Thomas M. Lennon, John M. Nicholas, John W. Davis (eds.), *Problems with Cartesianism*, (Kingston, 1982), 171-249; Robert Pasnau, 'Mind and Extension (Descartes, Hobbes, and More), in Henrik Lagerlund (ed.), *Forming the Mind: Essays on the Internal Senses and the Mind/Body problem from Avicenna to the Medical Enlightenment*, (Dordrecht, 2007), 283-310; M.J. Osler, 'Triangulating Divine Will: Henry More, Robert Boyle, and René Descartes on God's Relationship to the Creation', in M. Baldi (ed.), *Stoicismo e Origenismo nella filosofia del seicento inglese*, (Milan, 1996), 75-87.

15 See Henry, 'Henry More versus Robert Boyle'; Mandelbrote, 'The Uses of Natural Theology'. For Boyle and More's differing uses of experimental philosophy, see Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*, (Princeton, 2011), pp. 207-24.

16 For the classic treatment of their intellectual relationship, see Mintz, *The Hunting of Leviathan*, pp. 81-95. Parkin gives a more recent account, but he is far more interested in Hobbes's relationship with Cudworth. *Taming the Leviathan*, pp. 322-34.

17 See McAdoo, *The Spirit of Anglicanism*, pp. 81-155; D.W., Dockrill and J.M. Lee, 'Reflections of an Episode in Cambridge Latitudinarianism: Henry More's Epistle Dedicatory to Gilbert Sheldon of his *Enchiridion Metaphysicum*', in D.W. Dockrill and R.G. Tanner (eds.), *Tradition and Traditions*, (Auckland, 1994), 207-23; G.A.J. Rogers, 'The Other-Worldly Philosophers and the Real World: The Cambridge Platonists, Theology and Politics', in G.A.J. Rogers, J.M. Vienne, and Y.C. Zarka (eds.), *The Cambridge Platonists in Philosophical Context: Politics, Metaphysics and Religion*, (Dordrecht, 1997), 3-15; David Pailin, 'Reconciling Theory and Fact: the problem of 'Other Faiths' in Lord Herbert and the Cambridge Platonists', in Douglas Hedley and Sarah Hutton (eds.), *Platonism at the Origins of Modernity*, (Dordrecht, 2008), 93-111.

More subscribed to two Platonically-inspired theological views: that God was constrained by goodness, and that the human soul went through various stages of pre- and post-terrestrial development. Respectively, these beliefs guaranteed the rationality or knowableness of natural philosophy and theology, and meant reason could be enhanced by piety, granting the mind access to higher knowledge (philosophical and theological). Nevertheless, illuminated reason could not establish the degree of certainty that More reserved for religious belief. One could therefore assert the reasonableness of both disciplines, but not – with absolutely certainty – attest to their truth. The (potential) fragility of theology meant it was philosophy's job to protect it from counter arguments or rebuttal.[18]

This chapter is divided into four sections. The first argues that More's philosophy was fundamentally a means to protect theology from rational rebuttal. A major plank of this agenda was More's notion that natural philosophy begot natural theology – the study of the former inevitably giving way to an appreciation of the latter. The remaining three sections develop and link the themes drawn out in the first. The second isolates More's views on faith, and looks at his argument that, due to the prophetic accuracy of the Bible, it was rational to be a believing Christian. The third turns to More's theological concerns, and examines how he used the works of Origen to repudiate Calvinism. And the fourth returns us to the issue of disciplines, outlining the way More's two principal theological doctrines – necessitarianism and (Origenist) pre-existence and perfectibility – informed the character and scope of his natural philosophy and theology.

I. Theology's philosophical fence

In 1646, More summarised his anti-Calvinist theology thus: 'divine goodnesse' was the 'measure of his [God's] providence', and 'limits the Essence of the world as well as its duration'.[19] Divine actions, including creation, were performed according to discernable principles. Consequently, natural philosophy and theology were rational disciplines – i.e. they were capable of being understood and explained by intelligent creatures. However,

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[18] See More, *Apology*, p. 482.

[19] Henry More, *Democritus Platonissans, or an Essay upon the Infinity of Worlds out of Platonick Principles. Annexed to this second part of the Song of the Soul, as an Appendix thereunto*, in *Philosophical Poems*, (Cambridge, 1647), To the Reader, unpaginated.

rational doctrines were not necessarily true doctrines. Unable to assert theology's absolute truth, philosophy was required to champion and defend it.

Several of these rhetorical and epistemic issues were sketched out in More's *Conjectura Cabbalistica* (1653). Here, More sought to repudiate atheism by demonstrating the coherence of reason, faith, and ancient learning; and specifically, the harmony between philosophy and scripture. In the *Cabbalistica*, More said:

> 'For though in such things as are necessary and essential to the happinesse of a man, as the belief that there is a God, and the like; it is not sufficient for a man only to bring undeniable reasons for what he would prove, but also to professe plainly and dogmatically, that himself gives full assent to the conclusion he hath demonstrated: So that those that do not so well understand the power of reason, may notwithstanding thereby be encouraged to be of the same faith with them that do, it being of so great consequence to them to believe the thing propounded: Yet I conceive that Speculative and Dispensable Truths a man not onely may, but ought rather to propound them Sceptically to the world, there being more prudence and modesty in offering the strongest arguments he can without dogmatizing at all, or seeming to dote upon the conclusion, or more earnestly to affect the winning of Proselytes to his own opinion. For where the force of the arguments is perceived, assent will naturally follow according to the proportion of the discovery of the force of the arguments. And an assent to opinions meerly speculative, without the reasons of them, is neither any pleasure nor accomplishment of a rational creature'.[20]

This dense passage contains several important points. First, notwithstanding the 'undeniable reasons' proving God's existence, the faithful must simply profess their belief, with or without demonstration. Thus, 'belief that there is a God, and the like' could be asserted dogmatically. This seems straightforward. Unfortunately, it does not entirely correspond with More's remarks in *An Antidote* (also published in 1653). The purpose of *An Antidote* was to rationally argue for God's existence, and not merely assert it. More nevertheless offered this disclaimer:

> 'when I say that I will demonstrate that there is a God, I do not promise that I will alwayes produce such arguments, that the Reader shall acknowledge so strong as he shall be forced to confesse that it is utterly unpossible that it should be otherwise. But they shall be such as shall deserve full assent and win full assent from any unprejudic'd mind'.[21]

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[20] Henry More, *Conjectura Cabbalistica. Or, a Conjectural Essay of Interpreting the minde of Moses, according to a Threefold Cabbala: viz. Literal, Philosophical, Mystical, or, Divinely Moral*, (London, 1653), 'The Preface to the Reader', unpaginated.

[21] Henry More, *An Antidote Against Atheisme, or An Appeal to the Natural Faculties of the Minde of Man, whether there be not a GOD*, (London, 1653), p. 3.

In contrast to his advice in the *Conjectura*, More's whole manner was decidedly un-dogmatic. He said a rational person should be persuaded that God exists. But he did not proffer 'undeniable reasons' for this, nor did he encourage blind assertion. More therefore had much in common with the latitude-men, whose moderate scepticism meant they championed ecumenicalism and toleration. Taking their cue from William Chillingworth's *Religion of Protestants* (1638), the latitudinarians emerged during the Civil War as an alternative to theological dogmatism. Many were partial to natural theology, of which *An Antidote* was a pioneering example.[22] However, historians often apply the label un-reflexively and too rigidly.[23] Latitudinarians were not the only clerics to devise rational theologies, nor, following the Restoration, did they consistently advocate latitude or religious tolerance.[24] Nevertheless, there were similarities between More and clerics like Chillingworth and John Tillotson, who both rejected the possibility of infallible certainty, but thought matters of faith were morally certain, or very highly probable.[25] More's interests were perhaps more metaphysical than, say, Chillingworth's. But, like the latter, he refrained from claiming the absolute truth of religious or theological doctrine, and instead settled for probable belief.

Returning to the passage in *Conjectura*: when More said 'the belief that there is a God, and the like' was a matter of dogma – 'and the like' being a pointed inclusion – he may have been referring, not simply to the existence of God, but more generally, to belief in the truth of the Bible.[26] This makes sense of two things. First, it fits with More's account of the spectrum of certainty. As we will see, More said biblical truth was indubitably certified by the "felt" guidance of what he called divine sagacity. It could therefore be asserted dogmatically. Second, it explains his view that, by declaring it (the truth of the Bible) confidently, others would be 'encouraged to be of the same faith'. A simple belief in a deity would not fulfil this function.

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[22] The classic work on latitudinarianism and the Cambridge Platonists is Tulloch, *Rational Theology*, esp. p. 6. For more nuanced appraisals, see Sarah Hutton, 'Edward Stillingfleet, Henry More, and the decline of Moses Atticus: a note on seventeenth-century Anglican Apologetics', in Richard Kroll, Richard Ashcraft, and Perez Zagorin (eds.), *Philosophy, Science, and Religion in England 1640-1700*, (Cambridge, 1992), 68-84, p. 68, who identifies More as an influence on latitudinarianism's early platonic adherents. Or see Alan Gabbey, 'Cudworth, More and the Mechanical Analogy', in Richard Kroll, Richard Ashcraft, and Perez Zagorin (eds.), *Philosophy, Science, and Religion in England 1640-1700*, (Cambridge, 1992), 109-27, pp. 109-10, who claims More was part of the movement's first generation.

[23] See Kroll, 'Introduction', pp. 1-3.

[24] See Richard Ashcraft, 'Latitudinarianism and Toleration: Historical Myth versus Political History', in Richard Kroll, Richard Ashcraft, and Perez Zagorin (eds.), *Philosophy, Science, and Religion in England 1640-1700*, (Cambridge, 1992), 151-77, pp. 156-61.

[25] See van Leeuwen, *The Problem of Certainty*, p. 41, esp. ft. 74.

[26] As well as belief in the afterlife or the immortality of the soul.

However, the clearest injunction in the above passage was that speculative doctrines – the sort found in natural philosophy and theology, and spun out of the rational intellective faculty – were to be propounded tentatively and with humility. This included doctrines that were fundamental to More's understanding of the world, like the Spirit of Nature and the pre-existence of the soul. These theories were confirmed by reason, he said, and ought to be assented by rational observers. Their truth, however, was harder to determine. More fleshed out the doctrine of pre-existence in *The Immortality*, his second work of natural theology. In the preface, he said his arguments were '*as clear a Proof as Natural Reason will afford us*'. But, he continued, '*I doe acknowledge a further and more palpable evidence comprehended in* Christian Religion'.[27] Reason adduced powerful arguments, capable of accessing the truth. But the most secure and comprehensive certification of truth was faith.

Following the Restoration, many divines were evicted from Cambridge by returning high churchmen. More was forced to account for his doctrinal idiosyncrasies, and profess loyalty to the re-established English Church. Defending himself in *The Apology*, he erred even more cautiously, claiming to 'avow and admit these Theorems no farther then as Rational; but for their absolute reality and truth, to be more wary and reserved in the Assertion thereof'.[28] A rational notion might also be a true notion, but the former did not necessarily imply the latter.

For More, then, theology was a set of rational propositions – graspable by the human mind, and consonant with rational principles – not a set of self-evidently true ones. These included arguments about the lifespan of the soul – which should be postulated speculatively – but also arguments for God's existence, which could be asserted *fairly* certainly/dogmatically. This cognitive deficit lies at the heart of More's understanding of the disciplinary relationship between natural philosophy and theology. Theology was based on rational argument, but its truth was uncertain, making it vulnerable to attack. These epistemic conditions meant theology must rely on philosophy to argue its cause. As such, in the 'General Preface' to *A Collection of Several Philosophical Writings* (1662) – a compendium of his key philosophical works to date – More said that his '*Design…is not to Theologize in Philosophy, but to draw an* Exoterick *Fence or exteriour Fortification about Theologie*'.[29]

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[27] More, *The Immortality of the Soul*, 'The Preface', unpaginated.
[28] More, *Apology*, p. 488. In this instance, More said the decision to accept or reject the truth of a doctrine should be motivated by practical considerations. For example, whether or not that decision destabilised the belief of the unlearned, or undermined the authority of the church.
[29] More, *Collection*, 'The Preface General', p. vi.

This remark reveals three things about More's understanding of the natural philosophy-theology dynamic. First, their disciplinary relationship was established by the needs, or vulnerability, of theology; natural philosophy was entirely subordinate. Theology needed protecting, or as More put it, fortification. The main threat to theology was '*the confident Atheist, and his Gigantick batteries raised against the belief of the* existence of a God, *and of* a Reward in the World to come'.[30] But other threats existed also. On the one hand, More was anxious to protect his theology from rival Christian accounts of sin, grace and providence. His lengthy and repeated discussions of the pre-existence and perfectionism of the soul were designed to show the philosophical superiority of his theology over Calvinism. On the other hand, More saw greater coherence among the text-based, Protestant denominations, than between Protestantism and paganism or Catholicism.[31] Turning the fence metaphor on its head, then, it could also symbolise the encompassing, and, ideally, the alignment of, Protestantism against the Catholic tradition. Whatever the threat, the fact that theological doctrines, like the life of the soul, were the products of rational intellection meant they could, in theory, be argued against. Philosophy – the fence – was therefore used to resist whichever rebuttals emerged, and strengthen theological convictions.

Second, and consequently, More's philosophy was decidedly apologetic. In the 'General Preface', he said '*The great Cement that holds these several Discourses together is* one *main Design*…The knowledge of God'.[32] And, in *The Apology*, he tried '*To manage the truth of our Religion in such a way as would be most gaining upon men of a more Rational and Philosophical* Genius'.[33] In More's view, the geniuses of the age had been instrumental in Christianity's decline.[34] The most culpable were Hobbes, whose monism disallowed the existence of immateriality, and Descartes, who posited a universe effected only minimally by spirit. Both produced works which, though not necessarily reflections of authorial impiety – More never accused Descartes personally of irreligion, for example – had atheistical implications, or were vulnerable to atheistical interpretation. More's dualist philosophy – which uniquely ascribed extension to spirit – was designed to countermand these positions.

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[30] *Ibid*., p. vi.
[31] More, *Apology*, p. 541.
[32] More, *Collection*, 'The Preface General', p. iv.
[33] More, *Apology*, p. 482.
[34] John Henry, 'A Cambridge Platonist's Materialism: Henry More and the Concept of the Soul', *Journal of the Warburg and Courtauld Institutes*, 49 (1986), 172-95, pp. 175-7.

Finally, and perhaps most importantly, More claimed he was '*not* [trying] *to Theologize in Philosophy*', anticipating and countering the suggestion he was unduly mixing disciplines. This undercuts modern interpretations of More's work – see Robert Crocker, for example – as either theological philosophy or 'philosophical theology'.[35] These labels fail to capture the precision of More's disciplinary arrangements. More regarded natural philosophy and theology – particularly natural theology – as intimately connected. Neither discipline claimed absolute certainty, but they were both rational and intelligible. In fact, in the 'General Preface' More said Christianity was the only religion that 'dares appeal unto Reason'.[36] Moreover, their subject matters were largely complementary, and, in some cases, interchangeable – spirit featured in both disciplines. As such, philosophy was apologetic, pointing towards and preparing the ground for theology. Nevertheless, the relationship was subtler than simple coextension. More placed both disciplines on a continuum, natural philosophy coming first, giving way to natural theology. Studying matter produced partial explanations of nature. But, More said, this incompleteness pointed towards the existence of something else, something spiritual.

The main point of the philosophy-as-fence metaphor was that theology needed to be protected and supported by philosophy. An additional interpretation – which can be held alongside the former – is that before arriving at theology (something delimited), one must go through or scale the fence (philosophy). This notion – of going through philosophy to get to theology – is compatible with More's account of the limits and purposes of natural philosophy. On the one hand, he said in *Immortality*, natural philosophy explored how far mechanical causes could account for natural phenomena. On the other, it exposed the explanatory insufficiency of mechanism and materialism, and, by paving the way for spiritual explanations (like the Spirit of Nature), provided '*the first step to the abstrusest mysteries in Natural Theologie*'.[37] This somewhat complicates the disciplinary relationship between (natural) philosophy and (natural) theology. As discussed, the terms of the relationship were set by theology; theological propositions lacked certainty, so philosophy was used to protect and defend them. Clearly, however, the epistemic weakness cut both ways. For it was the failure of mechanism to account for

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[35] Crocker, *Henry More*, p. 203. Hutton has challenged this view. She says that More used philosophy to defend theology. But, she argues, there was less disciplinary conflation than Crocker implies. See Sarah Hutton, 'The Cambridge Platonists', in Steven Nadler (ed.), *A Companion to Early Modern Philosophy*, (Oxford, 2002), 308-19, p. 313.

[36] More, *Collection*, 'The Preface General', p. vi.

[37] More, *The Immortality of the Soul*, 'The Preface', unpaginated.

natural phenomena that, in More's view, necessitated the existence of spiritual substances and thus initiated theological contemplation

More reiterated this idea in his metaphysical work, *Enchiridion Metaphysicum*, when he said: 'from the more accurate knowledge of nature or the world we emerge into a sufficiently clear knowledge of God and of the other incorporeal substances'.[38] However, here More framed the disciplinary shift between the study of matter and the study of spirit in terms of physics and metaphysics. The latter, he argued, was 'taught after physics', and was 'the most noble fruit of natural philosophy', all of which was in keeping with the conventions of university curricula.[39] Less conventionally – but necessary to make *Enchiridion Metaphysicum* consistent with *Immortality* – More defined metaphysics as 'the art of correctly contemplating incorporeal substances insofar as they are revealed in our faculties by the light of nature. Thus, metaphysics is, as it were, natural theology'.[40] More cleaved to the common conception of natural theology as any argument for, inducement to believe in, or confirmation of, God's existence based on logic, reason or experience. It therefore encompassed metaphysics, without being entirely synonymous with it. The latter was exclusively interested in incorporeal substances, including God; the former – natural theology – dealt with the same topics, but also engaged with ontological arguments for God's existence that made no reference to incorporeality. Still, More envisaged an obvious (and extensive) crossover between natural theology and metaphysics. This was different from, say, Francis Bacon who (in a different intellectual context) argued that, although natural theology grew out of the trunk of first philosophy, they did not strictly speaking overlap.

However, the salient issue for More – which Bacon accepted, albeit implicitly – was that natural theology/metaphysics was the inevitable outgrowth of natural philosophy; that the study of matter necessarily gave way to an appreciation of immateriality. As More said: 'natural philosophy leads, indeed…it directs us as by a path to knowledge of that sort of principles which are both elevated and divine, as is plainly apprehended to be posited above all corporeal nature, and to exceed its powers'.[41] The closeness of, but also the differences between, these disciplines is evident. Natural philosophy and natural theology originated in the same practices; studying matter or physical nature. They both also worked by the same epistemic principles; reasoned judgements about investigable

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[38] Henry More, *Henry More's Manual of Metaphysics: a translation of the Enchiridion Metaphysicum*, with introduction and notes by Alexander Jacob, (Hildesheim, 1995), p. 1.
[39] *Ibid.*
[40] *Ibid.*
[41] *Ibid.*, p. 2.

substances. However, eventually their subject matters diverged. Natural philosophy stuck to physical inquiries, and natural theology posited immateriality where material explanations were unsatisfactory.

It was on this basis, More argued, that '*metaphysics is restricted to the light of nature, as it is distinguished from supernatural theology*'.[42] Metaphysics/natural theology was elaborated by reason, and therefore addressed subjects – the existence of spirit – that reason was capable of investigating. Supernatural theology, on the other hand, was not sourced from reason, but presumably was found in scripture. This, concomitantly, established a simple difference between natural philosophy, which, like natural theology, was based on reason; and supernatural theology, which was not. Nevertheless, this was a difference in origins (the reasoning faculty or scripture), not a difference in kind (compatible with rational argument or not). As this chapter will show, More defined faith as rational belief in the truth of the Bible. He also regarded the contents of theology – natural or supernatural – as rational insofar as they conformed to the notion of God's goodness. The fact that Christianity or supernatural theology derived from scripture, not reason, did not therefore mean Christianity and reason were incompatible. On the contrary, More accepted what was a commonplace among English Protestants – see Tillotson on the doctrine of the Trinity, for example – that although some scriptural tenets were above reason, none contravened it.[43]

According to More, scripture and reason were so compatible that any supposed discrepancies were actually evidence of misinterpretation. In *The Apology*, he said that 'such Reason as is really repugnant to them [the oracles of holy writ] is not true Reason, if sifted to the bottom; nor those Interpretations of Scripture true that are thus repugnant to true Reason'.[44] If reason and scripture were compatible, it was not a huge leap to assert that philosophy (which was rational) and scripture were compatible also. Indeed, More said, 'Principles or Conclusions of Philosophy' should have 'no real repugnancy with Scripture', they should also be 'unexceptionably tenable and demonstrable, and they must be 'easily accordable with the Attributes of God and the *Phænomena* of Providence'.[45] Thus, as well as a connection between natural philosophy and natural theology, it is also possible to speak of an affinity between philosophy and Christianity in general. Along with other so-called latitudinarian clergymen, More viewed

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[42] *Ibid*., p. 3.
[43] Reedy, *The Bible and Reason*, p. 10.
[44] More, *Apology*, p. 483.
[45] *Ibid*., p. 486.

natural philosophy/theology and theology as discrete yet compatible ways of rationally reflecting on God and creation.[46] '*There is no real clashing at all betwixt any genuine Point of Christianity and what true Philosophy and right Reason does determine or allow*…[for] there is a perpetual peace and agreement betwixt Truth and Truth'. Of his own philosophy, More even claimed that, 'were it true, (as most certainly it is exceeding rational) it is so far from clashing with Christian Truth, that it were to me, next to the Bible and those wonderfully-faithfull and clear Prophetical Predictions therein, the greatest corroboration of my Faith'.[47] It was the Bible, and specifically the true or realised prophesies it contained, that guaranteed the truth of faith. But true philosophy (i.e. More's philosophy) was so pious, and conformed so perfectly to Christianity, that, after the Bible, it was the best grounds for belief. The hierarchy of disciplines was clear: natural theology was born out of, and a remedy for, natural philosophy; and philosophy, in general, was primarily tasked with supporting and fortifying theology. But the compatibility and shared rationality of philosophy and Christian religion and theology was mutually beneficial. It meant, firstly, that one could 'assert Religion and vindicate her from that vile Imputation of Ignorance in Philosophy'. But it also 'justifie[d] those more noble results of free Reason and Philosophy from that vulgar suspicion of Impiety and Irreligion'.[48] Reason and faith, philosophy and theology, were in total harmony.

Underpinning this disciplinary compatibility was More's belief in an ancient Gentile theological tradition, or cabbala.[49] The authority of ancient wisdom in the seventeenth century is a contested issue.[50] Bacon held to a version of *prisca theologia* – the idea of an original theology known by the ancients. But the ancients weighed particularly heavily on More, who presented the history of philosophy as an outgrowth – or an elaboration – of a longer history of religious and theological thought. This explains More's admiration for 'the wisest and the most virtuous' heathen writers who, he claimed in *Conjectura*, '*had their Philosophy from* Moses *and the Prophets, as* Pythagoras *and* Plato*, or else the Disciples or Friends of these Philosophers*'. Pagan philosophy was not perfect, for despite '*having receiv'd the* Cabbala *from the ancient Prophets*…*they have* [still] *mingled their own fooleries with it, either out of*

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[46] See Gabbey, 'Cudworth, More and the Mechanical Analogy', pp. 110-11.
[47] More, *Apology*, p. 482.
[48] *Ibid*., p. 487.
[49] See Allison Coudert, 'Henry More, the Kabbalah, and the Quakers', in Richard Kroll, Richard Ashcraft, and Perez Zagorin (eds.), *Philosophy, Science, and Religion in England 1640-1700*, (Cambridge, 1992), 31-67; Patrides, *The Cambridge Platonists*; Hall, *Henry More and the Scientific Revolution*.
[50] Hutton, 'Edward Stillingfleet, Henry More, and the decline of *Moses Atticus*', p. 76, says it was being whittled away. For an extended rebuttal of this idea, see Levitin, *Ancient Wisdom*.

the wantonnesse of their Fancy, or mistake of Judgement'.[51] But by dint of their exposure to early theological wisdom, ancient philosophers had a unique relationship to divine truth.[52] More sketched this genealogy in the 'General Preface' to his *Collection*. It began with Pythagoras whose '*Philosophy was the ancient Wisdome of the* Jews', and therefore '*had relation to the Text of* Moses'.[53] This philosophical tradition bifurcated into physical and metaphysical schools, represented initially by Democritus and Plato. Latterly, however, '*the ancient* Pythagorick *or* Judaick Cabbala *did consist of what we now call* Platonisme *and* Cartesianisme, *the latter being as it were the* Body, *the other the* Soul *of that Philosophy; the unhappy disjunction of which has been a great evil to both*'.[54] More's ambition was to reunite these now disparate (and thus misguided) strands.[55] In short, he intended to reintegrate immaterial entities into mechanical accounts of nature.

The pay-off of this history or cabbala – what made it '*an indispensable duty of that Faithfulness I owe to the Christian Church*' – was the provenance it ascribed to philosophical learning.[56] In their earliest iterations, philosophy and theology had the same textual foundations and authorship. This was critical, for if philosophical truths (Cartesian and Platonic) were present in '*the Text of* Moses', then '*no Philosopher has any the least pretence to magnifie himself against Religion and the Church of God, wherein such rich Theories have been ever treasured up*'.[57] Philosophical truth – which was subsequently scattered across the historical canon – had first been set down, allegorically, in scripture.[58] The compatibility of natural philosophy and scripture therefore owed to the former's derivation from ancient Mosaic texts. Consequently, as More said in *Divine Dialogues* – a survey of his most important natural philosophical and theological positions – it made sense to 'look upon the Christian Religion rightly understood to be the deepest and the choicest piece of Philosophy that is'.[59]

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[51] More, *Conjectura Cabbalistica*, pp. 82-3.
[52] See Joseph M. Levine, 'Latitudinarians, Neoplatonists, and the Ancient Wisdom', in Richard Kroll, Richard Ashcraft, and Perez Zagorin (eds.), *Philosophy, Science, and Religion in England 1640-1700*, (Cambridge, 1992), 85-108, p. 42.
[53] More, *Collection*, 'The Preface General', p. xvii.
[54] *Ibid*., p. xviii.
[55] *Ibid*., p. xix.
[56] *Ibid.*
[57] *Ibid.*
[58] Stillingfleet opposed this idea, and inverted More's formulation. The Greeks uncovered fragments of revelation, but they corrupted rather than preserved them. Moreover, the Bible was not an allegorical work of philosophy. Only the neo-Platonists wrote allegorically, obscuring occult biblical truths. See Hutton, 'Edward Stillingfleet, Henry More, and the decline of *Moses Atticus*', pp. 71-6.
[59] Henry More, *Divine Dialogues, Containing Disquisitions Concerning the Attributes and Providence of God. The Three First Dialogues, Treating of the Attributes of God, and his Providence at large. The two last Dialogues, Treating of the Kingdome of God within us and without us, and of His Special Providence through Christ over his Church from the Beginning to the End of all Things*, (2 vols., London, 1668), I, p. 14.

Natural philosophy and theology had many points of overlap – textual origin, subject matter, epistemic status, and governance by reason. In large part, this closeness was designed to establish or reflect theology's seniority. Not only was natural philosophy perfected by natural theology: it also protected and corroborated theology. The rest of this chapter will demonstrate how this disciplinary arrangement was motivated by, and reflected, several of More's basic theological presuppositions. To explain the rational coherence of natural philosophy and theology I will turn to More's necessitarianism, and to account for the reason-truth distinction I will show how More's theories of the soul conditioned his understanding of reason. However, as a useful introduction to issues of rationality and truth, and to demonstrate More's engagement with scriptural Christianity, I will first discuss More's concept of faith.

II. Biblical grounds for faith

Like Bacon and Thomas White, More distinguished his arguments for belief from his elaboration of theology. He did not discuss the former with the same intensity as, say, White, who was more involved in polemical religious pamphleteering. But More's digressions on religious belief informed his notions of rationality and truth. They also betray flashes of his pressing theological concerns: overturning Calvinist notions of God, sin, and human potential. More's understanding of faith is therefore a useful reference point for thinking about how he structured disciplines like natural philosophy and theology.

A Brief Discourse of the true Grounds of the Certainty of Faith in Point of Religion (1668) was a short addendum – less than thirty pages – to More's (lengthy) two volume *Divine Dialogues*. It was a response to the accusation – levelled at many Cambridge divines in the 1660s – that More paid too much attention to natural theology, and not enough to scripture. In his analysis of biblical faith, More described belief as a state in which one was persuaded, on particular grounds, of a particular truth. One could be mistakenly persuaded of something, or persuaded on false grounds. But 'the true Grounds of the Certainty of Faith are such as do not onely beget a certain and firm Faith, but a true one, and this is in virtue of their own Truth and Solidity, as being such as will appear true and solid to all impartial and unprejudiced Examiners'.[60] More acknowledged that education,

[60] *Ibid.*, II, p. 468.

interest or appetite might make people unsympathetic to belief, and it was therefore the first criterion of faith to avoid or resist these impediments. This was called '*Moral Prudence*'.[61]

But, assuming this basic level of impartiality, faith rested on naturalistic foundations, (the upshot of which was that everybody, even the wicked, was capable of having faith).[62] 'It is plain', More argued,

> 'that *Certainty of Faith* presupposeth *Certainty* of both *Reason*, and *Sense* rightly circumstantiated. For, forasmuch as *Faith* properly so called is nothing but an unwavering Assent to some Doctrine proposed upon the ground of infallible Testimonie, there must be some *Reason* to persuade us that that Testimony is infallible…*Certainty of Sense* is also required. For if the Sense be not certain, there could be no infallible Testimony of matter of Fact'.[63]

Like White, More said faith rested on testimony. For More, however, testimony was strictly scriptural. Reason must persuade us that biblical testimony was genuine, and thus infallible. And the senses must be supposed reliable; to guarantee that the authors of (biblical) testimony correctly witnessed and understood the events they subsequently documented in scripture. In his *Principia* (1644), Descartes attacked the veridicality of man's sensory information and rational apparatus.[64] More knew this, but nevertheless claimed reason and sense were essential to faith. However, he argued, various conditions had to be met for the faculties to operate properly and for cognition to be successful. For example, More accepted the Aristotelian notion that sense organs must be physically sound in order to reliably convey information to the mind.[65] He also said reason could only operate effectively in salutary physical conditions. In keeping with early modern views on melancholy – famously expressed in Robert Burton's (1577-1640) *The Anatomy of Melancholy* (1621) – More traced various psychological disturbances to somatic states.[66] 'The Body', he summarised, 'doth engage the mind in Thoughts or Imaginations'.[67] More was particularly interested in the causes and treatment of the '*false perswasion*' that an individual has direct and privileged access to God's mind, which he discussed in

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[61] *Ibid*., pp. 468-9.
[62] This distinguished More from, say, Calvin, who thought only *select* individuals possessed the spirit necessary to apprehend truth. See Reedy, *The Bible and Reason*, pp. 3-4.
[63] More, *Divine Dialogues*, II, p. 470.
[64] René Descartes, *The Philosophical Writings of Descartes*, edited by John Cottingham, Robert Stoothoff and Dugald Murdoch, (2 vols., Cambridge, 1984), I, pp. 204-5, 218-21.
[65] More, *Divine Dialogues*, II, p. 471.
[66] Angus Gowland, *The Worlds of Renaissance Melancholy: Robert Burton in Context*, (Cambridge, 2006), pp. 76-9.
[67] Henry More, *Enthusiasmus Triumphatus, or a Discourse of The Nature, Causes, Kinds, and Cure, of Enthusiasme*, (London, 1656), p. 3.

Enthusiasmus Triumphatus (1656).[68] Departing from neo-Platonic tradition, he claimed reason and imagination – i.e. both parts of the human soul – were immaterial.[69] Reason ought to tame the imagination and govern the body via material animal spirits. However, the reverse was also possible; the imagination could overrun reason, spurred by physical stimulation.[70] When this happened, the mind became deluded. Thus, More argued, 'the *Causes* of *Enthusiasme*', (which he elsewhere likened to the causes of atheism[71]), could be 'resolved into *Complexion* or the present Temper of Distemper of the body, arising from natural causes'.[72] The most potent cause was '*Melancholy*', which, 'when it reaches to a disease…sets on some one particular absurd imagination upon the mind so fast, that all the evidence of reason to the contrary cannot remove it'.[73] So, to relieve the mind, the body required treatment.

Whatever remedial action was taken to aid or facilitate the faculties, certain limits were insuperable. For instance, proofs for God's existence lacked absolute certainty. In addition, the essences of substances were inaccessible to the human mind. Substances were identifiable by their immediate properties – impenetrability in the case of matter, penetrability in the case of spirit – but the link between a substance and its properties was indemonstrable.[74] (The salient issue for More was that the immediate properties of spirit were as knowable and as intelligible as the immediate properties of matter).[75] Despite these qualifications, More worked from the '*Postulate* or *Hypothesis*, that *Our Faculties are true*'.[76] Though imperfect, the faculties were capable of apprehending 'Common Notions [intuitive truths], Externall Sense, and evident and undeniable Deductions of Reason [logical links between arguments]'.[77] 'Whatever is clear to any one of these Three Faculties', he said, 'is to be held undoubtedly true, the other having nothing to evidence to the contrary'.[78] Crucially, in *Grounds of the Certainty of Faith*, More said that if reason and sense were correctly calibrated, 'there are some Truths so clear,

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[68] *Ibid*., p. 2.
[69] Koen Vermeir, 'Imagination between Physick and Philosophy: on the Central Role of Imagination in the work of Henry More', *Intellectual History Review*, 18 (2008), 119-37, pp. 126-9.
[70] More, *Enthusiasmus Triumphatus*, pp. 6-7. See also, Vermeir, 'Imagination between Physick and Philosophy', p. 132; G.A.J. Rogers, 'Locke and the latitude-men: ignorance as a ground of toleration', in Richard Kroll, Richard Ashcraft, and Perez Zagorin (eds.), *Philosophy, Science, and Religion in England 1640-1700*, (Cambridge, 1992), 230-52, pp. 236-7.
[71] More, *An Antidote Against Atheisme*, 'The Preface', unpaginated.
[72] More, *Enthusiasmus Triumphatus*, To the Reader, unpaginated.
[73] *Ibid*., pp. 10-11.
[74] More, *The Immortality of the Soul*, pp. 10-12.
[75] *Ibid*., pp. 12-15.
[76] More, *An Antidote Against Atheisme*, 'The Preface', unpaginated.
[77] More, *The Immortality of the Soul*, p. 7.
[78] *Ibid*., p. 9.

that Immorality it self…puts no bar to the assenting to them, that is, puts no bar to their appearing to be true'.[79] These included logical and physical dicta. But they also included the truth of Christianity, which, returning us to the focus of this section, was grounded in the truth of the Bible.

More addressed the subject of the biblical grounds for religious truth in his poem *Psychozoia* (written in 1620), when he said religious belief or doctrine should be sourced from 'that infallible Rule of Faith, the holy Word'.[80] Charting the life of the human soul, the poem was a critique of, and alternative to, the doctrine of predestination, composed when Puritanism was rife in Cambridge, and in Christ's and Emmanuel Colleges in particular.[81] English Arminians like Richard Montagu (1577-1641) had stressed the moral and political dangers of Calvinist theories of grace since the 1620s.[82] More, however, rejected predestination because it undercut the idea of God's goodness, and disallowed the possibility that all souls were perfectible. In large part, he argued, biblical doctrine could be grasped by reason, or shown to be compatible with rational principles.[83] Further, every human soul possessed reason and was capable of refining its rational faculty. Reason was the route to salvation, and therefore, salvation was universally achievable.

More returned to the question of the Bible's role in faith in *An Explanation of the grand Mystery of Godliness*. However, he wrote *Mystery of Godliness* just before the Restoration, when the religious temper in England was very different. Anticipating a period of ecclesiological tolerance and moderation, More felt free to argue that, although episcopacy was rational, it was not *jure divino*.[84] However, the restored Church was far less conciliatory than More expected. Returning high churchmen regarded their priesthood as divinely commissioned, and treated their opponents punitively. As well as purging the Church of Puritan influence, they also took aim at Cambridge latitudinarians. The latter, it was argued, were politically disloyal and prioritised natural philosophy/theology over scripture.[85] More was obviously vulnerable to these charges – he had written extensively on natural theology, and, in *Mystery of Godliness*, argued that reflection was required to

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[79] More, *Divine Dialogues*, II, p. 471.
[80] More, *Psychozoia, or the First Part of the Song of the Soul, Containing a Christiano-Platonicall display of Life*, in *Philosophical Poems*, To the Reader, unpaginated.
[81] Crocker, *Henry More*, p. 8.
[82] See Nicholas Tyacke, 'Puritanism, Arminianism, and Counter-Revolution', in Conrad Russell (ed.), *The Origins of the English Civil War*, (London, 1973), 119-43, p. 121; Nicholas Tyacke, *Anti-Calvinists: the rise of English Arminianism c. 1590-1640*, (Oxford, 1987), p. 47.
[83] See Crocker, *Henry More*, pp. 81-3.
[84] *Ibid*., p. 93.
[85] Gascoigne, *Cambridge in the Age of Enlightenment*, pp. 41-53.

uncover the intelligibility, or reasonableness, of divine mysteries. Nevertheless, he also said 'the Spirit of God in the plain Records of Scripture will afterward so ratifie and confirm' divine mysteries.[86] So, again, More posited the Bible as the basis for religious truth.

More said the truth or falsity of Christianity hinged on whether God's providence was an actual historical phenomenon. If he could 'prove That this *Messias* is already come, and that *Iesus* whom we worship is that *Christ*', then he would have 'prove[n] That Christianity…is not a mere *Idea*, but a *real* Truth'.[87] More therefore set out to show the historical fulfilment of various biblical prophesies, including – most importantly – that Jesus had come and that he was the Messiah. This distinguished More from English controversialists (and fellow latitudinarians) like Chillingworth and Tillotson. All three posited the Bible as the grounds for faith. But the latter two were largely interested in the legitimacy of the Bible as a document (as they did battle with the Catholic oral tradition). Their concern was the canonical authenticity of the texts; that they were authored by who they claimed they were; at particular times, and in particular places.[88] More, on the other hand, simply pointed to the historical truth of biblical prophecy. In this regard, he had more in common with Edward Stillingfleet (1635-1699), who adduced the superior accuracy of sacred history over various heathen histories as evidence of biblical truth.[89]

Eight years later, in *Grounds of the Certainty of Faith*, More expanded the criteria for Christian truth, while remaining essentially committed to a scriptural foundation. Certainty of faith, he argued, was 'grounded upon the Certainty of *Vniversal Tradition, Prophecy, History,* and *the Nature of the things delivered*, Reason and Sense assisting the Minde in her Disquisitions touching these matters'.[90] Tradition, prophecy and history (at least the biblical parts) were criteria based on the historicity of scripture (as outlined in *Mystery of Godliness*). The addition of '*The Nature of things delivered*' was shorthand for the reasonableness of Christian doctrine. This seems confused, for in *Mystery of Godliness* More suggested the reasonableness and the truth of Christianity were two different things. The former – which was More's major theological preoccupation – was demonstrated by showing the compatibility of doctrine with the idea of God's providential goodness. The latter was established by prophetic fulfilment. But *Grounds of*

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[86] Henry More, *An Explanation of The Grand Mystery of Godliness, or A True and Faithful Representation of the Everlasting Gospel of our Lord and Saviour Jesus Christ, the Onely Begotten Son of God and Sovereign over Men and Angels*, (London, 1660), p. 31.
[87] *Ibid*., p. 280.
[88] See van Leeuwen, *The Problem of Certainty*, pp. 27, 42.
[89] Reedy, *The Bible and Reason*, pp. 41-2.
[90] More, *Divine Dialogues*, II, p. 478.

the Certainty of Faith was not a radical overhaul of More's views. It remained the case that 'the Bible is the truest Ground of the Certainty of Faith' – a state of affairs vouchsafed by reason.[91] But More now sought to demonstrate that a variety of evidence – largely scriptural, but also the reasonableness of Christian doctrine – coalesced into one proof of the truth of Christianity. More's abiding scripturalism was evident in his attitude to other faiths. He esteemed Judaism over Paganism because only the former derived from Mosaic texts. Moreover, though he rejected Calvinist teachings, More called on 'all Protestant Churches, whose Religion is the *Bible*…to use so well a limited Indulgence' – i.e. to refrain from bellicosity.[92] Tellingly, however, he stopped short of advocating freedom of conscience for Catholics, who built their religion on fallible men instead of infallible scripture.[93]

More's view of rational faith helps pinpoint the distinctiveness of his theology, which strove to demonstrate the rationality of Christian doctrine. He alluded to the distinction – between religion and theology – in *Grounds of the Certainty of Faith*. His main thesis was that, because scriptural prophecy was evidently true, it was rational to have faith in the Bible – i.e. be persuaded that it was authentic and divine. However, More also said the rationality of Christian *belief* implied the rationality of Christian *doctrine*. This suggests that faith and theology were tightly linked. Given the right conditions, More said the human faculties were reliable and capable of certainty. The truth of faith was therefore certified by reason and sense. However, reason also assented to various 'Natural Truths, whether *Logicall, Physicall,* or *Mathematicall*, that are so palpably true, that they constantly and perpetually appear so as well to the Wicked as the Good, if they be *Compotes mentis*'.[94] In short, the rational faculty that determined the truth of the Bible was also used to assent to natural truths.

From this truism, More inferred that the *content* of revelation must be compatible with natural truths. This had some logical cogency – it is impossible for two truths (natural or scriptural) to be incompatible. But More was making a subtler point. If a natural truth contradicted scripture, the former was false. This implied that the basis for the (discredited) natural truth – i.e. reason – was invalid, and capable of producing falsehood. However, the invalidation of reason would also undermine the biblical ground for certainty in faith, which was certified by reason. In conclusion, then, revelation had to be

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[91] *Ibid*., pp. 480-1. Reid draws a similar conclusion. *The Metaphysics of Henry More*, pp. 31-4.
[92] More, *Apology*, p. 542.
[93] *Ibid*., p. 541.
[94] More, *Divine Dialogues*, II, p. 472.

reasonable, or compatible with natural truths, otherwise there would be no certain basis for belief in the first place. As More put it; 'if Reason where it is clearest [i.e. in establishing natural truths] is false, we have no assurance it is ever true, and therefore no Certainty of Faith, which presupposes Reason'.[95]

Thus, More jumped from the notion that it was rational to believe in scripture to the notion that Christian doctrine was rationally knowable. This served as a neat logical presentation of his views. However, More did not think Christianity was reasonable *because* it was compatible with natural truths, and *because* those natural truths were established by the same reasoning faculty responsible for validating the Bible. These were symptoms or effects of Christianity's reasonableness, not an explanation of it. Thus, in this instance, More reasoned from an effect (Christianity's compatibility with natural truths) to a cause (Christianity's reasonableness). But the order of causation, and, in many instances, the order of More's reasoning, was different. He hinted at this when he said that 'no Revelation…is repugnant to the Divine Attributes', alluding to the supposed accordance of biblical doctrine with the idea of God's goodness.[96] As discussed in the following section, in More's view, Christian doctrine was reasonable because it derived from, or conformed to, the notion that God was good. The rationality of belief was a related but separate issue – More's theological assumptions about the nature and actions of God preceded and conditioned the remainder of his thought, including his conviction that faith could be shown to be true. As we will presently discuss, these presuppositions formed the core of More's longstanding anti-Calvinism.

III. Providence and theories of the soul

More was concerned by the materialistic, and thus atheistical, pretensions of his rational age. As such, *Immortality* contained a detailed refutation of Hobbes's materialist natural philosophy.[97] More also had an uneasy relationship with Cartesian dualism, which he regarded as liable to materialist exploitation.[98] Consequently, More developed (in his view) a more robust dualism, based on theological premises (different from Descartes's). At the same time, he was anxious to preserve the fundamentally rational character of

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[95] *Ibid*., p. 474.
[96] *Ibid*., p. 473.
[97] More, *The Immortality of the Soul*, pp. 55-74.
[98] See Gabbey, 'Henry More and the Limits of Mechanism'.

Christianity. In part, this involved proving the reliability and authenticity of scripture. But it was essentially a theological agenda, pitting More against the Reformism he encountered during his childhood and early education.[99] In this section I will flesh out More's peculiar Origenian rejection of Calvinism, and, in the next section, explore the manner in which it governed his conceptions of natural philosophy and theology.

The history of the early to mid-seventeenth-century conflicts within the English Church is important for understanding More's theology. Not only did these conflicts motivate More to develop a more inclusive, latitudinarian-esque theology, they also informed his doctrinal commitments regarding providence and grace. The Elizabethan and Jacobean churches were theologically Calvinist, adhering to the doctrine of double and absolute predestination – election and reprobation determined by God's unchanging will.[100] An Arminian presence existed in the Church from around 1610, but it remained quiet until the ascendency of Charles I in 1625, and the appointment of William Laud (1573-1645) as the Archbishop of Canterbury in 1626. From then, and into the 1630s, the Church rejected Calvinism in what one commentator described as a 'Counter-Reformation without the Jesuits'.[101] English Arminians, like their Dutch counterparts, rejected predestination, arguing that God willed the salvation of all believers.[102] (Still, the English developed a distinct sacramental view of grace, with a particular emphasis on baptism). In a significant polemical move, Montagu and other Arminian clerics began associating Calvinism and predestination with Puritanism, including all three under an expanded conception of non-conformism.[103]

Scholars disagree about whether the Laudian settlement was motivated by theological concerns – for, say, human freedom[104] – or simply vague anti-Puritanism.[105] From the mid-1620s, the label "Puritanism" was bandied around in different contexts to satisfy a variety of polemical needs. Among other things, it referred to Reformism, Presbyterianism, Calvinism, non-conformism, and clerical tyranny. Inevitably, "Anti-

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99 For overviews of More's anti-Calvinistic theology, see Crocker, *Henry More*, pp. 1-12; Crocker, 'A Biographical Essay'.
100 See Tyacke, 'Puritanism, Arminianism, and Counter-Revolution', pp. 120-1; Tyacke, *Anti-Calvinists*, pp. 1-5.
101 See MacCulloch, *Reformation*, p. 517.
102 Tyacke, *Anti-Calvinists*, p. 39.
103 *Ibid*., p. 47; Tom Webster, 'Early Stuart Puritanism', in John Coffey (ed.), *The Cambridge Companion to Puritanism*, (Cambridge, 2008), 48-66, pp. 50-1.
104 Peter Lake, 'The Laudian Style: Order, Uniformity, and the Pursuit of the Beauty of Holiness in the 1630s', in Kenneth Fincham (ed.), *The Early Stuart Church, 1603-1642*, (Macmillan, 1993), 161-85, pp. 164-7.
105 Anthony Milton, 'The Creation of Laudianism: a new approach', in Thomas Cogswell, Richard Cust, and Peter Lake (eds.), *Politics, Religion, and Popularity in early Stuart Britain: essays in honour of Conrad Russell*, (Cambridge, 2002), 162-84, pp. 177-81.

Puritanism" was also constructed to capture a variable selection of arguments, claims and qualities.[106]

Whatever the exact character of the Laudian Church, or the exact meaning of Puritanism, the attacks on predestination and Presbyterianism during Charles I's personal rule (1629-1640) undoubtedly produced a militant "Puritan" backlash in the 1640s – just as More's own theological views were crystallising.[107] Episcopacy was abolished during the Civil War, and many Church of England ministers were ejected from their posts during the Interregnum.[108] Various sects, not only Puritanism, gained strength at this time.[109] However, the situation reversed abruptly following the Restoration. Charles II promised a conciliatory Church, but it failed to materialise.[110] Instead, the Acts of Uniformity (1662) and the Conventicle Acts (1664 and 1670) set boundaries for dissent and forbade non-establishment congregations, penalising the array of sects that flourished during the 1650s.[111]

These institutional and doctrinal vicissitudes were mirrored, microcosmically, in Cambridge, where More studied then taught. During the Civil War and Interregnum, the university was under parliamentary control, and therefore largely Puritan.[112] This was formative for More, who began developing his anti-Calvinism in the 1640s. However, Cambridge also played host to latitudinarian clergymen – a group associated with More – who conformed to both the parliamentary and restored Church settlements, stressing the importance and inclusivity of natural theology.[113] After the Restoration, More wrote to Anne Conway (1631-1679) complaining that the returning high churchmen, bent on re-imposing episcopacy, and doctrinal and ritual uniformity, 'push hard at the Latitude men as they call them, some in their pulpitts call them sons of Belial, others make the Devill a latitudinarian'.[114] Many clergymen were forced from their posts and decamped to

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106 Peter Lake, 'Anti-Puritanism: The Structure of a Prejudice', in Kenneth Fincham and Peter Lake (eds.), *Religious Politics in post-Reformation England: essays in honour of Nicholas Tyacke*, (Woodbridge, 2006), 80-97, pp. 91-4.

107 See Coffey and Lim, 'Introduction', p. 5. This argument is pushed the furthest by scholars who construe the English Civil War as the last of the Wars of Religion. See John Morrill, 'The Religious Context of the English Civil War', *Transactions of the Royal Historical Society*, 34 (1984), 155-78.

108 John Spurr, *The Restoration Church of England, 1646-1689*, (Yale, 1991), pp. 6-7.

109 See MacCulloch, *Reformation*, pp. 526-8; Coffey and Lim, 'Introduction', p. 5.

110 Spurr 1991, pp. 30-1.

111 Spurr, 'Late Stuart Puritanism', p. 90.

112 Gascoigne, *Cambridge in the Age of Enlightenment*, p. 27.

113 *Ibid*., p. 27.

114 M.H. Nicolson (ed.), *Conway Letters: The Correspondence of Anne, Viscountess Conway, Henry More, and Their Friends, 1642-1684*, revised edition with an Introduction and New Material, edited by Sarah Hutton, (Oxford, 1992), p. 243.

London, and – although More and Cudworth remained in Cambridge[115] – after the 1660s, More's work was generally more apologetic and less philosophical.[116]

Nevertheless, More was consistently hostile to Calvinism. Its principal defect, he argued, was that it gave ontological priority to God's power over his goodness or justice, and thus left man and creation in moral confusion. For instance, in his *Institutes of the Christian Religion* (1536), John Calvin said: 'By God's name is indicated his power, which comprises all his excellences: as, his might, wisdom, righteousness, mercy, truth'.[117] Condemning theological voluntarism in *Divine Dialogues*, More said:

> 'if the measure of his [God's] Providence be his *mere Power, Will* or *Sovereignty*, no man living can tell what to expect in conclusion. All true Believers may be turned into Hell, and the wicked onely and the Blasphemer ascend into the Regions of Bliss. For what can give any stop to this but God's *Iustice*, which is a branch or mode of his *Goodness?*'.[118]

Reformist voluntarism – according to More – held that creation and providence issued from God's will directly, untutored by a rational or discernable design. Calvin's God was therefore arbitrary because his choices were capricious and not constrained by external considerations.[119]

Challenging this view, More said God's first and preponderant attribute was goodness, a theological position known as necessitarianism or intellectualism. In *An Appendix to the late Antidote against Atheism* (appended to the second edition in 1655), More described God as 'that absolute and immutable Good, and full and pure Perfection'. As such, 'he [God] cannot but include in his *Idea* that precious Attribute of *Benignity*, and therefore acting according to his entire Nature, he is onely good himself'.[120] The other divine attributes were tailored according to God's goodness. Nothing, More said in *The Apology,* 'can… be rightly termed an act of his Severity, Mercy, Policy, Veracity, or the like, unless it participate in his Goodness'.[121] This conditioned the character of all God's acts and

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[115] It is likely that More's connection to the influential Finch family played a part in protecting him from hostile high churchmen. See Gascoigne, *Cambridge in the Age of Enlightenment*, p. 48.
[116] *Ibid*., p. 44.
[117] Calvin, *Institutes of the Christian Religion*, p. 78.
[118] More, *Divine Dialogues*, I, pp. 177-8.
[119] More's understanding of voluntarism therefore fell outside the rubric sketched in Peter Harrison, 'Voluntarism and Early Modern Science', *History of Science*, 40 (2002), 63-89. Harrison argues that thinkers commonly described as "voluntarists" regarded God's will was arbitrary insofar as it was free, rather than because it was irrational or capricious. *Ibid*., p. 74. For an excellent account of early modern voluntarism, see Malcolm, 'Thomas Hobbes and Voluntarist Theology'. For the different providential theologies found in More, Boyle and Descartes, see Osler, 'Triangulating Divine Will'.
[120] More, *An Antidote Against Atheisme*, enlarged second edition, with appendix (1655), p. 323.
[121] More, *Apology*, p. 533.

commands. God's wisdom and power, More wrote in *Divine Dialogues*, were 'adjoyned to this infinite *Goodness*, to contrive and execute his holy, just and benign designs'.[122] And 'from these three, his infinite *Goodness, Wisedome* and *Power*, issue out all the Orders of the Creation in the whole Universe'.[123] '*Goodness*', in short, was '*the Measure of his* [God's] *Providence*'.[124]

This sort of argument was not unusual. By placing God's goodness before his will and power, anti-Calvinists could describe and reject predestination as impossibly unjust. For More, however, necessitarianism went hand-in-hand with two controversial assumptions about the pre-existence and perfectibility of the soul. These doctrines corrected what, in More's view, were additional deficiencies in Reformist theology – the notions that man's divinity had been totally, irreversibly, extinguished, and consequently, that salvation was arbitrary.

More's theories of the soul are also important because, in conjunction with his necessitarianism, they shaped his analysis of knowledge – what man was capable of knowing, and why his efforts at knowledge might be frustrated. More said the journey and circumstances of the soul, from heaven to earth and back again, conditioned the effectiveness of the reasoning faculty. Terrestrial souls were embroiled in materiality, which placed limitations on reason. Elevated souls, on the other hand, suffered minimal material intrusion, freeing reason from disturbances or distractions. The breadth and certainty of philosophical and theological knowledge, as well as their potential for development, was determined by the health and status of the soul. These doctrines of the soul therefore informed More's general account of disciplines and knowledge, and his assessment of natural philosophy and theology, in particular.

According to More, the life of the soul predated its temporal experience. He shared this view with his friend and collaborator, Joseph Glanvill, and both men drew inspiration from the Church Father, Origen. Origen's antiquity made him a credible source for Reformers interested in early, uncorrupted Christian thought.[125] All human souls, he argued, were created perfectly and simultaneously, and not in conjunction with individual copulations; they pre-existed earthly life. Nevertheless, they eventually fell from heaven due to their pursuit of sensuality, which, he argued, placed the responsibility

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[122] More, *Divine Dialogues*, II, p. 25.
[123] *Ibid*., p. 24.
[124] *Ibid*., I, p. 178.
[125] Rhodri Lewis, 'Of "Origenian Platonism": Joseph Glanvill on the Pre-existence of Souls', *Huntington Library Quarterly*, 69 (2006), 267-300, p. 274; Hutton, 'Henry More and Anne Conway', p. 115.

of the Fall on individual souls.[126] Origenism was therefore a potentially useful buffer against Augustinian anthropology, and, for early modern thinkers like More, an alternative to Calvinist predestination.[127] However, although More described him as a 'Miracle of the Christian World', others were sceptical.[128] Origen's Platonism, and particularly his doctrine of pre-existence, meant Restoration churchmen like Samuel Parker (1640-1688) and Seth Ward (1617-1689) considered him heterodox.[129] Pre-existence was even rejected by fellow Platonists like Cudworth.[130]

Psychogenesis was hotly debated in 1640s Cambridge. In sermons delivered between 1646-1647, and later published, Nathaniel Culverwell (1619-1651) discussed three possible theories. In the first, known as traduction, souls were perpetuated from parent to child. The second theory was pre-existence. The third theory, called creationism, involved God breathing a soul into a newly conceived body. According to Culverwell, the first theory was untenable; the remaining two, he said, were equally viable. On the other hand, in his *Ad Philosophiam Teutonicam Manuductio* (1647), Charles Hotham (1615-1672), a fellow at Peterhouse, claimed traduction was the only intelligible possibility.[131] More entered the discussion with his poem, *The Præexistency of the Soul* (1647), in which he described the soul's heavenly life and its subsequent fall to earth. 'The Souls of men', he said, 'thorough [sic] their own revolting from God before they came into the body, have thus in severall measures engaged themselves in the sad, dangerous, and almost fatall entanglements of this Corporeall World'.[132]

More held to this argument his entire life. Yet his discussions of pre-existence were always cautious, attesting to the doctrine's biblical soundness and elaboration by reason, not its truth. In *Immortality*, for example, he surveyed the three theories aired in the Cambridge debates, concluding that 'these two [other] opinions being so incongruous what is there left that can seem probable, but the *Præexistency* of the Soul?'.[133] Discussing pre-existence in *The Apology*, he said it was 'within the bounds of Modesty [to] averre it to be a very *Rational* and *Useful* opinion…But all that I averre is the *Rationalness* of this

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126 For Origenian theology, especially the doctrine of pre-existence, see Lewis, 'Of "Origenian Platonism"'.
127 *Ibid*., pp. 264-8; Hutton, 'Henry More and Anne Conway', p. 115.
128 More, *Collection*, 'The Preface General', p. xxi.
129 See Hutton, 'Henry More and Anne Conway', pp. 114-17.
130 David W. Dockrill, 'The Heritage of Patristic Platonism in Seventeenth-Century English Philosophical Theology', in G.A.J. Rogers, J.M. Vienne, and Y.C. Zarka (eds.), *The Cambridge Platonists in Philosophical Context: Politics, Metaphysics and Religion*, (Dordrecht, 1997), 55-77, p. 65.
131 Lewis, 'Of "Origenian Platonism"', pp. 271-2.
132 More, *The Præexistency of the Soul, Added as an Appendix to this Third Part of the Song of the Soul*, in *Philosophical Poems*, 'The Preface to the Reader', unpaginated.
133 More, *The Immortality of the Soul*, p. 241.

Position, not the *Truth* thereof'.[134] Most scholars interpret this circumspection as More's way of avoiding Church persecution.[135] More made his deference to the Church apparent in *The Apology*, written after the 1662 Act of Uniformity.[136] And speaking on the issue earlier (in 1662), he admitted; '*I do not find my self bound in conscience to profess my opinion therein any further then is with the good liking of permission of my Superiours*'.[137] More was equally circumspect in *The Præexistency of the Soul*: although, then, he was subject to different ecclesiastical pressures – the strong Calvinist presence in Cambridge. Thus, he wrote, 'I do not contend (in thus arguing) that this opinion of the Præexistency of the Soul, is true, but that it is not such a self-condemned Falsity'.[138]

However, for all his caution, pre-existence had a sort of analytical certainty for More, insofar as it preserved, or followed from, the idea of God's goodness. As he remarked in *Immortality*, because 'the *Wisdome* and *Goodness* of God will doe that which is the *best*; and therefore if they [souls] can enjoy themselves before they come into these terrestrial Bodies (it being better for them to enjoy themselves then not) they must *be* before they come into these Bodies…Wherefore the *Præexistence* of Souls is a necessary result of the Wisdome and Goodness of God'.[139] Pre-existence was also good theodicy, absolving God of responsibility for the Fall and the existence of evil. As Origen remarked in *On First Principles* (c. 219-225),[140] 'rational creatures…were endowed with the power of free will, [and] it was this freedom which induced each one by his own voluntary choice either to make progress through the imitation of God or to deteriorate through negligence'.[141] Following Origen, More said '*Soules did once subsist in some other state; where, in severall manners and degrees, they forfeited the favour of their Creatour*'. As such, they, not God, were responsible for the '*several calamities and asperities of fortune, and sad drudgeries of Fate, as a punishment inflicted, or a disease contracted from the severall Obliquities of their Apostasie*'.[142] Of particular importance to More was the punishment imposed on man's reasoning capacity, and the limits this set for knowledge.

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134 More, *Apology*, p. 487.
135 See Hutton, 'Henry More and Anne Conway', pp. 116-18; Reid, *The Metaphysics of Henry More*, pp. 349.
136 More, *Apology*, pp. 487-9.
137 More, *Collection*, 'The Preface General', pp. xxv-xxvi.
138 More, *The Præexistency of the Soul, Added as an Appendix to this Third Part of the Song of the Soul*, in *Philosophical Poems*, 'The Preface to the Reader', unpaginated.
139 More, *The Immortality of the Soul*, p. 243.
140 Dating estimated by G.W. Butterworth, 'Introduction', in Origen, *On First Principles*, introduction and notes by G.W. Butterworth, (Harper and Row, 1966), xxiii-lviii, pp. xxviii-xxxi.
141 Origen, *On First Principles*, introduction and notes by G.W. Butterworth, (Harper and Row, 1966), p. 134.
142 More, *The Immortality of the Soul*, p. 244.

Both Origen and More conceived of the soul's fall from heaven (and its incremental re-ascension) in terms of its conveyance by different bodily vehicles. According to Origen, it was 'impossible' for a soul to 'live apart from a body…this [material] substance seems to have been produced for them or after them, yet never have they lived or do they live without it'.[143] The type of bodily vehicle occupied by a soul was determined by the nature and severity of the soul's estrangement from God. 'Each vessel', he argued, 'received, according to the measure of its purity or impurity, its place or region or condition in which to be born or to fulfill some duty in this world'.[144] For example, when 'material substance…is drawn down to lower beings it is formed into the grosser and more solid condition of body and serves to distinguish the visible species of this world with variety. But when it ministers to more perfect and blessed things, it shines in the splendour of 'celestial bodies".[145] More also claimed souls were coextensive with, and functionally bound to, body.[146] Further, he concurred that the type of vehicle reflected the identity or purity of a particular soul. In *Conjectura*, he explained how, 'by forsaking the *divine Light*', Adam 'so changed the nature of his *Vehicle*…[and] sunk more and more towards a moral and terrestrial estate'.[147] Therefore, while Angels enjoyed aerial bodies, Adam's descendants had to make do with coarser terrestrial hosts. Moreover, bodily encasement did not cease with terrestrial death. 'The nature of the Soule', More argued in *Immortality*, 'is such that she cannot act but in dependence on Matter, and that her Operations are some way or other alwaies modified thereby. And therefore if the Soule act at all after death…it is evident that she is not released from all vitall union with all kind of Matter whatsoever'.[148]

Body and soul were inseparable. But they were, for More, different entities. It was on this subject – the ontological status of immaterial substance – that More and Hobbes clashed most violently. In *Leviathan*, Hobbes said: 'For the *Universe*, being the Aggregate of all Bodies, there is no reall part thereof that is not also *Body*; nor any thing properly a *Body*, that is not also part of (that Aggregate of all *Bodies*) the *Universe*'.[149] Body and substance were two names for the same thing. Body was characterised by dimensionality – 'every part of Body…hath the like dimensions' – while substance was the subject of

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143 Origen, *On First Principles*, p. 81.
144 *Ibid*., pp. 136-7.
145 *Ibid*., pp. 81-2.
146 More, *The Immortality of the Soul*, pp. 268-9, 298-9.
147 More, *Conjectura Cabbalistica*, p. 48.
148 More, *The Immortality of the Soul*, pp. 329-30.
149 Hobbes, *Leviathan*., p. 269-270. See also, p. 463.

material variation.[150] To be conceptually different from body, spirit – in Hobbes's view – must lack dimensionality. Therefore it occupied no place; was no part of the universe; and did not exist. Names like incorporeal substance, he famously said, were 'but insignificant sounds'.[151]

More confronted these arguments directly in *Immortality*. Of Hobbes's claim that the universe was entirely material, he said that, 'this is not to prove, but to suppose what is to be proved'.[152] He then agreed with Hobbes that 'All Substance has *Dimensions*', but countered that 'all has not *Impenetrability*'.[153] This meant that spirit had dimensions, or was extended, and thus, it was 'not *Trinall Dimension*, but *Impenetrability*, that constitutes a *Body*'.[154] Consequently, although two bodies could not occupy the same space, spirit could penetrate other substances. According to More, spirit occupied an additional fourth dimension, and so 'Spirits and Bodyes may be in the same imaginary Space', without either losing extension.[155] These arguments were supposed to refute and counter Hobbes's materialist view of the world. Ironically, by conceptualising spirit as extended substance, More was himself accused of materialism.[156] Still, by claiming spirit and body were capable of interpenetration, he conferred legitimacy on the controversial doctrine of pre-existence.

According to More, after exiting heaven for an earthly existence, the only direction a human soul could take after death was upwards, back towards God. This distinguished More from Origen, who thought human souls could transmigrate into even lower, animalistic vehicles.[157] However, both men claimed man could win back the original, rarefied purity lost during the Fall – a doctrine known as perfectionism. Both therefore inverted the Calvinist tenets that 'it is not in our power or ability to discharge what we owe the [divine] law', and thus we 'must seek and await help from another quarter'.[158] According to Calvin, 'when Adam slipped into sin, this image and likeness of God was cancelled and effaced, that is, he lost all the benefits of divine grace'. As such, 'all of us born of Adam are ignorant and bereft of God, perverse, corrupt, and lacking every good'.[159] More, on the other hand, said man's soul retained a divine seed, or 'indelible

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150 *Ibid*., p. 463.
151 *Ibid*., p. 30.
152 More, *The Immortality of the Soul*, p. 65.
153 *Ibid*., p. 68.
154 *Ibid*., p. 71.
155 *Ibid.* p. 72. See also Pasnau, 'Mind and Extension', pp. 302-4.
156 Parkin, *Taming the Leviathan*, p. 199.
157 See Reid, *The Metaphysics of Henry More*, pp. 366-9.
158 Calvin, *Institutes of the Christian Religion*, p. 17.
159 *Ibid*., pp. 15-16.

Image or Idea of God'.[160] Further, to purify his soul, man had to nurture this vestigial divinity and eschew sensuality. Man would never become divine – the view of alchemists like Paracelsus and Jan Baptista van Helmont (1580-1644) – because the soul was necessarily bound to body.[161] But re-purifying the soul had two major pay-offs. First, as discussed in the next section, it freed reason from self-interest and material distraction, enabling the apprehension of more sophisticated knowledge – philosophical and theological. And second, it paved the way to salvation, preparing the soul for more refined bodily vehicles. Again, this distanced More from Calvin, who said 'God's mysteries pertaining to our salvation are of the sort that we cannot in themselves and by their own nature (as is said) be discerned', and that 'eternal election…had destined them [the elect] to this end before they were born'.[162]

Earthly life, More observed in *Immortality*, was based on the obvious '*Terrestial Congruity*' of body and soul. However, after death, the soul could make good on its '*vital aptitude* at least to unite with Aire'. Finally, as the 'Aire is a common Receptacle of bad and good Spirits…[and] the Soule of Man is capable of very high refinements…the Souls of men arrived to such a due pitch of purification must at last obtain *celestial* Vehicles', akin to those enjoyed immediately after their creation.[163] To set this salvific process in motion, man had to reverse the patterns of behaviour that precipitated the Fall. So, More said in *Mystery of Godliness*, he had to live a '*Divine life…an Obediential Faith and Affiance in the true God*', for it was 'From *this Faith* Apostate Angels and lapsed Mankind are fallen'.[164] The divine life was founded on '*Charity, Humility, and Purity*; which, where-ever they are found, are the sure and infallible *marks* or *signes* of either an *unfallen Angel* or a *Regenerate Soul*'.[165] Three dispositions followed from these virtues: a love of God and creation; recognition of God as the cause of everything; and moderation vis-à-vis sensual pleasures.[166] Together, they prescribed a form of self-abnegation; surrendering the individual, sensual will to the divine.

Calvin complained that all people, even those who 'love God deeply and with sincere affection', were 'occupied with fleshy desires', which 'prevented [them] from hastening at

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[160] More, *An Antidote Against Atheisme*, p. 27. As Patrides put it, man was inescapably deiform. *The Cambridge Platonists*, pp. 20-1. See also, Robert Crocker, 'The Role of Illuminism in the Thought of Henry More', in G.A.J. Rogers, J.M. Vienne, and Y.C. Zarka (eds.), *The Cambridge Platonists in Philosophical Context: Politics, Metaphysics and Religion*, (Dordrecht, 1997), 129-44.
[161] See Coudert, 'Henry More, the Kabbalah, and the Quakers', pp. 39-40, 56.
[162] Calvin, *Institutes of the Christian Religion*, pp. 43, 58.
[163] More, *The Immortality of the Soul*, p. 332.
[164] More, *Grand Mystery of Godliness*, p. 53.
[165] *Ibid.*
[166] *Ibid.*

full speed to God'.[167] More did not think sensuality was entirely, intrinsically, or insuperably bad.[168] But its overindulgence caused the soul's descent into terrestrial corporeality, and was an impediment to spiritual re-purification.[169] The terrestrial soul vacillated between its higher (spiritual) and lower (material) capacities. Thus, in *Divine Dialogues*, More described man as having 'such a mixt nature, and of so invincible a Freeness, that he may either associate himself with Angels, or sort himself with Apes and Baboons or Satyrs of the Wood'.[170] Phrasing it slightly differently in *Mystery of Godliness*, he said there were 'two distinct *Kingdoms*, the one of *Darkness*, (whose Laws reach no further then to the Interest of the *Animal life*,) the other of *Light*, which is the true Kingdom of God'. These 'two Kingdoms must alwaies be at odds, and that there must be a perpetual conflict till victory'. Importantly, though, '*the Kingdom of Light* reaches from Heaven to Earth', and, as such, souls were not totally lost to sin.[171] Man spurned God for material pleasure, involving his soul in a tug-of-war between its spiritual and material inclinations. But man had not lost the capacity to reacquire, or re-energise his trace of divinity. Following the divine life guaranteed him a post-mortal existence in an aerial vehicle, and, perhaps, 'that great Reward of an Heavenly, Aethereal or Immortal body, which shall be given at the last day', which 'is of very high concernment for the compleating of the happiness of the Souls of the faithfull'.[172] Faith in God and sensual moderation were tickets back to the divine.

IV. Knowledge, reason and disciplines

More's two overarching theological commitments had a considerable impact on his conception of knowledge, informing the character and epistemic scope of his natural philosophy and theology. First, in light of his necessitarian assumptions, More conceived natural philosophy and theology as rational, knowable disciplines. And second, having recourse to Origenian theories of the soul, he could explain both disciplines' failures, as well as their scope for improvement. I have discussed the possibility that More's reluctance to assert the truth of doctrines like pre-existence (but also Copernicanism, and

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[167] Calvin, *Institutes of the Christian Religion*, p. 177.
[168] More, *Grand Mystery of Godliness*, p 46.
[169] Reid, *The Metaphysics of Henry More*, pp. 371-5.
[170] More, *Divine Dialogues*, I, p. 298.
[171] More, *Grand Mystery of Godliness*, pp. 37-8.
[172] *Ibid*., p. 226.

others) was politically motivated. But, as will become clear, More's caution was also consistent with his assessment of man's cognitive abilities. (This is somewhat circular: More's adherence to pre-existence and perfectionism affected his analysis of man's cognitive faculties; in turn, this analysis precluded him from being absolutely certain of the truth of pre-existence and perfectionism. More did not acknowledge the circularity. But it is not hugely problematic – as discussed, reticence allowed him to claim deference to Church authority).

Necessitarianism is the fulcrum in More's thought. He can therefore be situated within a well-known interpretive heuristic. M.B. Foster famously, but simplistically, argued that the emergence of empirical science was informed and motivated by the theological notion that the world was (voluntaristically) created.[173] Since then, scholarship has investigated the idea that, in medieval and early modern Europe, the type of natural or moral knowledge available to human beings, and the manner by which it could be known, was determined by one's beliefs about God and his providential relationship with creation. By and large, thinkers are placed into one of two groups. The first group, which includes More, were necessitarians or intellectualists. Necessitarians believed God created the world in keeping with an independent standard of reason. Creation was therefore constituted by necessary relationships, and, as such, natural philosophy and theology were rational, and partly knowable *a priori*. The second group were voluntarists. They prized God's freedom above all else, and rejected the idea that his creative acts were fettered, either by external standards, or self-imposed divine conditions. Voluntarists like Boyle said creation was arbitrary and contingent, not a set of rational necessities. The world could only be known by empirical investigation, and, consequently, natural philosophy was hypothetical.[174]

Of course, binary typologies can rarely, if ever, satisfactorily account for all instances. Descartes, for example, resists simple pigeonholing. God, he argued, created eternal, necessary truths, like mathematical proofs, which he might nevertheless have created differently – i.e. he could have created a world governed by different mathematical principles, or a world in which particular mathematical principles did not apply. Respectively, these positions look intellectualist and voluntaristic. Bridging these viewpoints, Descartes distinguished God's absolute power (his unactualised hypothetical

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[173] M.B. Foster, 'The Christian Doctrine of Creation and the Rise of Modern Natural Science', *Mind*, 43 (1934), 446-68, p. 453.

[174] Henry draws precisely this distinction (between More the intellectualist and Boyle the voluntarist). See 'Henry More versus Robert Boyle'

ability to do anything), which was free, from his ordained power (the source of his creative acts), which, because God was immutable, produced eternal truths.[175] It is also problematic to assume typological uniformity. As Peter Harrison has argued, voluntarism was not a clear-cut designation. It held that creation was entirely a product of divine will, and was therefore contingent. But contingency was taken to mean *either* not necessary, or dependent on God. Neither did voluntarism necessarily produce particular epistemic commitments; according to Harrison, not all voluntarists were empiricists, for example.[176]

The grand historical narrative about the relationship between providence and philosophy or science therefore has flaws. It was not the case that a set of undisputed and unchanging theological positions *inevitably* gave rise to a set of undisputed and unchanging natural philosophical positions. In places, however, it is possible to see a causal connection between an individual's particular view of providence and several of their particular natural philosophical doctrines. Thus, in many cases, a natural philosopher's providential commitments help explain the extent to which they thought the world was knowable, and the type of certainty they expected from natural knowledge. This is certainly true of More.

For More, God was good, not as a function of his omnipotence (as Calvin would say), but because he ascribed to, and absorbed into his very essence, the notion of goodness. 'Goodness', More said, was 'certainly the most sovereign Attribute in God', and therefore, it was 'the measure of all what we may by way of Analogy call moral Attributes in him'.[177] Morality, then, was derived from a principle of goodness co-eternal with God. It was therefore neither arbitrary, nor command-based, but knowable *a priori*. In keeping with his essential goodness and morality, God created the world rationally – i.e. according to established and discoverable principles. This had a knock-on effect for More's conceptualisation of natural philosophy. If the world was ordered such that it was amenable to rational inquiry, natural philosophy was a rational, knowable discipline.[178] In fact, 'the wit of Man', More asserted in *An Antidote*, was made by God 'to contemplate the *Phaenomena* of Nature'.[179]

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[175] Osler, 'Triangulating Divine Will', pp. 80-1.
[176] Harrison, 'Voluntarism and Early Modern Science'. See also Malcolm, 'Thomas Hobbes and Voluntarist Theology'.
[177] More, *Apology*, p. 533.
[178] See Henry, 'Henry More versus Robert Boyle', pp. 62-5.
[179] More, *An Antidote Against Atheisme*, p. 46.

As creation was a rational act, it persisted according to regular, detectable laws (of motion, for example). Appropriating mechanical vocabulary, More claimed 'God has made the World as a complete *Automaton*, a *Machina* that is to move upon its own Springs and Wheels, without frequent recourse of the Artificer'.[180] More was not an out-and-out mechanist.[181] But mechanistic tropes neatly fitted his theological view that God created a well-functioning world that did not need constant amendment. Not only was it beneath God's divinity to embroil himself in every temporal occurrence, many of which were sordid, corrupt or misdirected. But occasionalism – the idea that God was the proximate cause of all phenomena – subverted the notion that nature (largely) worked by laws that could be investigated by man. In *Divine Dialogues*, More said God had 'given us the admirable works of Nature and the holy Oracles to exercise our Faith and Reason. But so frequent and palpable Interpellations in humane affairs would take away the Usefulness of both'.[182] By constantly tampering with creation, God would obscure nature's observable regularities. It was because God created the world with observable and conceivable regularities, and refrained from subsequent interference, that natural philosophy could speak about the order and structure of the world, and transcend natural history. The study of nature therefore presupposed, and in turn corroborated, beliefs concerning the rationality of God.

More's apologetic intentions were widely appreciated, and probably aided his election to the Royal Society.[183] The Society did not have a uniform, corporate philosophical methodology, but its members all thought natural philosophy supported basic religious or theological truths.[184] According to Thomas Sprat, 'the *Power* and *Wisdom* and *Goodness* of the *Creator*…display'd in the admirable order, and workman-ship of the Creatures…lies in the *Natural Philosophers* hands'.[185] Nevertheless, the structure of More's natural philosophy – conditioned by his particular views on providence – jarred with the type of natural philosophy favoured by prominent Society men, like Boyle.[186] In *The Christian Virtuoso* (1690-1), Boyle, a voluntarist, said:

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[180] More, *Divine Dialogues*, I, p. 227.
[181] See Gabbey, 'Henry More and the Limits of Mechanism'.
[182] More, *Divine Dialogues*, I, p. 231.
[183] See Rogers, 'Locke and the latitude-men: ignorance as a ground of toleration', p. 240. More was censured for his heterodox theology. But his natural theology was usually enough to save him from threat of persecution. See Dockrill and Lee, 'Reflections of an Episode in Cambridge Latitudinarianism'.
[184] Michael Hunter, 'The Early Royal Society and the Shape of Knowledge', in *Science and the Shape of Orthodoxy: Intellectual Change in late seventeenth-century Britain*, (Woodbridge, 1995), 169-80; See also, Hunter, 'Science and Heterodoxy'.
[185] Sprat, *The History of the Royal-Society*, p. 82.
[186] See Henry, 'Henry More versus Robert Boyle'; Mandelbrote, 'The Uses of Natural Theology'.

> 'in the Divine Nature, Power, Wisdom, and other Attributes, there is a Fæcundity that had produc'd a World of Contrivances, Laws, and other things, that exceedingly surpass both the Number and Variety, that the dim and limited Intellect of Man could reach to'.[187]

Therefore, 'the Notions and Opinions, Men take up, of the Works and Mind of God, upon the mere Suggestions of the Abstracted Reason' were 'almost always very *deficient*, but will be oftentimes very *erroneous*'. Creation was contingent, and therefore natural causation could not be deduced *a priori*. At best, Boyle argued, natural philosophy could observe and experiment on nature, and learn something of its superficial behaviour. For 'by the favour of Experience and Revelation, [we] stand in a much clearer Light'.[188] More differed on both fronts. The world, he argued, was largely open to rational inquiry (although More accepted the essences of substances may elude human faculties); and philosophical knowledge was often certain and demonstrative.[189] On account of his different theological presuppositions, More's natural philosophy was therefore both greater in scope than Boyle's, and less circumspect in its findings.

Overlaying this foundational disagreement, More and Boyle became entangled in controversy about the correct use and interpretation of experimental knowledge.[190] In 1660, Boyle published *New Experiments Physico-Mechanical, touching the Spring of the Air*, prolixly describing the air-pump experiments he conducted for the Royal Society. The reports were intended as visual testimony, and steered clear of metaphysical speculation. Nonetheless, Boyle argued, the springiness of the air was experimentally verifiable. Further, as a matter of fact, this empirical doctrine required no further causal explanation. In his *Collection*, published two years later, More drew upon and elaborated Boyle's experimental work. In one experiment, the air-pump receiver was evacuated, causing the valve on the receiver to close tighter. For Boyle, this was evidence against natural teleology. Nature, it seemed, was senseless and stupid – the air trying to re-enter the evacuated receiver (via the valve), sealed the valve tighter, which thwarted its own efforts. More agreed up to a point – for him, the experiment demonstrated the inertness of matter. However, he went further – too far in Boyle's view – using the episode as evidence, not only of the passivity of matter, but also of a spiritual entity responsible for directing matter and affecting order. He called this immaterial entity the Spirit of Nature,

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187 Boyle, *Works*, XI, p. 325.
188 *Ibid.*
189 More, *The Immortality of the Soul*, pp. 10-12.
190 The following excursus owes a great deal to Shapin and Schaffer, *Leviathan and the Air-Pump*, pp. 207-12; Robert A. Greene, 'Henry More and Robert Boyle on the Spirit of Nature', *Journal of the History of Ideas*, 23 (1962), 451-74, pp. 462-74.

or the '*Universal Soule of the World*'.[191] Its functions were not entirely coherent; More suggested it was responsible for both the maintenance of nature's regularities, and instances where natural laws were broken, violated or repressed.[192] Importantly, though, the existence of a governing immaterial principle was demonstrated, according to More, by the supposed inability of mechanism to fully explain most (or indeed any) natural phenomena.[193] Thus, he said in *Immortality*, natural inquiries must see '*how far in every thing the concatenation of Mechanical causes will reach*', after which, '*from a distinct deprehension where they must needs break off, as not being able alone to reach the Effect, which necessarily leads them to a more confirmed discovery of the Principle…the Spirit of Nature*'.[194] Such an inquiry moved from the study of matter (natural philosophy) to the study of spirit (natural theology). It was also underpinned by the assumption that, because God was good, nature was governed by principles that reason could identify. Boyle, nevertheless, was unsatisfied with More's method of demonstration. He admitted the existence or function of the Spirit of Nature could not be definitively ruled out – he even wished More 'much success of proving the existence of an incorporeal substance'.[195] But, for Boyle, the Spirit of Nature lacked positive empirical or experimental evidence. Nor was it necessary to account for the phenomena – everything More attributed to the Spirit of Nature could be explained by the air's springiness. Thus, in *A Free Enquiry into the Vulgarly Received Notion of Nature* (1686), he said the idea of 'nature being God's vicegerent…is one of the main businesses of this discourse to call in question'.[196] Positing nature as 'a semi-deity or other strange kind of being' had no place in natural philosophic discourse.[197]

As discussed, More's necessitarianism established the type of knowledge attainable within natural philosophy – rational theories concerning the structure of creation. It had a similar effect on the remainder of his theological and religious thought. Calvin argued that man 'cannot comprehend God's incomprehensible wisdom, nor is it in our power to

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[191] More, *The Immortality of the Soul*, p. 467. For More and Boyle on the Spirit of Nature, see Henry, 'Henry More versus Robert Boyle'; Reid, *The Metaphysics of Henry More*, pp. 345-8.
[192] Greene, 'Henry More and Robert Boyle, p. 461.
[193] By the time he published the *Divine Dialogues* (1668), More supposed the Spirit of Nature to be present and necessary in the fulfilment of every natural occurrence. In fact, as Gabbey explains, More never actually accepted any entirely mechanical explanations for anything. By 1659, More had began using the Spirit of Nature to account for *some* (though not all) natural phenomena. But prior to this, he did not attribute the transference of motion to entirely mechanical principles. Rather, he invoked animistic ideas to do with dormant animating properties in bodies. 'Henry More and the Limits of Mechanism', pp. 25-9.
[194] More, *The Immortality of the Soul*, 'The Preface', unpaginated.
[195] Boyle quoted in Shapin and Schaffer, *Leviathan and the Air-Pump*, p. 217.
[196] Robert Boyle, *A Free Enquiry into the Vulgarly Received Notion of Nature*, edited by Edward B. Davis and Michael Hunter, (Cambridge, 1996), p. 30.
[197] *Ibid*., p. 20.

investigate'.[198] Conversely, More said the '*Christian Religion* [was] *rational* [i.e. comprehensible] *throughout*'.[199] However, although necessitarian theology meant Christianity was reasonable, its reasonableness came in varying degrees of obviousness or clarity. Parts of the Bible were manifestly clear. Following the Restoration, high churchmen argued that, in order to stabilise the English Church, scriptural study and ecclesiastical history should be prioritised over natural philosophy/theology.[200] Keen to appear moderate and conciliatory, More emphasised the importance of exegesis, arguing that 'the Summe or Substance of whatever was considerable in any Religion' was 'comprehended in the Gospel of Christ'.[201] Pursuing this notion in *Grounds of the Certainty of Faith*, he said the Bible was 'sufficiently plain to an unprejudiced Capacity in all Points necessary to Salvation'.[202] Thus, 'The Comprehension of these Points of Faith [was] *always* and *every-where* held by all Christian Churches from the Apostles time till now, and so plain by Testimony of Scripture, is most rightfully termed the *Common* or *Catholick* and *Apostolick Faith*'.[203]

However, More acknowledged that other parts of Holy Writ did not lend themselves so immediately or so obviously to human understanding. He addressed this issue in *Mystery of Godliness*, published just prior to the Restoration. The text incurred censure from Joseph Beaumont (1616-1699) – a leading conservative theologian in Cambridge – for applying natural philosophical and metaphysical learning to Christian doctrine.[204] To show the general rationality of Christianity, More rehearsed several natural theological proofs for the existence of God (and other immaterial entities, like the soul and spirits), also found in earlier works, like *An Antidote* and *Immortality*. These proof were demonstrable – they followed logical pattern and procedure – but they were unlikely to be apprehended by everyone, especially without aid or inducement. More paid particular attention to versions of the ontological and teleological arguments. The former – which he approvingly attributed to Descartes – held that the idea of existence was implicit in the idea of an absolutely perfect being. Existence was clearly a more perfect state than non-existence, and thus it was contradictory for God – the most perfect being – to lack existence.[205] The latter claimed that the order and purpose manifest in nature – from the

198 Calvin, *Institutes of the Christian Religion*, p. 59.
199 More, *Collection*, 'The Preface General', p. iv.
200 Gascoigne, *Cambridge in the Age of Enlightenment*, pp. 52-3, 63-7.
201 More, *Grand Mystery of Godliness*, p. 97.
202 More, *Divine Dialogues*, II, p. 481.
203 *Ibid*., pp. 483-4.
204 Crocker, 'A Biographical Essay', p. 7.
205 More, *Grand Mystery of Godliness*, pp. 31-32. See also, More, *An Antidote Against Atheisme*, pp. 8-29.

working of the eye, to the provision of animals and natural resources for man's convenience – was indicative of a supervising rational principle.[206] Such a principle could not derive from matter, which More said was inert and stupid. Purpose, reason or design therefore implied spiritual presence. More believed, quite conventionally, that God created matter, and was the cause of the variegated laws of motion.[207] However, from *Immortality* onwards, he attributed many terrestrial phenomena to the Spirit of Nature, which he called 'the great *Quarter master-General* of divine Providence', and '*the vicarious power of God upon…Matter*'.[208]

Notwithstanding these demonstrations, there remained, More said in *Mystery of Godliness*, '*considerable Obscurity and Abstrusenesse in Christian Religion*'.[209] Still, two factors mitigated this abstruseness. First, the obscurity of faith was functional. Mystery made Christianity venerable; it also prevented the impious from apprehending religious doctrine as fully as the pious. Further, those who overcame the challenge of religious mysteries would feel justly rewarded and gratified.[210] Second, mystery did not render Christianity unintelligible. A doctrine might be difficult or obscure, but, with careful exegesis, its reasonableness became apparent. In this regard, More cited the Trinity, the divinity of Christ, and the non-sleep of the post-mortal soul.[211] Though complex and difficult, these doctrines were scripturally verifiable (and not borrowed from pagan traditions), and compatible with reason. Thus, More '*conceive*[d] *Christian Religion rational throughout*'.[212]

Of course, these excursuses were an attempt to show *how*, or in what way, Christianity was rational. To explain *why* Christianity was rational, or from whence its rationality derived, More took a different approach. This question returns us to the implications of More's necessitarianism. More confirmed the intelligibility or reasonableness of Christianity, arguing that it was 'suited unto the nature and condition of things and the state of men upon earth'. Importantly, though, when talking about the 'more Intelligible part of Christianity', he associated '*Reasonableness*' with being 'worthy of the Divine Wisdome and Goodness'.[213] In other words, Christian doctrine was reasonable insofar as

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[206] More, *Grand Mystery of Godliness*, pp. 32-3. See also, More, *An Antidote Against Atheisme*, pp. 43-104; More, *The Immortality of the Soul*, pp. 449-70.
[207] More, *An Antidote Against Atheisme*, pp. 45-7.
[208] More, *The Immortality of the Soul*, 'The Preface', and p. 469. For the Spirit of Nature and natural theology, see Mandelbrote, 'The Uses of Natural Theology'.
[209] More, *Grand Mystery of Godliness*, p. 3.
[210] *Ibid*., pp. 3-4.
[211] *Ibid*., pp. 7-30.
[212] More, *Collection*, 'The Preface General', p. iv.
[213] More, *Grand Mystery of Godliness*, p. 246.

it was compatible with the idea that God was good. With this in mind, we can revisit More's comments about the rationality of Christianity in *Grounds of the Certainty of Faith*. More said that because reason was responsible for validating the grounds for faith *and* for assenting to natural truths, Christianity itself must be reasonable and consonant with natural truths. However, it is clear, now, that the compatibility of natural truths and rational Christian doctrine – as well as our ability to know either of them – were *consequences* of God's 'Congruous and Rational' providence, and ultimately, his goodness.[214] In sum, the logical case for Christianity's reasonableness, made in *Grounds of the Certainty of Faith*, reflected a state of affairs dictated by necessitarian assumptions.

As suggested above, the effect of necessitarianism on More's natural philosophy and theology was profound, though fairly predictable. More's other great theological assumption – his heterodox theories of the soul – exerted a subtler, but no less significant, influence. The two beliefs nevertheless worked in conjunction. Generally speaking, necessitarian principles guaranteed the knowableness and rationality of natural philosophy and theology. However, More's account of the soul's journeys between heaven and earth, and its attendant oscillations between animality and divinity, meant the power and efficacy of reason varied. These changes in the capacities of reason affected the potential and limitations of both natural philosophy and theology.

The role of reason, More argued in *Mystery of Godliness*, was to unravel,

> '*further clew*[s] *of Knowledge, enlarging her sphere of Intellectual light, by laying open to her self the close connexion and cohesion of the Conceptions she has of things, whereby inferring one thing from another she is able to deduce multifarious Conclusions as well for the pleasure of Speculation as the necessity of Practice*'.[215]

However, these capacities were contingent on the condition of the soul. The soul had a dual character. On the one hand, it fell from heaven due to excessive sensuality. On the other, it retained a trace of ineradicable divinity (which prevented it from descending further into more animalistic vehicles). Reason was hitched to these movements; it was the '*Middle life* or *Facultie* of the Soul', situated 'betwixt the *Divine* and *Animal*' parts. When reason stuck to the '*Middle life* which is neither *Animal* nor *Divine*', it was responsible for the development of natural philosophy, mathematics or rhetoric. However, it could also 'be swallowed down into the *Animal life*…her operations…tinctured with that life into which she is immers'd', becoming an instrument to gain wealth and power, and satisfy

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[214] *Ibid.*
[215] *Ibid.*, p. 51.

ambition.[216] In this state of distraction, reason was liable to err in matters of knowledge and learning – '*the voice of Reason & Nature*', More said in *Immortality*, is '*subject to corruption*', and '*may very well be defectuous or erroneous in some things*'.[217]

Linked to this flexibility of purpose, reason was capable of generating different degrees of certainty. Provided reason and the senses were rightly circumstantiated, ordinary intellection furnished moral certainty. However, if reason was hitched to a divine or purified soul it transcended the confines of normal ratiocination, achieving higher, divine certainty. In large part, scholars have overlooked or underappreciated the implications of this double use of reason.[218] However, as I will show, for More, the epistemic potential of both natural philosophy and theology hinged on the possibility of spirit enhancing reason.

The differences between ordinary and enhanced or illuminated reason were usefully fleshed out in *Grounds of the certainty of Faith*. Here, More's comments are limited to the ways in which different grades of reason established different degrees of certitude in *faith*. Nevertheless, the principles affecting reason were not context-specific; the enhanced reason that conditioned faith was the same enhanced reason that conditioned natural philosophy and theology. According to More, ordinary reason, or intellection, assented to 'Natural Truths, whether Common Notions or Scientificall Conclusions that are so palpably true that they perpetually appear so as well to the evil as the good'.[219] This had two consequences. First, natural truths were 'competible even to a carnal man or a man unregenerate'; and second, ordinary reason was universal. Ordinary reason was also responsible for validating the truth of scripture, a prerequisite for Christian belief. As such, everybody was capable of faith. The drawback of this common faculty, however, was that it was only capable of yielding '*Moral* and *Human Certainty*'.[220]

Nevertheless, this native faculty could be improved, and thus one's certainty in faith could be increased. 'There is a *Divine Certainty* of Faith', More said:

> 'which besides the Grounds that the *Moral* or *Humane Certainty* hath, is supported and corroborated by the *Spirit of Life in the new Birth*, and by *illuminated Reason*. This is not to be argued, but to be felt…[and] this *Divine Certainty* has an higher Degree of Firmness and Assurance of the truth of the Holy Scriptures, as having

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[216] *Ibid.*
[217] More, *The Immortality of the Soul*, 'The Preface', unpaginated.
[218] Mintz and Patrides both pick upon the duality, but they do not thoroughly investigate the complex roles played by both types of reason. See, respectively, *The Hunting of Leviathan*, p. 82; *The Cambridge Platonists*, pp. 12-14.
[219] More, *Divine Dialogues*, II, p. 472.
[220] *Ibid.*, p. 478.

> partaken of the same Spirit with our Saviour and the Apostles, but does not vary in the Truths held in the common Faith'.[221]

Illuminated reason, or what More elsewhere called divine sagacity, made the grounds of faith more certain, without increasing the range of truths available through 'common Faith'. This spiritual faculty, unlike ordinary ratiocination, 'was not to be argued, but to be felt'.

Activating this faculty involved purifying the soul. This, for More, meant reversing the effects of the Fall (conceived in Origenian terms), and prioritising the soul's divine part over its sensual part. 'Sensuality is alwayes an enemy to subtilty of reason', he wrote in his collection of *Philosophical Poems* (1647), and 'men of the most tam'd and castigate spirits are of the best and most profound judgement, because they can so easily withdraw themselves from the life and impulse of the lower spirits of this body'.[222] Withdrawing from materiality cultivated habits of mind and action like humility, charity and purity, which gave rise to virtues like justice, temperance and fortitude. These traits, More claimed in *Mystery of Godliness*, were 'in a supereminent manner comprehended in the *Divine life*', and which, by 'taking possession of the *Middle life* or Rational powers, must needs beget also in the Soul the truest ground of *Prudence* that may be'. Thus, he said, the '*Divine life*' was 'the *Light* and the *Purification* of the Eye of the Mind whereby Reason becomes truly illuminated in all Divine and Moral concernments'.[223] In sum: eschewing sensuality and living virtuously – i.e. pursuing the divine life – unyoked reason from animality and tied it to the divine.

More's notion of illuminated reason bore a great resemblance to the idea of right reason, regularly invoked by Christian Fathers and Renaissance humanists. Right reason was a form of philosophical consciousness that connected man to God. It was the faculty that sought after absolute truths, and its functionality required the fulfilment of ethical conditions; one must be good before one could know.[224] Illuminated reason, likewise, furnished greater certainty than ordinary intellection, but was only available to practitioners of the divine life. In keeping with latitudinarian views on human faculties prevalent during the Interregnum, (and in direct opposition to Calvinism), More, in *Conjectura*, explained that reasoning 'is really a participation of

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[221] *Ibid*., p. 484.
[222] More, *Antipsychopannychia, or Third Part of the Song of the Soul, Containing a Confutation of the Sleep of the Soul after Death*, in *Philosophical Poems*, 'The Preface to Reader', unpaginated.
[223] More, *Grand Mystery of Godliness*, p. 55.
[224] For a detailed definition of right reason, see Hoopes, *Right Reason*, pp. 3-5.

that divine reason in God, and is a true and faithful principle in man, when it is perfected and polished by the holy Spirit'.[225]

For More, then, reason and faith were complexly interrelated.[226] In outline, the relationship went as follows: faith – which was based on scripture – was validated by reason; at the same time, reason was enhanced by faith and the divine life, which in turn, increased the certainty of faith. The import of this dynamic has been variously interpreted. David Pailin claims More used revelation to plug the gaps in religious knowledge, left open by reason. Although More set out myriad rational arguments for the existence of God and the soul, Pailin says he regarded reason as fundamentally inadequate in religious discourse.[227] This holds inasmuch as More did not think religion sprang directly or entirely from reason. But Pailin is reductionist, suggesting that faith was an accumulation of knowledge, first rational, then scriptural. In fact, faith and reason interacted dialectically, both enhanced by their connection to the other. Sarah Hutton picked up on the subtlety (or circularity) of More's insistence that faith was rational belief, and that faith enhanced reason. However, Hutton identifies the first step in this chain of reasoning – establishing the rationality of belief – with More's natural theology, or rational proofs of God's existence.[228] Again, there is some truth in this; the rationality of faith is implied by the existence of natural theology. But, in *Grounds of the certainty of Faith*, More said that at the most basic level faith was propagated, not by natural theology, but by rational assent to the truth of scripture. Following this basic apprehension, reason and faith interacted in a sequence of *developmental stages*. Everybody, even the impious, had reason enough to be morally certain of the (biblical) grounds for faith. However, the faithful, by refraining from sensuality and living the divine life, surrendered their wills to God's. As such, their reasoning faculties became illuminated, and, consequently, their certainty in the grounds of faith increased.

So much for the impact of illuminated reason on faith. More also argued that spiritual purification, and the attendant transformation of reason, affected the quality of theological and philosophical knowledge. In *Mystery of Godliness*, he said 'Unrighteousness is encumbred with many distempers and impediments whereby even *Natural knowledge*, as

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225 More, *Conjectura Cabbalistica*, 'The Preface to the Reader', unpaginated. See also Douglas Bush, 'Two Roads to Truth: Science and Religion in the Early Seventeenth Century', *A Journal of English Literary History*, 8 (1941), 81-102, p. 82.

226 Many of the so-called Cambridge Platonists strove to demonstrate the cohesion and complementariness of reason and faith. See McAdoo, *The Spirit of Anglicanism*, pp. 82-91.

227 Pailin makes this argument. 'Reconciling Theory and Fact', pp. 102-4.

228 Sarah Hutton, 'Reason and Revelation in the Cambridge Platonists, and their Reception of Spinoza', in K. Grunder and W. Schmidt-Biggemann (eds.), *Spinoza in der Fruhzeit seiner Religiosen Wirkung*, (Heidelberg, 1984), 181-99, pp. 185-6.

well as *Divine Wisdome*, is much hindred in a man'.[229] The animal life cultivated epistemic fetters, affecting both natural philosophy and theology. Nevertheless, More contended, these fetters – anger, pride, ostentation, sensuality etc. – were eroded by what he called, 'soundness of the Soul' – the result of the divine life.[230] Put another way; 'Righteousness and Holiness [the divine life] is the only true way to Divine Wisdome [theology] and a sound judgement in things [natural philosophy]'.[231]

In some ways, this process recalls Bacon's endeavour to free the mind from the idols caused by the mind's distempers. Just as, for Bacon, religion instilled charitableness that disposed people to natural inquiries; the divine life, according to More, 'remove[s] *Pride, Self-interest* and *Intemperance* that clog the Body and cloud the Soul, [and] it is plain from hence, of what great advantage the *Divine life* is for the rectifying and ruling our Judgements and Understandings in all things'.[232] Like Bacon, More's remarks expose several shortcomings in Sorana Corneanu's account of the regimens of the mind. Corneanu says that within the English experimental scene, the study of nature not only yielded truth, but also cultivated personal moral excellence.[233] More was hardly a doyen of the experimental milieu. Nevertheless, like Bacon – the so-called father of experimentalism – his association of virtue and philosophy does not accord with Corneanu's analysis. The regimen thesis says natural inquiry cultivates virtue. For More, however, virtue was a condition for good natural philosophy. By living well, or pursuing the divine life, the mind was freed from epistemic impediments and reason was illuminated. It was in these conditions, More argued, that philosophy prospered.

To understand exactly how the divine life affected philosophical and theological knowledge, we must look deeper into the ways that faith impacted on reason. Discussing biblical hermeneutics in *Divine Dialogues*, More (via his spokesperson, Philotheus) repudiated the use of '*dry Reason* unassisted by the *Spirit*'.[234] Pressed for details, Philotheus described spirit in a manner that recalled More's account of illuminated reason in *Grounds of the certainty of Faith*. Philotheus called it,

> 'the *Spirit of Life in the new Birth*, which is a discerning Spirit, and makes a man of *a quick understanding in the fear of the Lord*…[and] In the guidance of this Spirit a man shall either immediately feel and smell out by an holy Sagacity what is right

[229] More, *Grand Mystery of Godliness*, p. 403.
[230] *Ibid.*, pp. 403-4.
[231] *Ibid.*, p. 401.
[232] *Ibid.*, p. 55.
[233] Corneanu, *Regimens of the Mind*, pp. 1-2, 4-6, 10.
[234] More, *Divine Dialogues*, II, p. 403.

> and true, and what false and perverse, or at least he shall use his Reason aright to discover it'.[235]

This passage draws out a crucial distinction; the purification of spirit effected reason on two fronts. First, it forged an ineffable but felt connection with God – enabling one to 'immediately feel and smell out' the truth – and second, it enhanced normal, discursive reason – allowing one to 'Reason aright'.

The difference is fundamental. More only invoked the "felt" or intuitive variety of illuminated reason in relation to the truth of the Bible. Its effect was to intensify one's certainty in a known truth (that the Bible was the real word of God). The enhancement of discursive reason, however, had a different function, and wider application. Man's ordinary rational facilities were capable of assenting to natural truths and common notions. Enhancing these facilities (which was not the same as introducing a new type of intuition) enabled the mind to go beyond common notions, and apprehend what, in the 'General Preface' to *Collection*, he called '*Theories of the greatest importance*'. These were doctrines like the Spirit of Nature, or pre-existence. In short, an enhanced intellective faculty opened the mind to *new* truths and greater comprehension (philosophical and theological). This state was '*antecedaneous*' to reason, insofar as it set the foundation for good reasoning, and was a condition for '*intellectual success*'.[236] Note, however, that this second type of illuminated reason could not generate the same certainty as "felt" reason. After all, doctrines like pre-existence and the Spirit of Nature were clear and intelligible rather than doubtlessly true.

The intellectual successes wrought by enhanced intellection were both philosophical and theological. Of the former, More said:

> '*I should commend to them that would successfully philosophize…a certain Principle more noble and inward then Reason it self, and without which Reason will faulter, or at least reach but to mean and frivolous things…I should adventure to term it* Divine Sagacity*, which is the first Rise of successful Reason, especially in matters of great comprehension and moment, and without which a man is as it were in a thick wood*'.[237]

This passage sums up More's attitude to enhanced intellection, albeit obliquely. When un-illuminated and tied to animality, '*Reason will faulter*' – concerned only with enrichment and ostentation. Conversely, reason enhanced by faith produces 'Divine Sagacity', and

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[235] *Ibid*., p. 404.
[236] More, *Collection*, p. ix.
[237] *Ibid*., pp. vii-viii.

this '*first Rise of successful Reason*' granted access to greater philosophical truths. The main point of difference between enhanced reason (as it pertained to philosophy), and "felt" intuition (that effected faith) was that the former did not simply intensify one's conviction in old truths (like faith); it enabled the mind to go beyond '*mean and frivolous things*', and discover new truths.

Theology was similarly affected by illuminated reason. In *Mystery of Godliness*, More said 'the Soul of man in its unrighteous and polluted condition, does very unadvisedly with so much curiosity and anxious labour to endeavour the discoveries of divine Truths'. Instead, 'she [the soul] ought to commit her self first to the skill of a faithfull Physitian, to Christ, who is the healer of the Souls of men as well as he was of their Bodies, and so to be re-estated again into that state of health and soundness'. Only a healthy or purified soul would apprehend divine truths. For 'if the Soul receive no impresse from God, it discovers nothing of God', and 'unless the *Image of God* be in us, which is *Righteousness* and *true Holiness*, we know nothing of the *Nature of God*, and so consequently can conclude nothing concerning him to any purpose'.[238] Divine truths were only accessible to righteous souls – souls that sought out and amplified the image of God residing within them. Thus, enhanced reason did not simply make divine truths more certain; it facilitated their comprehension or discovery.

This returns us to More's remarks about the simultaneous obscurity and intelligibility of Christianity. Although some parts of Christianity appeared unintelligible, under close and careful inspection their reasonableness became apparent. This distinction, we can now see, refers to the different states of man's soul and reason. Christian doctrine was opaque to the unrighteous. However, it was much clearer and more intelligible to followers of the divine life.[239] More made this argument explicitly regarding obscure biblical passages. In *Grounds of the certainty of Faith*, he said 'None of the Holy Writ is of it self unintelligible', but 'as mens spirits shall be prepared, and the time sutable', God will 'impart farther and farther Light to the Souls of the Faithfull, for a fuller and a more general understanding the obscurest Passages in the Divine Oracles'.[240] Abstruse passages, in other words, were comprehended by illuminated reason.

Nevertheless, many aspects of God's will and providence still seemed beyond human apprehension. This posed problems for, or at least placed limitations on, the tenability of More's necessitarianism. For if God's goodness guaranteed the rationality and

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[238] More, *Grand Mystery of Godliness*, p. 403.
[239] See Hoopes, *Right Reason*, p. 181.
[240] More, *Divine Dialogues*, II, p. 485.

intelligibility of his actions and creations, why could man, who possessed reason, not make sense of them? In *Divine Dialogues*, More debated the compatibility, or otherwise, of God's omniscience and man's free will. He adduced several arguments to demonstrate the non-contradiction between man's freedom and God's power and prescience. Still, he concluded, 'though it may safely be said, that he [God] does not know any thing that *really* implies a Contradiction to be known [such as, between free will and foreknowledge]; yet we are not assured but that may seem a Contradiction to us that is not so really in it self'.[241] In short, man may perceive a contradiction merely because our understanding was incapable of seeing otherwise. It followed, therefore, that 'a certain and infallible Prescience of uncertain Futurities, that seems inconsistent to us, may notwithstanding be deprehended abundantly consistent by the all-comprehensive Understanding of God'.[242] What man's finite understanding regarded as unintelligible might be entirely perspicacious to God's infinite mind. More therefore conceded that his arguments for the compatibility of divine foreknowledge and human freedom were 'spoken by way of Essay rather then of Dogmatizing'.[243] He never doubted their compatibility, but our limited capacity to understand meant, to some degree, the mystery remained opaque. To this extent, he agreed with Boyle, who, referring to an array of metaphysical and theological propositions in *The Christian Virtuoso*, said our 'Intellects are but dim and imperfect, and indeed disproportionate to the sublimest and mysterious Truths', and therefore 'they cannot perfectly comprehend them'.[244]

However, later in the *Dialogues*, More moved away from Boyle, hinting that the opacity of various Christian dogmas or mysteries could be overcome if man's soul was rightly disposed. Addressing the tension between God's providential goodness and the existence of evil, More said that 'what-ever designed or permitted Evil there seems in Providence, it is for a far greater good, and therefore is not properly in the summary compute of the whole affairs of the Universe to be reputed evil the loss in particulars being so vast a gain to the Whole'.[245] In other words, though we perceive parochial instances of evil, they fit into, and are a necessary part of, a broader framework of good. This was a classic Augustinian assumption, and not a novel solution to the problem of sin. However, More said, man's general failure to acknowledge the discrepancy between human perception and the nature of reality revealed much about the state of man's soul. It was 'our

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[241] *Ibid.*, I, p. 85.
[242] *Ibid.*, p. 86.
[243] *Ibid.*
[244] Boyle, *Works*, XI, p. 342.
[245] More, *Divine Dialogues*, I, p. 179.

Ignorance…of the true Law of Goodness (who are so much immersed into the Life of *Selfishness*, which is that low Life of Plants and Animals) that makes us incompetent judges of what is or is not carried on according to the Law of that *Love* or *Goodness* which is truly Divine'.[246] The animal life freighted reason with inhibitions or preoccupations, rendering it incapable of discerning the goodness in providence. Consequently, it would seem, once unshackled from 'the life of *Selfishness*' and refined by righteousness, the soul would be able to understand and accept the mysterious workings of God's providence. More said as much in *Mystery of Godliness*, when he described the divine life as '*the truest Key to the Mystery of Christianity*'.[247] The epistemic benefit wrought by faith and righteousness was so certain, he said, that 'What the Rectitude of an Angle does in Mathematical measurings, the same will this Uprightness of Spirit doe in Theological Conclusions'.[248]

So, without forfeiting his belief that God and creation were rational, More acknowledged that parts of the world and providence were unintelligible. More's necessitarianism and doctrines of the soul thus worked in conjunction to establish the scope and potential of both natural philosophy and theology. The former determined the character and nature of both disciplines, the latter qualified man's ability to know or understand them. Consequently, and in sum: certainty, truth and confusion – philosophical or theological – were defined by the parameters for knowledge set by More's theological assumptions.

This, finally, suggests another possible reason for More's reluctance to assert the truth (and not merely the reasonableness) of particular doctrines, like the Spirit of Nature, or pre-existence. *The Apology* made clear More's deference to Restoration Church authority. But reticence was to be expected, given that, despite his best efforts at holiness, More was still a terrestrially inhabited soul, capable of truth but also error.[249] So ingrained was More's circumspection, he said that proofs of God's existence were not absolutely and universally reliable. Still, his scepticism ought not to be overstated. When discussing the pre-existence 'Hypothesis' in *Immortality*, he felt bold enough to assert that, 'we are

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[246] *Ibid*., pp. 179-80.
[247] More, *Grand Mystery of Godliness*, p. 55.
[248] *Ibid*., p. 403.
[249] The notion that terrestrially-bound souls were liable to err, and that they should not assert the truth (rather than just the rationality) of doctrines like the pre-existence of the soul, was itself a position wrought, somewhat circularly, from More's actual commitment the doctrine of the soul's pre-existence.

according to the Light of Nature undoubtedly to conclude, that the Soules of Men doe præexist'.[250]

V. Conclusion

In seventeenth-century England, More – a fairly unorthodox Platonic-Origenist clergyman – envisaged as tight a connection between natural philosophy and theology as anyone. Although it was the highest discipline, theology was incapable of acquiring the same level of certainty as faith. Philosophy was therefore drafted in to strengthen its credibility and certainty, protecting theology from rational rebuttal, atheistic or theological. In large part, More did this by demonstrating how natural theology grew inevitably out of the study of matter and mechanism: topoi of natural philosophy. Both disciplines were governed by reason, and, to a degree, they shared subject matter – the workings/failings of mechanism, and the role of God in nature. This disciplinary continuity meant that philosophy/the dictates of reason, and theology or scripture were entirely compatible. Moreover, their disciplinary compatibility derived from their apparent one-time unification in an ancient cabalistic doctrine, stretching back to Moses.

This reveals two important things about More and the seventeenth century. First, his interest in *prisca theologia* shows that, although he engaged in contemporary philosophical debate – with Descartes, Hobbes and Boyle – his own interventions were guided by (what he took to be) ancient wisdom. Like White, More demonstrates that early modern philosophy was often rooted in older systems of thought, and attempted to integrate new discoveries or doctrines into past systems. Second, though he recognised the ingenuity of natural philosophy – particularly Descartes's – More held that, conceptually, it had never existed, and could never exist, independently of theology. In its original incarnation, philosophy shared a textual foundation with theology, and in its current mechanistic guise, it relied on theological or theistic principles – incorporeality or the Spirit of Nature – to account for natural phenomena.

The closeness of natural philosophy and theology was a critical part of More's campaign against atheism and Calvinist theology. He regarded Calvinist theories of grace as unjust and immoral. Thus, he embraced a necessitarian view of providence, and Origenian doctrines of the soul, both of which expressed, or followed from, the notion

[250] More, *The Immortality of the Soul*, pp. 244, 245.

that God was good and thus acted within rational bounds. From these premises, More drew the remainder of his philosophical and theological ideas. His philosophy was therefore more than God-orientated.[251] Fundamentally, it was shaped by, and in turn corroborated, his intricate and unorthodox *theological* presuppositions. Necessitarianism, for example, ensured natural philosophy and theology were rational and largely knowable disciplines. In addition, More's theories of the soul established the role and scope of man's reason, which set limits for knowledge, and suggested ways to expand those limits. The idea that reason could be elevated by faith and spiritual purification informed More's apologetic agenda and epistemic outlook. Faith, he argued, was a rational belief in the truth of Christianity, based on the prophetic accuracy of the Bible. Having faith and living a divine life enhanced or enriched reason. This not only strengthened one's (rational) faith (in the Bible), it also opened the mind to greater and more complex truths, philosophical and theological. More's historical significance therefore extends beyond the fact that he draws attention to the presence of Platonism in seventeenth-century English thought. He also, and more specifically, demonstrates the way (broadly) Platonic assumptions – ontological and epistemic – structured disciplines (specifically, natural philosophy and theology) and disciplinary boundaries.

More and the Platonists in Cambridge influenced John Locke, particularly on the subject of rational and inclusive religion. However, Locke was somewhat less optimistic about man's cognitive potential. Natural philosophy was not a science, he said, because sense and reason were unable to observe and understand the inner workings of nature. Initially, at least, he was confident that, because theological propositions were as demonstrable mathematical propositions, theology was a knowable discipline. However, he later tempered this view, arguing that complex theological deductions were beyond the capacities of most people, and therefore that theology was a system of belief, not knowledge. Nevertheless, he said, biblical truths were more certain than claims about nature. Therefore, in a similar vein to More, Locke claimed theology had the right to govern natural philosophy.

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[251] As Peter Dear notes, because the philosophy-as-piety dynamic could be played out in myriad ways, Cunningham's model only reveals part of the story. See Peter Dear, 'Religion, science and natural philosophy: Thoughts on Cunningham's thesis', *Studies in History and Philosophy of Science*, 32 (2001), 377-86. Cunningham replied to Dear, in Andrew Cunningham, 'A Reply to Peter Dear's 'Religion, science and natural philosophy: Thoughts on Cunningham's thesis', *Studies in History and Philosophy of Science*, 32 (2001), 387-91.

John Locke

I. Disciplines and Genre

John Locke is famously associated with two important seventeenth-century traditions – both linked to the scope or reach of human cognition. First, in *An Essay concerning Human Understanding* (1689), he defended experimental natural philosophy – philosophy that produced probable, not certain, accounts of the natural world.[1] And second, following the work of divines in Tew – the residence of the Viscount Falkland – and Cambridge, he wrote *A Letter concerning Toleration* (1689), analysing the relationship between reason and faith; justifying toleration from both epistemic and socio-political perspectives.[2] In sum, Locke thought deeply about man's ability to understand natural and religious subjects. However, on top of this, and as this chapter will demonstrate, he was also interested in various types of theological knowledge, and how they related to philosophical ideas and practices.

The literature on Locke's religion and theology is preoccupied with the origin and development of his thought, rather than the way he organised his ideas – into, say, disciplines. However, this scholarship rightly places theology at the heart of Locke's thinking. It is (broadly) comprised of three groups. The first group is interested in the conceptual foundations of Locke's thought. John Dunn, for example, says Locke's philosophy – although Dunn is most interested in Locke's political arguments in the *Two Treatises* (1689) – relies on theological premises.[3] So, whenever Locke talks about obligation, property or toleration, he is also talking about God and providence.[4] For Dunn, this debarred Locke from modern, secular political debates. Jeremy Waldron also

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[1] Experimental, probabilistic natural philosophy was strongly associated with Royal Society virtuosi like Robert Boyle. See Steven Shapin, 'Pump and Circumstance: Robert Boyle's Literary Technology', *Social Studies of Science*, 14 (1984), 481-520; Barbara J. Shapiro, *Probability and Certainty in Seventeenth-Century England: a study of the relationships between Natural Science, Religion, History, Law, and Literature*, (Princeton, 1983), ch. 2.
[2] See John Marshall, 'John Locke and Latitudinarianism', in Richard Kroll, Richard Ashcraft, Perez Zagorin (eds.), *Philosophy, Science and Religion in England, 1640-1700*, (Cambridge, 1992), 253-82.
[3] John Dunn, *The Political Thought of John Locke: an historical account of the argument of the 'Two Treatises of Government'*, (Cambridge, 1969), pp. xi-xii.
[4] John Dunn, 'What's Living and What's Dead in the Political Thought of John Locke', in *Interpreting Political Responsibility: essays 1981-1989*, (Oxford, 1990), 9-25, pp. 14-20.

claims Locke's philosophy is unsustainable without a theological basis. However, he rejects Dunn's corollary that Locke is irrelevant to contemporary philosophy. On the contrary, Waldron argues, the case for equality – now and in the seventeenth century – is only coherent if based on theological assumptions.[5]

It is now widely accepted that Locke's philosophy had theological underpinnings. Without challenging this idea, a second group of scholars has focused their attention on the apparently rational character of Locke's religion and theology. Much has been written on Locke's natural theology, or arguments for God's existence derived from reason and experience.[6] It is also noted that, in Locke's view, reason was responsible for confirming the divinity of scripture. Michael Ayers construes this as reason subordinating revelation,[7] while Nicholas Jolley claims it was Locke's way of defending reason against religious enthusiasts.[8]

A third group of scholars has sought to ascertain Locke's denominational loyalties. This is a tricky task given the political landscape in seventeenth-century England. In 1662, the Act of Uniformity prescribed the Book of Common Prayer and established sanctions for dissenters. The Toleration Act (1689) subsequently withdrew these penalties, but only for Trinitarian Protestants.[9] These pressures encouraged cautious authors to dissimulate or remain silent.[10] Consequently, scholars looking for evidence of Locke's anti-Trinitarianism turn to his unpublished copybooks and notebooks, as well as his friendships and book collections. According to John Marshall, Locke's childhood Calvinism gave way to Unitarianism – quite possibly Socinianism – following his exile in Holland (from 1683).[11] However, Marshall also links Locke to so-called latitudinarian divines like Benjamin Whichcote, John Tillotson, and Isaac Barrow (1630-1677).[12] Using largely the same sources, Victor Nuovo argues that Locke's views on the Fall and the soul suggest he was actually an Arminian or an Arian.[13]

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[5] Jeremy Waldron, *God, Locke, and Equality: Christian Foundations in Locke's Political Thought*, (Cambridge, 2002), pp. 13-14.
[6] G.A.J. Rogers, 'John Locke: Conservative Radical', in Roger D. Lund (ed.), *The Margins of Orthodoxy: Heterodox Writing and Cultural Responses, 1660-1750*, (Cambridge, 1995), 97-116, pp. 100-2.
[7] Michael Ayers, *Locke: Epistemology and Ontology*, (2 vols. London, 1991), I, pp. 121-2.
[8] Nicholas Jolley, 'Reason's Dim Candle: Locke's Critique of Enthusiasm', in Peter R. Anstey (ed.), *The Philosophy of John Locke: New Perspectives*, (London, 2003), 179-91.
[9] John Colley, *Persecution and Toleration in Protestant England 1558-1689*, (Harlow, 2000), p. 199.
[10] See John Marshall, 'Locke, Socinianism, "Socinianism", and Unitarianism', in M.A. Stewart (ed.), *English Philosophy in the Age of Locke*, (Oxford, 2000), 111-82, pp. 179-80.
[11] *Ibid*. See also John Marshall, *John Locke: Resistance, Religion and Responsibility*, (Cambridge, 1994).
[12] Marshall, 'John Locke and Latitudinarianism'.
[13] Victor Nuovo, 'Locke's Theology. 1694-1704', in M.A. Stewart (ed.), *English Philosophy in the Age of Locke*, (Oxford, 2000), 183-215; Victor Nuovo, 'Locke's Christology as a Key to Understanding his Philosophy', Peter R. Anstey (ed.), *The Philosophy of John Locke: New Perspectives*, (London, 2003), 129-53.

These debates are all fairly familiar, and I will draw upon elements of this scholarship in what follows. In particular, I accept and will elaborate the idea that theology informed other areas of Locke's thought, and was in, in some sense, rational.[14] Nevertheless, this scholarship has limitations: it only really addresses the relationship between Locke's politics and his theology, and regards the latter as important only insofar as it explains, or is explained by, the former.[15] Other disciplines – natural philosophy, for example – rarely enter the picture. Reversing this trend, this chapter will look at Locke's theology in its own right, and explore its relationship with natural philosophy. Crucially, where past scholarship has focused on the formation of Locke's argumentation, I will concentrate on its structure. Consequently, this chapter is less about the influences affecting Locke's thought, and more about his attempts to manage and order his ideas and arguments. As such, it focuses on the mechanisms by which Locke *intended* to legitimise and connect disparate bodies of natural and divine knowledge; in short, it is about disciplines.

Disciplines were important to Locke, and he thought deeply about the ways they structured knowledge. Their utility was apparent in *Thoughts concerning Education* (1693), where Locke associated education with the acquisition of virtue.[16] For the most part, *Thoughts* recommends different texts for instruction in different areas of learning. This highlights the pedagogical function of disciplines – turning knowledge into learnable parcels – but also demonstrates their composite nature, associating each discipline with different texts, doctrines, authors and practices. Disciplinary hierarchy was also significant for Locke. Thus, in *Of the Conduct of the Understanding* – written as an additional final chapter for the *Essay* in 1697, but published posthumously in 1706 – Locke gave theology top billing.[17] Nevertheless, he pointedly upended traditional scholastic disciplinary conventions. For example, in keeping with many of his contemporaries, he eschewed commentary and logical textbook genres when writing about the understanding.[18] Moreover, he identified natural philosophy, ethics and semiotics as the

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[14] Here, the historiographical issue of least importance is Locke's preferred religious denomination. This remains a live and interesting debate, but whether or not Locke can be tied to a particular sect on account of allusive theological remarks has little bearing on how he established and ordered certain disciplines.
[15] The paradigmatic case is Dunn, *The Political Thought of John Locke*. Ian Harris, 'The Politics of Christianity', in G.A.J. Rogers (ed.), *Locke's Philosophy: Content and Context*, (Oxford, 1994), 197-215, gives an ingenious, but not entirely convincing account of how Locke's politics informed his theology. And Nuovo suggests that Locke's philosophy can only be understood in light of his peculiar Christology. See 'Locke's Christology as a Key to Understanding his Philosophy'.
[16] John W. and Jean S. Yolton, 'Introduction', in John Locke, *Some Thoughts Concerning Education*, edited with introduction, notes and critical apparatus by John W. and Jean S. Yolton, (Oxford, 1989), 1-75, p. 28.
[17] Locke, *Conduct*, pp. 66-7.
[18] Richard Serjeantson, '"Human Understanding" and the Genre of Locke's *Essay*', *Intellectual History Review*, 18 (2008), 157-71, pp. 162-8.

'three great Provinces of the intellectual World', echoing the neo-Stoic tradition, which divided philosophy into logic, physics and ethics.[19]

The disciplinary focus of this chapter puts me in close connection with another, fourth strand of historiography – scholars interested in textual identity, and the genre of the *Essay* in particular. The *Essay* is commonly regarded as a work of epistemology; it is, after all, a book about knowledge, certainty, belief and probability.[20] Less anachronistically, Nuovo says the *Essay* is an example of natural theology, noting the prominent discussions of God's existence, our duties to God, moral law, and divine promises.[21] A third interpretation, put forward by Richard Serjeantson, posits the *Essay* as a treatise on semiotics.[22] In keeping with his medical training, Locke was interested in the elaboration of signs – the third part of his tripartite division of the sciences. The *Essay*, Serjeantson argues, is a book about ideas and words: the signs of the understanding. These re-evaluations of the *Essay*'s genre have important scholarly consequences; encouraging us, for example, to rethink the history of epistemology (in which Locke is usually a key figure).

Taking heed of this literature, I too will analyse Locke's arguments, methods and concepts by locating them within disciplinary distinctions. However, I part company with these scholars on two fronts. First, although it can be useful to establish the disciplinary register of individual texts (as conceived by Locke), in some ways it risks concealing as much as it reveals. By its fourth edition, the *Essay* was over 700 pages long, and, as Locke confessed, was '*written by incoherent parcels; and, after long intervals of neglect, resum'd again*'. Such a '*discontinued way of writing*' was likely to produce work that spanned various topics and engaged with different disciplines.[23] The *Essay*, then, contains bits of natural theology (as noted by Nuovo), is overwhelmingly concerned with ideas and language (as argued by Serjeantson), and, despite Locke's intentions to the contrary, flirts with natural

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[19] Locke, *Essay*, p. 721; Serjeantson, '"Human Understanding" and the Genre of Locke's *Essay*', p. 170; Jeremiah Hackett, 'Roger Bacon on the Classification of the Sciences', in Jeremiah Hackett (ed.), *Roger Bacon and the Sciences: commemorative essay*, (Leiden, 1997), 49-65, p. 54.

[20] See Ayers, *Locke*, I.

[21] Nuovo often offers the caveat that, although the *Essay* was not conceived as natural theology, Locke increasingly regarded it as such, and amended it accordingly. See Nuovo, 'Locke's Christology as a Key to Understanding his Philosophy', pp. 130, 140-2; Victor Nuovo, 'Introduction', in Victor Nuovo (ed.) *John Locke: Writings on Religion*, (Oxford, 2002), xv-lvii, pp. xxv-xxvi.

[22] Serjeantson, '"Human Understanding" and the Genre of Locke's *Essay*'. Lisa Downing seems to hold this view implicitly, but then reverts to a more conventional conclusion; namely, that the *Essay* was a work of epistemology. See Lisa Downing, 'The Status of Mechanism in Locke's *Essay*', *The Philosophical Review*, 107 (1998), 381-414, pp. 382, 414.

[23] Locke, *Essay*, 'The Epistle to the Reader', p. 7.

philosophy.[24] So, rather than trying to assign the *Essay* a disciplinary identity, I will use the text to discuss Locke's views on a number of disciplines. Second, and following from this, I am interested in how Locke conceptualised disciplines across his works. Therefore, I will canvass Locke's entire corpus, and not just focus on the disciplinary genre of a single text.

This chapter unpacks Locke's formulations of natural philosophy and theology, and analyses how they interacted in light of their respective (and various) origins, subject matter and methods. Importantly, it will chart the changes in this relationship, brought about by Locke's re-evaluation of the viability of natural theological knowledge. Some scholars only study Locke's theology as a way to explicate his politics.[25] Locke's nuanced theological sub-categorisations are therefore overlooked, and his variegated account of theology's relationship with natural philosophy is missed or oversimplified. In different texts, Locke encapsulated two popular seventeenth-century approaches to the disciplinary relationship between natural philosophy and theology. First, he argued in the *Essay* that the methods and subject of natural philosophy was an ideal conduit to theological knowledge. And second, in the *Reasonableness of Christianity* (1695), he said theology was based on faith (not knowledge), and that reason rarely approached divine understanding. Nevertheless, theology remained a more certain and reliable discipline than natural philosophy. Locke therefore provides evidence that, into the eighteenth century, and even among philosophical reformers, theology was still considered the highest, most authoritative, discipline.

The remainder of this chapter is split into five sections. First, I set out the basic content and structure of both disciplines. Most importantly, I argue, Locke's theology was constituted by three sub-disciplines: natural theology, biblical theology, and (less importantly for this chapter) speculative doctrine. Second, I explore Locke's natural theology, set out in the *Essay*. Natural theology was a type of knowledge; produced by the association of clear and real ideas. To clarify Locke's arguments, I rehearse his ideational theory of cognition, showing how natural philosophical knowledge led to theological understanding. The third section demonstrates how, in the 1690s, Locke revised his view of theology and its relationship with natural philosophy. His theory of cognition did not change, but Locke began doubting man's ability to reliably formulate and combine ideas that demonstrated the existence of God or the content of morality.

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[24] Although, as Peter Anstey notes, the overarching aims of the *Essay* were not natural philosophical in character. See Peter R. Anstey, *John Locke and Natural Philosophy*, (Oxford, 2011), pp. 20-2.
[25] Dunn, *The Political Thought of John Locke*; Harris, 'The Politics of Christianity'.

Consequently, in the *Reasonableness*, he de-emphasised natural theology and began stressing the importance of biblical theology. This scriptural sub-discipline was conceptually and epistemologically distinct from natural philosophy, a distinction that was partly attributable to the difference between reason and faith. However, as I argue in the fourth section, reason had a dual definition, and, for Locke, belief was merely a type of rational assent or persuasion. Moreover, he claimed, this persuasion was so secure that scriptural faith took precedence over probable knowledge. Finally, I tease out the consequences of this dynamic, arguing that, although Locke's updated version of theology-as-scriptural-faith was uprooted from (probabilistic) natural philosophy, it still had the authority to govern it.

II. Natural philosophy and tripartite theology

In this section, I will sketch Locke's conceptualisation of natural philosophy, and its limitations. Afterwards, I will turn to Locke's tripartite theology. Each theological substratum operated independently of the others, but over time Locke changed their order of priority.[26]

The final chapter of the *Essay* contains Locke's first printed definition of natural philosophy – the study of substances. It was, he said, 'The Knowledge of Things, as they are in their own proper Beings, their Constitutions, Properties, and Operations'. This included, 'not only Matter, and Body, but Spirits also, which have their proper Natures, Constitutions, and Operations as well as Bodies'. By this catholic definition – or 'enlarged Sense of the Word' – natural philosophy dealt in 'bare speculative Truth…whether it be God himself, Angels, Spirits, Bodies, or any of their Affectations'.[27] Locke reiterated this set-up in *Some Thoughts Concerning Education*. Again, he claimed that '*Natural Philosophy* being the Knowledge of the Principles, Properties, and Operations of Things, as they are in themselves, I imagine there are Two Parts of it, one comprehending Spirits with their Nature and Qualities; and the other *Bodies*'. The former, which Locke called metaphysics, 'ought to go before the study of Matter, and Body, not as a Science that can be methodized into a System, and treated of upon Principles of

[26] In some ways, this image of theological layers and foundations resembles Locke's imagery of an '*Under-Labourer…clearing Ground a little*', see *Essay*, 'Epistle to the Reader', p. 10. Both features of Locke's work advertise his position as someone capable of disinterring fundamental aspects of knowledge.
[27] *Ibid.*, p. 720.

Knowledge; but as an enlargement of our Minds towards a truer and fuller comprehension of the intellectual World, to which we are led both by Reason and Revelation'. However, he continued:

> 'since the clearest and largest Discoveries we have of other *Spirits*, besides God, and our own Souls, is imparted to us from Heaven, by Revelation; I think the Information, that at least young people should have of them, should be taken from that Revelation…by reading of it constantly, there would be instilled into the Minds of Children, a notion and belief of *Spirits*…which will be a good Preparation to the study of *Bodies*. For without the notion and allowance of *Spirits*, our Philosophy will be lame and defective in one main Part of it'.[28]

Substances were apprehended (in natural philosophy) via their observable qualities and operations. This included spiritual as well as physical substances, and, as such, metaphysics was assimilated into natural philosophy. However, Locke worried that a child's constant and inevitable exposure to the properties and behaviour of matter would undermine their ability to reflect clearly and fairly on the nature of spirit. So, to avoid a materialist bias, natural philosophical education must begin with scriptural studies of spirit. That is not to say that natural philosophy had a textual foundation: the understanding relied on ideas garnered by sensory experience, subsequently combined and compared by reason. But, for Locke, prior understanding of spirit facilitated this cognitive process.

Still, he continued, no matter how well disposed the mind was to natural philosophy, 'we never shall be able to make a Science of it. The Works of Nature are contrived by a Wisdom, and operate by ways too far surpassing our Faculties to discover, or Capacities to conceive'.[29] In compressed form, this passage signals a departure from scholastic disciplinary convention. Many schoolmen treated natural philosophy as demonstrative, and man's faculties as capable of dissecting nature.[30] Locke doubted the latter point, and consequently repudiated the former. His alternative account of cognition went as follows: knowledge is based on ideas; ideas derive from sensory experience; the inner recesses of nature are beyond the reach of man's perceptive faculties; as such, the mind either lacks ideas, or has unclear and incomplete ones. This precludes the possibility of knowledge; and, in particular, limits man to a partial understanding of substance.

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[28] John Locke, *Some Thoughts Concerning Education*, edited with introduction, notes and critical apparatus by John W. and Jean S. Yolton, (Oxford, 1989), p. 245.
[29] *Ibid.*
[30] Eckhard Kessler, 'Metaphysics or Empirical Science? The Two Faces of Aristotelian Natural Philosophy in the Sixteenth Century', in Marianne Pade (ed.), *Renaissance Readings of the Corpus Aristotelicum*, (Copenhagen, 2001), 79-101, pp. 79-81; Lohr, 'Metaphysics and Natural Philosophy', pp. 280-3.

Locke expressed this partiality by distinguishing a substance's real essence from its nominal essence. The former, he explained in the *Essay*, was 'the unknown Constitution of Things, whereon their discoverable Qualities depend'; the latter was the set of 'abstract *Ideas*, to which we have annexed those Names' of substances.[31] Real essences, in other words, were the physical, *causal* basis for a substance's perceptible qualities, (distinguishable from substance or substratum, which acted as the *logical* foundation for bodily and spiritual substances and their qualities).[32] Nominal essences, on the other hand, were the complex ideas formed by the cluster of recurring secondary qualities observed in bodies. In the case of, say, gold, this would be some combination of yellow, hardness, ductility etc.

When Locke said nature 'operate[s] by ways too far surpassing our Faculties to discover, or Capacities to conceive', he meant that man lacked the sensory equipment needed to grasp real essences. The mind perceived various substantial properties, which formed part of a substance's nominal essence. But 'being ignorant of the real Essence it self, it is impossible to know all those Properties, that flow from it'.[33] Moreover, 'whilst we are destitute of Sense acute enough, to discover the minute Particles of Bodies, and to give us *Ideas* of their mechanical Affections, we must be content to be ignorant of their properties and ways of Operation'.[34] 'All we can do', Locke said, 'is to collect such a number of simple *Ideas*, as by Examination, we find to be united together in Things existing, and thereof to make one complex *Idea*'.[35]

In short, the number and nature of a substance's properties remained a mystery. Our ignorance of real essences meant the human understanding was incapable of deducing which, and how many qualities were associated with different substances: a substance's nominal essence was therefore only knowable by contingent empirical observation.[36]

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[31] Locke, *Essay*, p. 417.
[32] Edwin McCann, 'Locke's Philosophy of Body', in Vere Chappell (ed.), *The Cambridge Companion to Locke*, (Cambridge, 1994), 56-88, pp. 79-82; Ayers, *Locke*, II, p. 40.
[33] Locke, *Essay*, p. 449.
[34] *Ibid*., p. 556. 'Whilst we are destitute of Sense acute enough' offers a note of optimism; if our senses are improved or aided – say, by instruments – man may gain more/better ideas of internal material structures. This counters the notion that, for Locke, corpuscular and mechanical theories were *incapable* of accounting for certain bodily phenomena, which, because they were a consequence of divine superaddition, were inherently unintelligible. See Margaret D. Wilson, 'The Limits of Mechanism in Locke', *American Philosophical Quarterly*, 16 (1979), 143-50, pp. 147-9.
[35] Locke, *Essay*, pp. 449-50.
[36] Martha Brandt Bolton, 'The Real Molyneux Question and the Basis of Locke's Answer', in G.A.J. Rogers (ed.), *Locke's Philosophy: Content and Context*, (Oxford, 1994), 75-99, p. 97; Michael Ayers, 'The Foundation of Knowledge and the Logic of Substance: The Structure of Locke's General Philosophy', in G.A.J. Rogers (ed.), *Locke's Philosophy: Content and Context*, (Oxford, 1994), 49-73, pp. 62-4.

Thus, according to some commentators, Lockean nominal essences were arbitrary.[37] Locke conceded that, regarding nominal essences, '*Experience must teach me*, what Reason cannot'.[38] Consequently, the ideas constituting a nominal essence varied, depending on the experience, knowledge and capacities of the perceiver. However, the properties responsible for the cluster of ideas constituting a nominal essence flowed from the substance's unknown, but ontologically constant, real essence. Nominal essences therefore corresponded with a substance's properties, which, though only perceived selectively, were rooted and united in nature.[39] As Locke said: 'Causes work steadily, and Effects constantly flow from them'.[40] Nominal essences were effects caused by real essences: though conventional or contingent, they were not arbitrary.

Nevertheless, this level of substance scepticism placed limitations on natural philosophy.[41] Medieval Aristotelian natural philosophy and metaphysics were structured bodies of knowledge, which, via logical demonstration, yielded true and certain conclusions.[42] Rejecting this model, Locke said the 'want of *a discoverable Connection* between those *Ideas* [of, say, real and nominal essences]…[meant] we are utterly uncapable of universal or certain Knowledge'.[43] The relationship between a substance's inner constitution and visible properties owed 'to nothing else, but the arbitrary Determination of that All-wise Agent'.[44] Consequently, the only '*way* of getting, and *improving our Knowledge in Substances*', is by '*Experience* and History'.[45] Observation and experimentation would bolster natural histories, and enhance our understanding of nature.[46] Yet although 'rational and regular Experiments' will enable us 'to see farther in

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[37] See Waldron, *God, Locke, and Equality*, pp. 56-9; Ayers, *Locke*, II, p. 74.
[38] Locke, *Essay*, p. 644.
[39] Anstey, *John Locke and Natural Philosophy*, pp. 207-14. According to Jonathan Walmsley, this line of thought, influenced by the methodology of Thomas Sydenham, was evident in Draft A of the *Essay* (1671). However, Walmsley also says that from Draft B onwards Locke accounted for species in a more straightforwardly nominalistic fashion. See Jonathan Walmsley, 'Locke's Natural Philosophy in Draft A of the Essay', *Journal of the History of Ideas*, 65 (2004), 15-37, pp. 26-7, 35-6.
[40] Locke, *Essay*, p. 560.
[41] Walmsley says Draft A of the *Essay* shows that Locke's epistemic scepticism predated his mechanism. Thus, Walmsley argues, Locke's philosophical outlook was not reliant upon his ontology. See 'Locke's Natural Philosophy in Draft A of the Essay'.
[42] Kessler, 'Metaphysics or Empirical Science?', pp. 79-91.
[43] Locke, *Essay*, p. 558.
[44] *Ibid*, p. 559. It was perfectly possible, according to Locke, 'to conceive, that God should annex such *Ideas* to such Motions, with which they have no similitude'. See *Ibid*., p. 136. According to Wilson, this opened a hole in Locke's argumentation. There was a tension, she said, between Locke's claim that there was an obvious causal/logical link between observable qualities and insensible corpuscular structures, and his contention that God arbitrarily established the connection between configurations of matter and particular sensations. See 'The Limits of Mechanism in Locke'.
[45] Locke, *Essay*, p. 645.
[46] See G.A.J. Rogers, 'John Locke and the Limits of *Scientia*', in Tom Sorell, G.A.J. Rogers, Jill Kraye (eds.), *Scientia in Early Modern Philosophy: Seventeenth-Century Thinkers on Demonstrative Knowledge from First Principles*, (Dordrecht, 2010), 129-36, pp. 133-4.

to the Nature of Bodies, and guess righter at their yet unknown Properties…this is but Judgment and Opinion, not Knowledge and Certainty'.[47] Ultimately, natural philosophy was a category of human inquiry in which, due to a 'defect of our Knowledge', the propositions under discussion 'have no certainty, but only some inducements to receive them for true'.[48] Unlike knowledge, which was born of clear, intuitive perceptions of the agreement or disagreement of ideas, probability was 'but the appearance of such an Agreement, or Disagreement, by the intervention of Proofs, whose connexion is not constant and immutable, or at least is not perceived to be so'.[49] Natural inquiries dealt in probabilities, and natural philosophy was probabilistic.

Let us now turn to Locke's divinity. Locke entered Christ Church, Oxford in 1652. He qualified BA in 1656 and MA in 1658, and occupied lectureships in Greek and Rhetoric in the early 1660s. However, he famously refused to take holy orders – the conventional route to College employment – claiming he was ill-suited to divinity, and reluctant to give up his other studies, principally medicine.[50] Several scholars claim Locke only became interested in theology following his exile in Holland from 1683, under the influence of Remonstrant divines like Philipp van Limborch (1633-1712).[51] However, the extremity of this transformation is somewhat overplayed. Locke declined to write a comprehensive or systematic theology, either before or after his exile.[52] Moreover, he was obviously reluctant to become a Church of England minister. But his commonplace books, dating from his studentship at Christ Church, show obvious theological concerns, described by Nuovo as 'indispensible aids to a proper understanding of Locke's mature thought'.[53] Further, manuscript works like 'Infallibility', the *Two Tracts on Government*, and *Essays on the Law of Nature*, written in Oxford between 1661-1664, all address theological issues.[54]

Locke outlined theology's disciplinary status in *Of the Conduct of the Understanding*. Quite conventionally, he depicted theology as the pinnacle of knowledge, a

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47 Locke, *Essay*, p. 645.
48 *Ibid*., pp. 655-6.
49 *Ibid*., p. 654.
50 Feingold, 'Science as a calling?', p. 95.
51 See Rogers, 'John Locke: Conservative Radical', p. 99; Marshall, 'John Locke and Latitudinarianism', pp. 260-1; Marshall, *John Locke*, pp. 329-34.
52 Nuovo, 'Introduction', p. xxi; Nuovo, 'Locke's Theology', p. 184. Although, Nuovo also said the *Reasonableness of Christianity* was a system of divinity. Nuovo, 'Locke's Christology as a Key to Understanding his Philosophy', p. 131.
53 See Victor Nuovo, 'Preface', in John Locke, *Vindications of the Reasonableness of Christianity*, edited with an introduction and notes by Victor Nuovo, (Oxford, 2012), vii-ix, p. vii. Evidence that Locke was reading and note taking on theology while at Oxford between 1652-1667, can be found in J.R. Milton, 'Locke at Oxford', in G.A.J. Rogers (ed.), *Locke's Philosophy: Content and Context*, (Oxford, 1994), 29-47, pp. 33, 35-6, 41-2.
54 Nuovo, 'Introduction', p. xxxix.

'Science…incomparably above all the rest'. It encompassed 'the Knowledge of God and his Creatures, our Duty to him and our fellow Creatures, and a view of our present and future State'. The range and significance of its objects of study/reflection meant theology was 'the Comprehension of all other Knowledge directed to its true end: *i.e.* the Honour and Veneration of the Creator, and the Happiness of Mankind'.[55] In the *Essay*, Locke described 'The knowledge and veneration of Him [God]' as the 'chief end of all our Thoughts, and the proper business of all Understandings'.[56] Theology, therefore, was the highest science because its functions – to know and honour God, and to understand our duties to him and each other – were furthered by every type of human inquiry, including natural philosophy.

On the face of it, this established a straightforward disciplinary relationship: theology was the highest discipline, encompassing and subordinating natural philosophy. However, the situation was more complex, as Locke subdivided theology into natural theology, biblical theology, and speculative doctrine – each subdivision interacting with natural philosophy in a different way. In the *Conduct*, Locke said foundational theological truths were apprehended through 'The Works of Nature, and the Words of Revelation'. These theological mediums were 'so large and visible, that those who are not quite blind may in them read, and see the first Principles and most necessary Parts of it'. There were, in addition, 'more abstruse parts' that required 'Time and Industry' to access, and were therefore known by fewer people.[57] In sum, and respectively, Locke was referring to natural theology, biblical theology and speculative doctrine.

Each substratum counted as theology. However, their differences were manifold. They had discrete foundations (nature and scripture); ranged from easily apprehensible (natural theology and biblical theology) to abstruse (speculative doctrine); and were governed by different epistemic principles – knowledge (natural theology) and belief (biblical theology and speculative doctrine). Locke shifted his attention between substrata as his theological interests and priorities changed. Most significantly, as he grew sceptical of man's ability to generate theological *knowledge*, he began prioritising biblical theology over natural theology.[58] The relationship between Locke's natural philosophy and theology was therefore in flux: contingent on the subdivision of theology being referred to.

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[55] Locke, *Conduct*, p. 66.
[56] Locke, *Essay*, p. 131.
[57] Locke, *Conduct*, p. 66.
[58] See John Locke, *Locke: Writings on Religion*, edited by Victor Nuovo, (Oxford, 2002), pp. 191-2.

Historians tend to ignore or downplay these differences. As such, they oversimplify Locke's theology and its disciplinary relationship with natural philosophy. Nuovo is perhaps the most reductionist, claiming Locke simply conflated religion and theology, conceived by John Wilkins as, respectively, reverence to God and the doctrines that inform and explain religious practice.[59] G.A.J. Rogers attempts greater subtlety, rightly identifying the commonplace difference between exoteric theology, like natural theology and basic biblical teachings; and esoteric theology or speculative doctrine.[60] However, neither scholar properly distinguishes Locke's theological substrata by subject matter and method. Consequently, they discount the fact that, at different times, he had different theological preferences. Or they imply he gave them equal weight at all times. These assumptions are false.

Between the *Essay* (1689) and the *Reasonableness* (1695), Locke's priorities moved from natural theology to biblical theology. In the *Essay*, he was fairly confident that by reasoning from the knowledge of oneself as a finite, imperfect being, or from the coherence and intelligibility evident in the natural world, man would arrive at knowledge of a perfect, immaterial, omnipotent creator. He even asserted that natural theology provided more legible divine testimony than scripture – probably as a consequence of his general thesis that words were imperfect and inconstant, which meant biblical passages were liable to be misunderstood or confused.[61]

However, in the *Reasonableness*, Locke reversed this view, arguing that reason usually failed in natural theology. Still, he said, faith overcame unrighteousness, and salvation was contingent on belief in Jesus' divinity.[62] These ideas had occupied Locke since before the publication of the *Essay*. While exiled in Holland (1683-1688), he discussed biblical error and doctrinal clarity with Arminians like van Limborch and Jean le Clerc (1657-1736).[63] He subsequently corresponded with both men, each stressing the salvific importance of the doctrine that Jesus was the Christ.[64] However, Locke only seriously and publicly committed to the notion of biblical faith – culminating in the publication of the *Reasonableness* – following events that took place in England in the 1690s. After the

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[59] Nuovo, 'Introduction', pp. xvi-xviii. Slightly confusingly, Nuovo later notes the differences between Locke's natural religion and his Christian beliefs. However, he claims they were entirely coextensive, and fails to recognise that the latter was, in part, an antidote to the failure of the former. See *ibid.*, pp. xlvii-l.
[60] Rogers, 'John Locke: Conservative Radical', pp. 109-10.
[61] Nuovo, 'Introduction', pp. xxiv-xxv.
[62] See Marshall, 'Locke, Socinianism, "Socinianism", and Unitarianism', p. 165; Richard Ashcraft, 'Anticlericalism and Authority in Lockean Political Thought', in Roger D. Lund (ed.). *The Margins of Orthodoxy: Heterodox Writing and Cultural Response, 1660-1750*, (Cambridge, 1995), 73-96, pp. 79-82.
[63] Marshall, *John Locke*, pp. 329-31, 337-41.
[64] Marshall, 'Locke, Socinianism, "Socinianism", and Unitarianism', pp. 136-9.

re-publication of sermons by the Puritan divine Tobias Crisp (1600-1643), Presbyterians and Independents debated antinomianism, arguing that faith was unimportant because salvation was predestined.[65] In response, deists like Charles Blount (1654-1693) claimed natural theology had superseded revealed religion.[66] In the *Reasonableness*, Locke rejected both positions. On the one hand, he emphasised the importance of faith in Jesus, and on the other, he questioned reason's ability to discern theological truths.

Following this shift in priorities, the connection between natural philosophy and theology was necessarily weakened. In the *Essay*, Locke said natural philosophy was bookended by theology: it began with biblical accounts of spirit, and, via self-reflection, or natural observations, led to knowledge of God.[67] Moreover, natural inquiries disclosed more about God than about nature itself. God 'fitted our Senses, Faculties, and Organs, to the conveniences of Life, and the Business we have to do here'. Locke said that when we perceive natural phenomena, 'We have insight enough into their admirable Contrivances, and wonderful Effects, to admire, and magnify the Wisdom, Power, and Goodness of their Author…But it appears not, that God intended, we should have a perfect, clear, and adequate Knowledge of them'.[68] Add this to Locke's claim that natural or philosophical knowledge of God was clearer than text-based biblical accounts, and theology is left looking like a distinctly philosophical enterprise. Locke inverted each of these suggestions in the *Reasonableness*. Most people, he argued, were cognitively incapable of rationally demonstrating God's existence or his relation to creation. Salvation therefore hinged on one's assent to basic biblical propositions. As such, theology was faith-based, and no longer arose from philosophical inquiry.

Locke's third theological stratum factored less prominently in his thought.[69] Speculative theology was a species of belief, not knowledge – regarding, for example, fallen angels or human resurrections.[70] These beliefs could be held alongside commitments to natural theology or biblical theology. But assenting or not assenting to them did not affect one's chances at salvation.[71] Locke had these and other types of theological or religious belief in mind when he discussed the right (or ability) of magistrates to enforce beliefs, or articles of faith. In the aftermath of the Civil War, and uncertain of the episcopal

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65 Nuovo, 'Locke's Theology', pp. 195-6.
66 *Ibid*., pp. 196-7.
67 Richard Ashcraft, 'Faith and Knowledge in Locke's Philosophy', in John W. Yolton (ed.), *John Locke: Problems and Perspectives*', (Cambridge, 1969), 194-223, p. 214, reaches a similar conclusion.
68 Locke, *Essay*, p. 302.
69 Therefore this chapter will not extensively review Locke's views on speculative theology.
70 Locke, *Essay*, p. 694.
71 Locke, *Writings on Religion*, pp. 100-2.

character of the re-established Church of England, Locke regarded toleration as dangerous.[72] In the *First Tract on Government* (1660), he therefore claimed 'the magistrate may lawfully determine the use of indifferent things relating to religion'.[73] Locke's position softened in his unpublished *Essay Concerning Toleration* (1667).[74] But his views radically altered when, following Louis XIV's revocation of the Edict of Nantes, and the accession of James II in England (both in 1685), he feared Catholicism was threatening European Protestantism.[75] Living in exile, he wrote *A Letter concerning Toleration* (1685, published in 1689), arguing that civil power was instituted to secure peace, not enforce opinion, but also that civil laws were incapable of effecting the formation of beliefs.[76]

III. Knowledge and natural theology

In the 'Epistle to the Reader', Locke said the germ of the *Essay* emerged from a meeting, at least twenty years before, between '*five or six Friends…at my Chamber*'. The subject of discussion, which Locke described as '*very remote*' from the *Essay*'s eventual composition, was, according to one of Locke's friends, the principles of morality and revealed religion.[77] Locke was subsequently encouraged to demonstrate, in writing, how man should govern his opinions and conduct. Many years later, this undertaking ended as a treatise on the understanding.[78] However, the *Essay* retained a strong interest in both morality and religion. In particular, Locke argued that all or most people were capable of knowing – not just believing – that God existed, and that man had duties to both his creator and to one another.

This chapter is not primarily interested in the influences on, or motivations for, Locke's thought. Rather, it seeks to explain how Locke organised ideas through

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[72] See James Tully, 'An Introduction to Locke's Political Philosophy', in *An Approach to Political Philosophy: Locke in Contexts*, (Cambridge, 1993), 9-68, pp. 50-1.
[73] Locke, *Political Essays*, p. 11. The *First Tract* is often grouped with the *Second Tract*, forming the *Two Tracts on Government* (1660-1662). For the *Two Tracts* place in Restoration religious polemic, see Jacqueline Rose, 'John Locke, 'Matters Indifferent', and the Restoration of the Church of England', *The Historical Journal*, 48 (2005), 601-21.
[74] See David C. Snyder, 'John Locke and the Freedom of Belief', *Journal of Church and State*, 30 (1988), 227-43, esp. pp. 232-3; Tully, 'An Introduction to Locke's Political Philosophy', pp. 52-4.
[75] Marshall, *John Locke*, pp. 357-61.
[76] John Locke, *A Letter Concerning Toleration*, edited by James H. Tully, (Hackett, 1983), p. 46.
[77] Locke, *Essay*, 'Epistle to the Reader', p. 7. According to Nicholas Jolley, that disputant was James Tyrrell (1642-1718), see 'Locke on Faith and Reason', in Lex Newman (ed.), *The Cambridge Companion to Locke's "Essay Concerning Human Understanding"*, (Cambridge, 2007), 436-55, p. 436.
[78] Peter R. Anstey, 'John Locke and the Understanding', in Peter R. Anstey (ed.), *The Oxford Handbook of British Philosophy in the Seventeenth Century*, (Oxford, 2013), 311-28, pp. 314-15.

disciplines and disciplinary distinctions. To do this, I will reconstruct the order and connections between Locke's arguments about God and contentions about nature, and situate them in their disciplinary contexts. In this section, I examine the *Essay*'s claims about divine knowledge or natural theology, and the ways in which natural philosophy buttressed theology. First, however, I must review Locke's views on the foundations of knowledge.

Locke's criterion for knowledge was simple: '*the perception of the connexion and agreement, or disagreement and repugnancy of any of our Ideas*'.[79] Knowledge was divisible into three types. First, intuitive knowledge was generated by the immediate perception of the agreement or disagreement of two ideas, without the intermediation of any others.[80] The second type was demonstrative, created by the association of two otherwise unconnected ideas, via other ideas called proofs.[81] Intuition and demonstration both pertained to general ideas or truths. But, thirdly, 'There is, indeed, another *Perception* of the Mind, employ'd about *the particular existence of finite Beings* without us; which…passes under the name of Knowledge'. Though less certain than intuitive or demonstrative apprehensions, sensory knowledge established 'the existence of particular external Objects, by that perception and Consciousness we have of the actual entrance of *Ideas* from them'.[82]

Ideas were experiential. That is, they either derive from '*Our Senses*', which, by being 'conversant about particular sensible Objects, do *convey into the Mind*, several distinct *Perceptions* of things'. Thus, we have ideas of external material things and qualities. Or, they come from 'the *Perception of the Operations of our own Minds*', furnishing ideas of thought, belief, doubt and will.[83] The mind receives bundles of ideas – qualities like colour, sound, motion etc. – that appear united in particular things. However, 'the *Ideas* they produce in the Mind, enter by the Senses simple and unmixed'. These are called 'simple *Ideas*', and 'are suggested and furnished to the Mind, only by those two ways above mentioned, *viz. Sensation* and *Reflection*'.[84]

Simple ideas were entirely passive, entering the mind involuntarily. But the mind also 'exerts several acts of its own, whereby out of its simple *Ideas*, as the Materials and Foundations of the rest, the other [ideas] are framed'. According to Locke, the mind operates on ideas in three ways: first, it compounds simple ideas into complex ones;

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[79] Locke, *Essay*, p. 525.
[80] *Ibid*., pp. 530-1.
[81] *Ibid*., p. 532.
[82] *Ibid*., pp. 537-8.
[83] *Ibid*., p. 105.
[84] *Ibid*., p. 119.

second, it sets ideas next to each other, creating relations; and third, it separates ideas from their circumstantial conditions, producing abstract ideas. Of complex ideas, the most significant were ideas of substances – collections of ideas of qualities presumed to be united in one thing; and modes – ideas that depended on, or were affections of, substances. Modes were either simple, combining the same idea, like a number. Or they were mixed, compounding 'simple *Ideas* of several kinds, put together to make one complex one', like beauty or theft, right or wrong.[85]

Locke's meditations on ideas, particularly their sources and how they impressed upon the mind, brings up questions of textual genre. To describe the mechanics of human cognition, Locke relied on natural philosophy. As we will see, he then cashed out these principles to establish theological knowledge. Evidently, then, the *Essay* traversed multiple disciplines, and was not confined to a particular genre. Thus, as several historians have argued, the *Essay* was not *simply* an example or defence of natural philosophy – conceived as a version or combination of corpuscularian matter theory and mechanistic principles of change. Peter Anstey, for example, says that, although Locke was evidently interested in various natural philosophical hypotheses, the function of the *Essay* was to defend experimental *practices* in natural philosophy against speculative systematisers like Aristotle and René Descartes.[86] Serjeantson paints a similar picture. He says Lockean natural philosophy was experimental, and therefore only dealt in matters of fact. The *Essay*, however, was a book about the understanding, a subject not amenable to empirical observation: consequently, it was not natural philosophy.[87] Both interpretations chime with Locke's disclaimer at the beginning of the *Essay* that, 'I shall not at present meddle with the Physical Consideration of the Mind…[for example] by what Motions of our Spirits or Alterations of our Bodies, we come to have any Sensation by our Organs, or any *Ideas* in our Understandings'.[88] Despite these intentions, Locke was unable to entirely steer clear of natural philosophy. This was because, to explicate the differences between bodily qualities and the ideas they produced in the mind, 'Physical Enquiries' were 'necessary'.[89] So, as well as discussing ideas as objects of the understanding, Locke

[85] *Ibid*., p. 165.
[86] Anstey, *John Locke and Natural Philosophy*, pp. 20-2, 27-9.
[87] Serjeantson, '"Human Understanding" and the Genre of Locke's *Essay*', p. 165.
[88] Locke, *Essay*, p. 43.
[89] *Ibid*., p. 140.

inquired 'into the nature of their causes'.[90] However, this was a minor exception, and he hoped to be 'pardoned this little Excursion into Natural Philosophy'.[91]

The excursion was set in broadly corpuscularian terms, and centred on the distinction between primary and secondary qualities in bodies, and the ideas they engendered.[92] Locke said 'the Power to produce any *Idea* in our mind, I call *Quality* of the Subject wherein that power is'.[93] Some qualities, moreover, are 'utterly inseparable from the Body'.[94] Experience teaches that all bodies have (seemingly corpuscular) primary qualities like solidity, extension, figure and motion. In addition, Locke assumed all bodily substances were fabrications of the same underlying matter.[95] Thus, observing primary qualities in macro-bodies, he inferred their existence in micro-bodies or corpuscles.[96] Contrarily, some qualities 'are nothing in the Objects themselves, but Powers to produce various Sensations in us by their *primary Qualities*'. These secondary qualities – effects in the mind produced by insensible parts of bodies – included colours, sounds and tastes.[97] A body's primary qualities were therefore the cause or source of its secondary qualities, which did not actually exist in bodies, but were the effects wrought by particular bodily constitutions.

On this basis, it is hard to tell the difference between primary qualities and real essences. Both terms helped explain observable qualities, and, according to Lisa Downing, they were basically synonymous.[98] However, although Locke clearly regarded them as connected, they were not the same thing. Real essences were the insensible particle structure of a substance, while primary qualities were the size, shape, motion etc. of those particles. Discussing 'insensible Corpuscles' in the *Essay*, Locke said they were

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[90] Ayers, *Locke*, I, p. 41.
[91] Locke, *Essay*, p. 140.
[92] Commentators dispute the exact relationship between corpuscularianism and Locke's discussion of qualities. McCann says Locke favoured corpuscularianism because it fitted the empirical, commonsensical view of body that underpinned his primary-secondary quality distinction. See 'Locke's Philosophy of Body'. Downing claims Locke used corpuscularianism to illuminate, or provide examples of, metaphysical concepts, like primary qualities and real essences. See 'The Status of Mechanism in Locke's *Essay*'. Finally, Ayers argues that, although primary qualities were conceivable without corpuscularian matter theory, they were also evidence of its veracity. See Michael Ayers, 'Primary and Secondary Qualities in Locke's *Essay*', in Lawrence Nolan (ed.), *Primary and Secondary Qualities: the Historical and Ongoing Debate*, (Oxford, 2011), 136-57.
[93] Locke, *Essay*, p. 134.
[94] *Ibid*., p. 135.
[95] Ayers, *Locke*, II, p. 42.
[96] See Peter R. Anstey, 'The Theory of Material Qualities', in Peter R. Anstey (ed.), *The Oxford Handbook of British Philosophy in the Seventeenth Century*, (Oxford, 2013), 240-60, pp. 255-7; and Michael Jacovides, 'Locke's Distinctions between Primary and Secondary Qualities', in Lex Newman (ed.), *The Cambridge Companion to Locke's "Essay Concerning Human Understanding"*, (Cambridge, 2007), 101-29, p. 115.
[97] Locke, *Essay*, p. 135.
[98] Downing, 'The Status of Mechanism in Locke's *Essay*', p. 394. Wilson also seems to elide the two. See 'The Limits of Mechanism in Locke'.

'the active parts of Matter, and the great Instruments of Nature, on which depend not only all their secondary Qualities, but also most of their natural Operations'. Unfortunately, 'our want of precise distinct *Ideas* of their primary Qualities, keeps us in an incurable Ignorance of what we desire to know about them'.[99] Clearly distinguishing primary qualities and real essences, he added that knowledge would be greatly enhanced 'if we could discover the Figure, Size, Texture, and Motion [i.e. the primary qualities] of the minute Constituent parts [i.e. the real essence]'.[100]

The ideas of primary and secondary qualities were produced in the mind '*by impulse*'. Regarding primary qualities, Locke said 'singly imperceptible Bodies must come from them to the eyes, and thereby convey to the Brain some motion'.[101] This undercuts Michael Jacovides's contention that, because primary qualities were attached to imperceptible entities like corpuscles, they must themselves be imperceptible, and incapable of producing ideas in the mind.[102] In fact, imperceptible bodies conveyed primary qualities to the sense organs via motion, which produced ideas in the brain. Thus, as Downing argues, primary qualities were intrinsic, irreducible qualities existing at the micro-body level; but also powers existing at a macro-body level, capable of producing accurate ideas of those irreducible qualities in the mind.[103] Equally, 'the *Ideas of secondary Qualities* are also *produced*, viz. *by the operation of insensible particles on our Senses*'. Specifically, 'different Motions and Figures, Bulk, and Number of Particles, [i.e. primary qualities] affecting the several Organs of our Senses, produce in us those different Sensations' – colour, smell etc.[104] The upshot was that ideas of primary qualities paralleled physical patterns in natural things. Namely, ideas of figure and bulk derived from the figure and bulk inherent in objects. Contrarily, ideas of secondary qualities did not resemble anything in the things themselves; the ideas did not encompass the physical basis of those qualities.[105] Heat, for example, was merely a type of motion conveyed to sense organs and relayed through the body. In no way did the idea (of heat) resemble its cause (the motion of insensible particles). Consequently, without a subject to experience heat, all that is left is the motion of particles; the sensation is gone.[106]

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[99] Locke, *Essay*, pp. 555-6.
[100] *Ibid.*, p. 556.
[101] *Ibid.*, p. 136.
[102] Jacovides, 'Locke's Distinctions between Primary and Secondary Qualities', pp. 116-18.
[103] Downing, 'The Status of Mechanism in Locke's *Essay*', pp. 390-1.
[104] Locke, *Essay*, p. 136.
[105] See McCann, 'Locke's Philosophy of Body', p. 64.
[106] Locke, *Essay*, pp. 137-8. However, as Ayers argues; unlike, say, colour – which, absent a seeing being, ceases to be a quality – heat remains operative. Fire would still melt a candle, for example, even if nothing existed to sense the heat. *Locke*, I, pp. 212-13.

Although all ideas had their origin in motion, not all ideas were real. '*Real Ideas*', according to Locke, 'have a Foundation in Nature; such as have a Conformity with the real Being, and Existence of Things, or with their Archetypes'.[107] These included all simple ideas, which were effects produced by powers in external things – the causal mechanism was constant, whether or not the idea resembled its cause.[108] Mixed modes were also real. Ideas like "courage" or "justice" were compounds made by the understanding; they had no reality outside the mind (from which they might deviate), and were therefore archetypical. On the other hand, ideas of imaginary substances were fantastical, not real. A centaur, for example, was a complex idea whose component ideas were not united in reality.[109] This distinction produced two categories of knowledge. For 'Where-ever we perceive the Agreement or Disagreement of any of our *Ideas* there is certain knowledge: and where-ever we are sure those *Ideas* agree with the reality of Things, there is certain real Knowledge'.[110]

Such were Locke's connections between knowledge, ideas and qualities. We can now turn to his application of these principles in theology, also found in the *Essay*. Not only did his arguments for God's existence rely on natural philosophical expositions of cognition, they also, in part, drew upon studies and perceptions of nature – forging a degree of disciplinary overlap between natural philosophy and theology. Note, however, that Locke was not claiming to have knowledge of God's nature. The nature of any substance was obscure and unknown because human faculties were too weak to detect real essences. Our knowledge of substances derived from their sensible qualities, and their corresponding simple ideas.[111] Consequently, the '*Idea* we have of the incomprehensible supreme Being' came about by combining simple ideas of ourselves (garnered by reflection) with 'our *Idea* of Infinity'.[112] Knowledge of divine *existence* was different, however. According to Locke, God's existence was so clear that, like self-evident mathematical proofs, 'There was never any rational Creature, that set himself sincerely to examine the truth of these Propositions, that could fail to assent to them'. Locke acknowledged that 'there are many Men, who having not applied their Thoughts that way, are ignorant both of the one and the other'.[113] But this simply meant that not

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[107] Locke, *Essay*, p. 372.
[108] Ayers, *Locke*, I, p. 40.
[109] Locke, *Essay*, pp. 372-4.
[110] *Ibid.*, p. 573.
[111] See Ayers, 'The Foundation of Knowledge and the Logic of Substance', pp. 56-57; Ayers, *Locke*, I, pp. 36-7.
[112] Locke, *Essay*, p. 314.
[113] *Ibid.*, p. 95.

everybody was approaching the task properly, for every human was natively capable of knowing God.

This raises an obvious point of difference between natural philosophy and theology. The former was unable to produce certain knowledge because man's senses had no access to real essences and could not discern their connection with nominal essences. The latter, on the other hand, yielded knowledge. In order to prove this, Locke had to rationally connect the idea of God's existence to ideas that man knew were true and real. Unlike self-knowledge, which was intuitive, or knowledge of external bodies, which was sensitive, knowledge of God was demonstrative.[114] Still, determining the type of arguments used by Locke has been a subject of scholarly dispute. For Rogers, it was *a priori* demonstrations from knowledge of oneself.[115] For Richard Ashcraft it was *a posteriori* demonstrations from nature.[116] In fact, it is clear that Locke used both.

Towards the end of the *Essay*, Locke described how certainty in one's existence could lead to knowledge of the existence of an all-powerful intelligent being. According to Locke, self-knowledge was intuitive, and based on real ideas. Anyone who claimed not to perceive the agreement between the idea of self and the idea of existence was invited to enjoy their non-existence until 'Hunger, or some other Pain convince him of the contrary'. This truth was connected to various others. First, Locke said, it was also known intuitively that being or existence was not uncaused: it did not emerge from nothing. Therefore, 'it is an evident demonstration, that from Eternity there has been something; Since what was not from Eternity [e.g. man], had a Beginning; and what had a Beginning, must be produced by something else'.[117] In addition, effects received their nature from their causes, and never exceeded them in power. Consequently, the cause of the intelligence in the world must itself be supremely intelligent. Finally, as 'it is impossible to conceive, that ever bare incogitative Matter should produce a thinking intelligent Being', it follows that 'the first eternal Being cannot be Matter'.[118] In sum, 'from the Consideration of our selves, and what we infallibly find in our own Constitutions, our Reason leads us to the Knowledge of this certain and evident Truth,

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114 *Ibid*., pp. 552-3.
115 G.A.J. Rogers, 'Nature, Man and God in the English Enlightenment', in *Locke's Enlightenment: Aspects of the Origin, Nature and Impact of his Philosophy*, (Hildesheim, 1998), 173-89, p. 183.
116 Ashcraft, 'Faith and Knowledge in Locke's Philosophy', p. 203.
117 Locke, *Essay*, p. 620. The problem with this argument is that the premise, 'something has existed from eternity' could mean either 'there has never been a time when nothing existed', or 'a particular thing has always existed'. Locke's argument relies on the second, stronger claim, but is probably only entitled to the first. See Jolley, 'Locke on Faith and Reason', p. 439.
118 Locke, *Essay*, pp. 623, 624.

That *there is an eternal, most powerful, and most knowing Being*'.[119] The name for this being, Locke said, was God.

God's existence was also proven by arguments from design. Here, Locke drew upon a long natural theological tradition, given particular contemporary prominence by divines like Henry More. As discussed in the previous chapter, in the 1650s and 1660s, More published several works of natural theology – *An Antidote*, the *Immortality*, and *Mystery of Godliness* – which all claimed the purposefulness of nature was indicative of a guiding, organising principle, assumed to be God, or God's instrument. Locke read More, and knew More's mentor Whichcote.[120] Unsurprisingly, then, his *Essays on the Law of Nature* (1663-1664) contains natural theological arguments similar to More's. Knowledge of God, like knowledge of anything, had a sensory origin.[121] The senses, Locke said, perceived 'solid bodies and their conditions'. Further, these 'perceptible objects' and the 'qualities presented to the senses…can all in some way be traced back to motion'. This awareness resulted in an appreciation 'that this visible world is constructed with wonderful art and regularity'. From these observations, the mind 'proceeds to an inquiry into their origin, to find out what was the cause, and who the maker, of such an excellent work'. Locke assumed the world 'could not have come together casually and by chance into so regular and in every respect so perfect and ingeniously prepared a structure'. Hence, 'it is undoubtedly inferred that there must be a powerful and wise creator of all these things'.[122] Locke recycled this argument in the *Essay*, claiming that, 'by a due Contemplation of Causes and Effects…it is necessary to admit some Eternal Being'.[123] He also held that 'the visible marks of extraordinary Wisdom and Power, appear so plainly in all the Works of the Creation, that a rational Creature, who will but seriously reflect on them, cannot miss the discovery of a *Deity*'.[124] Locke went so far as to say that studying nature revealed more about God than about nature itself.[125]

Locke alternated between the *a priori* and design arguments to produce a rational foundation for God's existence. Both arguments produced knowledge by connecting disparate ideas via intermediary ones. However, the *a posteriori* argument is of greater interest for our purposes because it highlights the close connection between natural philosophy and theology. The design argument began by reflecting on perceptible, i.e.

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[119] *Ibid*., p. 621.
[120] See Marshall, 'John Locke and Latitudinarianism', p. 253.
[121] See Ayers, 'The Foundation of Knowledge and the Logic of Substance', pp. 54-5.
[122] Locke, *Political Essays*, pp. 102-3.
[123] Locke, *Essay*, p. 221.
[124] *Ibid*., p. 89.
[125] *Ibid*., p. 302.

material, objects of nature, and ended by inferring divine workmanship. It thus comprised natural philosophical premises – studying natural objects through sensory observation – and a theistic conclusion – that God existed. This brand of natural theology drew upon the subject matter and methods of natural philosophy, and, from this shared disciplinary foundation, made existential claims about God. Turning this arrangement on its head, one could say that natural philosophy gave rise to, or formed the basis of, theological principles.

In the *Essay*, Locke placed great emphasis on the efficacy and necessity of these natural theological arguments. In fact, their value to religious belief and theological contemplation exceeded the value of scripture. For:

> 'Though every thing said in the Text [scripture] be infallibly true, yet the Reader may be, nay cannot chuse but be very fallible in the understanding of it. Nor is it to be wondered, that the Will of GOD, when cloathed in Words, should be liable to that doubt and uncertainty, which unavoidably attends that sort of Conveyance…And we ought to magnify his Goodness, that he hath spread before all the World, such legible Characters of his Works and Providence, and given all Mankind so sufficient a light of Reason, that they to whom this written Word never came, could not (when-ever they set themselves to search) either doubt of the Being of a GOD, or of the Obedience due to Him. Since then the Precepts of Natural Religion are plain, and very intelligible to all Mankind, and seldom come to be controverted; and other revealed Truths, which are conveyed to us by Books and Languages, are liable to the common and natural obscurities and difficulties incident to Words, methinks it would become us to be more careful and diligent in observing the former, and less magisterial, positive, and imperious, in imposing our own sense and interpretations of the latter'.[126]

These remarks end with a polemical swipe at religious dogmatists, unjustly imposing their scriptural interpretations on others. But beneath, or within, the polemic, Locke was making a point about religious knowledge, consistent with his broader epistemological principles. The Bible only contained truth. Nevertheless, knowledge of scripture was hampered by the inevitable obscurities of language. As Hannah Dawson has demonstrated, the uncertainty and inconstancy of language was a major concern for Locke.[127] Words denote ideas, which means ideas can be communicated between people. However, because one word could denote various ideas, and different words could denote the same idea, it was not always clear which idea a word referred to. Imperfect linguistic denotation corrupted communication. Dawson does not stress this as a problem for exegesis, but, as the passage above shows, Locke clearly saw it as one. When

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[126] *Ibid*., pp. 489-90.
[127] See Dawson, *Locke, Language and Early Modern Philosophy*.

conveyed by language, God's unerring will was susceptible to misinterpretation. Fortunately, Locke argued, God's will was more clearly inscribed in nature.

The *Essay* is about the origins and effects of linguistic and ideational confusion. It therefore made sense for Locke to compare the Bible's liability to be misinterpreted with the apparent legibility of natural theology and its resistance to controversy and manipulation. So, in 1689, Locke regarded reason or natural philosophy as the surest route to God. However, all this changed in the 1690s. As the doctrine of predestination gained increasing prominence in English intellectual life, Locke moved to reassert the role of faith in salvation. He did this, in part, by downgrading the utility of natural theology.

IV. Biblical theology

The *Essay* made a strong case in favour of natural theology. Nevertheless, Locke's enthusiasm for such argumentation ebbed in subsequent works, principally *The Reasonableness*. This change occurred on two fronts. Not only did Locke question the likelihood of all individuals properly exercising their reason and thus arriving at particular theistic and moral conclusions, but he also began emphasising the salvific importance of biblical faith. This changed the disciplinary relationship between natural philosophy and theology in two ways. On the one hand, it severed their connection. Natural philosophy no longer gave rise to theology, for man was unable to reason from natural observations to the existence of God. On the other, it drew them closer together epistemologically. As theology prioritised belief over knowledge, it became more like natural philosophy, which was incapable of certain knowledge.

However, before charting this development, we must assess the significance of the *Two Treatises*. Although it was published the same year as the *Essay*, the *Two Treatises* was far more optimistic about the intelligibility of scripture. Referring to God's communication with man, Locke said, 'I do not think, he [God] speaks differently from them [i.e. men]'. For, if he did, God would 'lose his design in speaking'.[128] Consequently, nothing can 'Authorize us to understand Scripture contrary to the direct and plain meaning of the Words'.[129] By implication, and contrary to Locke's claims in the *Essay*, the meaning of important biblical passages was clear and obvious. This is odd. Nevertheless, the textual

[128] Locke 1960, p. 173.
[129] *Ibid*., p. 165.

history of the *Two Treatises* establishes a more nuanced picture. It was written long before the *Essay*'s publication – in response to the Exclusion crisis, 1679-1681.[130] Moreover, Locke began writing the second treatise, setting out his political theory, before he composed the first. The first treatise emerged when Locke added a refutation of Robert Filmer's (1588-1653) *Patriarcha* (1680), the doctrinal touchstone for anti-Exclusion Tories.[131] Both treatises frequently referred to scripture. But at no point in its composition was the *Two Treatises* intended as a work *about* hermeneutics. On the contrary, the finished text, and particularly the first treatise, had political and party political goals. Locke's remarks about exegesis must be understood in this polemical context. He set out to show that Filmer's reading of scripture was 'contrary to the direct and plain meaning of the Words'. But this was to strengthen his – Locke's – political thesis, not to make hermeneutical assertions. For example, he opposed Filmer's doctrine of inherited kingly dominion, which, according to Filmer, had a scriptural warrant, starting with Adam. In response, Locke posited a different reading of Genesis, in which God gifted the world to man-as-a-species, rather to Adam exclusively. In the end, then, Locke's disagreements with Filmer about the meaning of scripture corroborate Locke's claim, in the *Essay*, that exegetical problems were unavoidable.

Discounting the *Two Treatises*, the major shift in Locke's theological thinking came between the *Essay*, which championed natural theology, and the *Reasonableness*, which argued for biblical faith. In the latter, Locke said scripture was basically intelligible in its most important aspects. Thus, he concluded: 'This [Christianity] is a Religion suited to vulgar Capacities'.[132] His more sanguine view of exegesis did not reflect a change in epistemic concerns, (away, say, from the problems of language). Of course, discrepancies between the *Essay* and the *Reasonableness* owed, in part, to their different literary purposes.[133] The former was interested in the boundaries between knowledge and belief, certainty and probability; the latter hoped to establish the beliefs necessary for salvation, namely, that Jesus was the Messiah. But, ultimately, Locke adjusted his view of scripture

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130 See Peter Laslett, 'Introduction', in John Locke, *Two Treatises of Government*, edited with introduction by Peter Laslett, (Cambridge, 1960), 3-126, pp. 45-66. For a slightly revised textual history, see Mark Goldie, 'Introduction', in John Locke, *Two Treatises of Government*, edited by Mark Goldie, (London, 1994), xv-xliii, pp. xviii-xxi.

131 James Tully, 'The Framework of Natural Rights in Locke's Analysis of Property', in *An Approach to Political Philosophy: Locke in Contexts*, (Cambridge, 1993), 96-117, pp. 101-2; Goldie, 'Introduction', pp. xviii-xxi.

132 Locke, *Writings on Religion*, p. 209.

133 David Wootton argues that Locke's epistemology, political thought and theology all made different demands on, or had different implications for, his moral philosophy, which Locke was not able to reconcile. See David Wootton, 'John Locke: Socinian or Natural Law Theorist?', in James E. Crimmins (ed.), *Religion, Secularization and Political Thought: Thomas Hobbes to J.S. Mill*, (London, 1989), 39-67, pp. 59-63.

in order to position himself within various sectarian disputes that took place in England in the 1690s. He rejected the Presbyterian or Independent view that faith was unnecessary because salvation was predetermined. He likewise rejected the deistic dismissal of scriptural religion based on the supposed moral sufficiency of natural religion. Faith, Locke countered, *was* necessary for salvation, and for this reason, the biblical text was uniquely clear and intelligible. Crucially, though, Locke's argument (in the *Reasonableness*) in favour of Christian revelation, hinged on the assumption that natural theology (discussed in the *Essay*) was usually defective or unobtainable. In the *Reasonableness*, in other words, he doubted that theology could be effectively grounded on natural philosophy and/or rational deductions.

Locke accepted that, in conjunction with exegesis, nature might occasionally furnish theological insight. For 'The works of Nature shew his [God's] Wisdom and Power; But 'tis his peculiar Care of Mankind, most eminently discovered in his Promises to them [i.e. in scripture], that shews his Bounty and Goodness'.[134] But, overwhelmingly, the *Reasonableness* emphasised scriptural theology. According to Locke, '*The Law of Works*' – knowable by reason – 'is that Law, which requires perfect Obedience, without any remission or abatement', known as '*Righteousness*'.[135] Obedience guaranteed eternal life; failure resulted in damnation. This stringency, coupled with man's natural frailty, meant perfect obedience was virtually impossible. However, in this goodness, God sanctioned 'the *Law of Faith*', whereby 'Faith is allowed to supply the defect of full Obedience; and so the Believers are admitted to Life and Immortality as if they were Righteous'.[136] This faith, which 'distinguished Believers from Unbelievers', involved no more than assenting to the proposition '*That Jesus was the Messiah, the Son of the living God*'.[137] Thus, Locke aligned himself with clerics like Whichcote and Tillotson who also said perfect righteousness eluded most people, and that faith in Jesus was the only way to gain salvation.[138]

Ultimately, Locke sought to establish a link between faith and the Bible. The life and teachings of Jesus – which one assented to in order to guarantee salvation – were New Testament issues. Salvific belief, in other words, was derivable from scripture, not philosophy or reason. In fact, Locke argued, scriptural theology was a *compensation* for failed natural theology. '*Natural Religion*…was no where, that I know, taken care of by the

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134 Locke, *Writings on Religion*, p. 187.
135 *Ibid*., p. 98.
136 *Ibid*., p. 100.
137 *Ibid*., p. 102.
138 Marshall, 'John Locke and Latitudinarianism', pp. 258-9.

force of Natural Reason'.[139] Belief in Jesus was critical, because reason and philosophy were showing no signs of apprehending God, or understanding and following his moral law.

For Locke, the story of Jesus, and his presence in the world, had two major consequences. First, it provided widespread proof of God's existence. Although, Locke admitted, 'the Works of Nature, in every part of them, sufficiently Evidence a Deity'. The 'World made so little use of their Reason, that they saw him not'.[140] Moreover, although 'The Rational and thinking part of Mankind…when they sought after him, found the One, Supream, Invisible God…[reason] had never Authority enough to prevail on the Multitude'.[141] The abeyance of reason inhibited natural theology by retarding natural inquiries that might otherwise produce divine knowledge. It also undermined belief, which, according to Locke, ought to be rational.

When Locke noted these defects in the *Essay*, they were not considered common or widespread. This changed in the *Reasonableness*, as Locke suggested reason was consistently overwhelmed by passion or interest.[142] For example, love (of something other than truth) often induced the mind to believe something that lacked an adequate evidentiary basis.[143] A prominent strand of scholarship attributes this destabilisation of the mind to the Fall, noting that post-lapsarian man lacked the capacity to fully know or observe God's law.[144] Indeed, Peter Harrison argues that the various theories of knowledge and methodological innovations developed in the seventeenth century, but particularly those pioneered by experimental natural philosophers associated with the Royal Society, were all, variously, founded on particular doctrines of the Fall.[145] However, Locke's assessment of man's cognitive failings does not tally with Harrison's model. In the *Essays on the Laws of Nature*, Locke – who, several years later was elected to the Royal Society – said the Fall should 'not particularly concern philosophers'.[146] Further, when he

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139 Locke, *Writings on Religion*, p. 195.
140 *Ibid*., p. 191.
141 *Ibid*., p. 192. To some extent, this solves a puzzle in Locke, identified by Wootton, 'John Locke: Socinian or Natural Law Theorist?', p. 60. In the *Essay*, Locke said God and morality could be demonstrated by human reason. It therefore seems odd that, despite arguing in the *Reasonableness* that revelation was the best and most reliable repository of theological truths, in the editions of the *Essay* published after the *Reasonableness*, Locke did not remove or tone down the passages regarding the demonstrability of morality by reason. It is possible that Locke did not feel he needed to change the *Essay*, given that in the *Reasonableness* he acknowledged that a small number of people might still be able to reason to theological truth.
142 See Ayers, *Locke*, I, pp. 148-9.
143 Nicholas Woltershorff, *John Locke and the Ethics of Belief*, (Cambridge, 1996), pp. 101-5.
144 W.M. Spellman, *John Locke and the Problem of Depravity*, (Clarendon, 1998), p. 210.
145 Harrison, *The Fall of Man*.
146 John Locke, *Locke: Political Essays*, edited by Mark Goldie, (Cambridge, 1997), p. 97.

discussed the effects of the Fall in the *Reasonableness* – a work of theology – he spoke of the damage done to man's immortality, not his rational faculty.[147] Locke agreed that reason was misused or left idle. But he cited different causes. 'Sense and Lust', he said, 'blinded their minds in some; And a careless Inadvertency in others'. To make matters worse, 'the Priests every where, to secure their Empire…excluded *Reason* from having any thing to do with Religion'.[148] It was in, and because of, 'this state of Darkness and Error, in reference to the *True God*', that Jesus entered the world. According to Locke, it was 'the clear Revelation he brought with him', which 'dissipated this Darkness; [and] made *the One Invisible True God* known to the World'.[149]

The second consequence of Christ's coming was his exposition of moral conduct, and the establishment of moral obligations. These were theological matters – Locke's definition of theology in the *Conduct* included 'our Duty to him [God] and our fellow Creatures'.[150] But Locke's treatment of morality in the *Reasonableness* marked a departure from the *Essay*. Again, this can partly be explained by their respective agendas: the *Reasonableness* sought to establish a scriptural foundation for theology; the *Essay* was interested in the connections between ideas, words and knowledge. Ultimately, though, Locke's treatment of morality changed as he became less convinced that reason alone was able to arrive at moral truth. In the earlier work, Locke said morality was '*capable of Demonstration*, as well as Mathematicks: Since the precise real Essence of the Things moral Words stand for, may be perfectly known; and so the Congruity, or Incongruity of the Things themselves, be certainly discovered, in which consists perfect Knowledge'.[151] Morality was knowable in a way that substances were not. The connection between a substance's real and nominal essence was unknowable. However, like all mixed modes, moral ideas were 'the Workmanship of the Mind, and not referred to the real Existence of Things'.[152] The names of mixed modes therefore referred directly to an archetype – the ideas in one's mind – and not to an external (and unknowable) reality. Consequently, the nominal and real essences of moral concepts were the same. And because ethical ideas were 'all real Essences', it was possible to discover the 'connexion and agreement one with another…[and] be possessed of certain, real, and general Truths'.[153]

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147 Locke, *Writings on Religion*, pp. 91-5.
148 *Ibid*., p. 192.
149 *Ibid*., p. 193.
150 Locke, *Conduct*, p. 66.
151 Locke, *Essay*, p. 516.
152 *Ibid*., p. 436.
153 *Ibid*., p. 643.

In 1693, William Molyneux (1656-1698) wrote to Locke urging him to fulfil his promise of a demonstrable, *a priori* morality.[154] Locke never obliged him. In fact, he argued in the *Reasonableness*, 'tis too hard a task for unassisted Reason, to establish Morality in all its parts upon its true foundations'.[155] Catherine Wilson refuses to see this as a *volte-face*. Instead, she argues, the *Reasonableness* is merely evidence that Locke came to see moral knowledge as deriving from both the analysis of ideas *and* experiential and historical research.[156] That may be true, but Locke's pessimism about morality ran far deeper. 'Necessities, Passions, Vices, and mistaken Interests' ensured that man had 'never from unquestionable Principles, by clear deductions, made out an entire Body of the *Law of Nature*'.[157]And human faculties were now too underdeveloped or neglected to perform the task.[158] Locke said the 'trains of reasonings' involved in deducing morality, 'the greatest part of Mankind have neither leisure to weigh; nor, for want of Education and Use, skill to judge of'.[159] 'Philosophy', he lamented, 'seemed to have spent its strength', but people still lacked the 'leisure or capacity for Demonstration'. Thus, despite arguing in the *Essay* that natural theology was the clearest path to God and morality, in the *Reasonableness*, Locke claimed it was 'Hearing plain commands', which was 'the sure and only course to bring them to Obedience and Practice'.[160] Scripture was the key to morality, for the '*Law of Morality*, Jesus Christ hath given us in the New Testament'.[161] Locke became so committed to the moral force of the Bible that, in *Some Thoughts concerning Education*, he said morality could be taught, in its entirety, from scripture.[162]

Man's inability to demonstrate the existence of God or morality was a twinned failure. If man failed to establish the existence of God, he would also fail to deduce principles of morality – the same rational deficiency would derail both projects. There was also the question of morality's obligatory force. For Locke, obligation 'could not be, without a clear knowledge and acknowledgment of the Law-maker, and the great Rewards and Punishments, for those that would or would not obey him'.[163] Before the spread of the Gospel, natural theology was the only way to have knowledge of God, which, in turn, was the only way to make moral law obligatory. If or when reason and philosophy failed

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154 Wootton, 'John Locke: Socinian or Natural Law Theorist?', p. 42.
155 Locke, *Writings on Religion*, p. 195.
156 Catherine Wilson, 'The Moral Epistemology of Locke's *Essay*', in in Lex Newman (ed.), *The Cambridge Companion to Locke's "Essay Concerning Human Understanding"*, (Cambridge, 2007), 381-405, pp. 398-9.
157 Locke, *Writings on Religion*, p. 196.
158 See Dawson, *Locke, Language and Early Modern Philosophy*, pp. 283-4.
159 Locke, *Writings on Religion*, p. 195.
160 *Ibid*., p. 200.
161 *Ibid*., p. 198.
162 Locke, *Some Thoughts Concerning Education*, p. 239.
163 Locke, *Writings on Religion*, p. 199.

in this task, morality – even demonstrative morality – lost its obligatory force. The solution to this problem was scripture. For only 'The view of Heaven and Hell, will cast a slight upon the short pleasures and pains of this present state; and given attractions and encouragements to Virtue, which reason, and interest, and the Care of our selves, cannot but allow and prefer…And thus the Gospel of Jesus Christ has delivered it to us'.[164] In sum, moral behaviour was incentivised by scripture.[165]

The move from natural to biblical theology forced Locke to place theology on new cognitive foundations. Natural theology produced *knowledge* of God. But Locke cast doubt on man's ability to reason and acquire knowledge, and, in the *Reasonableness*, accepted that 'The greatest part cannot know, and therefore they must believe'.[166] In epistemic terms, this drew theology closer to natural philosophy, a discipline that also failed in certain knowledge. Locke's phraseology is also significant: many people 'cannot know' God, 'therefore' they believe. This implies that scriptural faith was a theological back-up or insurance policy, deployed following the collapse of natural theology. Those unable to establish knowledge of God and morality, either due to errant passions, or lack of time and education, must believe in Jesus if they wished to be saved. However, knowing and believing were distinct cognitive acts. And, Locke warned, anyone who makes 'Jesus Christ nothing but the Restorer and Preacher of pure Natural Religion' does 'violence to the whole tenor of the New Testament'.[167]

However, scriptural faith did not remain a theological back-up for long. Within a few years, Locke appeared happy to bypass the quest for theological knowledge, making faith the primary mode of theological understanding. In 1697, Edward Stillingfleet attacked the *Essay*'s account of substance, and its implications for the Trinity in particular.[168] Locke responded, and there followed a public correspondence. In Locke's *Reply to the Bishop of Worcester's Answer to his second Letter*, written three years after the *Reasonableness*, Locke argued that religious belief took precedence over religious knowledge. He said that:

> 'to suppose a divine revelation, it is not necessary that a man should know that there is such an intelligent being in the world: I say, know, i.e. from things that he does know, demonstratively deduce the proof of such a being: it is enough

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[164] *Ibid*., p. 204.
[165] See Dunn, *The Political Thought of John Locke*, pp. 191-2.
[166] Locke, *Writings on Religion*, p. 200.
[167] *Ibid*., p. 91.
[168] See Edwin McCann, 'Locke on Substance', in Lex Newman (ed.), *The Cambridge Companion to Locke's "Essay Concerning Human Understanding"*, (Cambridge, 2007), 157-91, pp. 170-1.

> for the receiving divine revelation, to believe, that there is such a being, without having by demonstration attained to the knowledge that there is a God. Every one that believes right, does not always reason exactly, especially in abstract metaphysical speculations: and if nobody can believe the Bible to be of divine revelation, but he that clearly comprehends the whole deduction, and sees the evidence of the demonstration, wherein the existence of an intelligent being, on whose will all other beings depend, is scientifically proved; there are, I fear, but few christians among illiterate people, to look no farther. He that believes there is a God, though he does no more than believe it, and has not attained to the certainty of knowledge, i.e. does not see the evident demonstration of it, had ground enough to admit of divine revelation'.[169]

Locke reiterated that faith was sufficient for theological practice. But unlike in the *Reasonableness*, he did not say faith was a compensation for failed knowledge. Christianity was now grounded in belief, and knowledge and natural theology were superfluous – for 'Every one that believes right, does not always reason exactly'. The significance of this is twofold. First, it shows that, for Locke, in the end, natural philosophy and rational calculations were not an adequate basis for theology. Instead, theology was founded on belief in God and scripture. And second, despite it being the highest science, theology did not (usually) admit of certain knowledge. This epistemic qualification is crucial. For, as the following sections will demonstrate, Locke's eventual understanding of the disciplinary relationship between natural philosophy and theology was shaped by the fact that neither discipline was capable of absolute certainty.

V. Reason and faith

Locke said natural philosophy was established by reason, theology (at least since the *Reasonableness*) by faith. Despite their differences, reason and faith were not entirely disunited: faith drew upon and was informed by reason. This guaranteed the compatibility of natural philosophy and theology. However, the content of revelation or theology was above reason, and theology existed where certain knowledge was unattainable. Theology, in other words, was probabilistic. But, importantly for Locke, it was the most secure type of probabilistic knowledge.

The differences between reason and faith were nevertheless pronounced: Locke described them as 'contradistinguished'.[170] Reason, he argued, was 'the discovery of the

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[169] John Locke, *Works of John Locke*, (12th edn., 9 vols., London, 1824), III, 191-498, pp. 290-1.
[170] Locke, *Essay*, p. 689.

Certainty or Probability of such Propositions or Truths, which the Mind arrives at by Deductions made from such *Ideas*, which it has got by the use of its natural Faculties'. '*Faith*, on the other side, is the Assent to any Proposition, not thus made out by the Deductions of Reason; but upon the Credit of the Proposer, as coming from GOD, in some extraordinary way of Communication. This way of discovering Truths to Men we call *Revelation*'.[171] In short, reason created knowledge by combining ideas, and faith assented to revelation or the testimony of others. Consequently, as Locke explained to Stillingfleet, although one could have great 'steadiness and assurance' in faith, the correct use of language 'appropriates certainty only to knowledge'.[172] The upshot was that knowledge could not impinge on or damage an article of faith, for 'knowledge, which was one act of the mind, did not at all concern faith, which was another act of the mind quite distinct from it'.[173] Knowledge and faith were discrete cognitive domains, with different epistemic criteria and limits. This separation meant that, even in the *Essay* – where Locke expressed confidence in the viability of natural theology – he understood that fundamentally 'the *Christian* Religion…'Tis from Revelation we have received it'.[174]

However, although reason was more obviously associated with knowledge – connecting and comparing ideas – it actually cut across, and governed, both knowledge and belief. Locke hinted at this unity by pointing to the closeness of reason and revelation. '*Reason*', he claimed:

> 'is natural *Revelation*, whereby the eternal Father of Light, and Fountain of all Knowledge communicates to Mankind that portion of Truth, which he has laid within the reach of their natural Faculties: *Revelation* is natural *Reason* enlarged by a new set of Discoveries communicated by GOD immediately, which *Reason* vouches the Truth of, by the Testimony and Proofs it gives, that they come from GOD. So that he that takes away *Reason*, to make way for *Revelation*, puts out the Light of both'.[175]

This passage somewhat broadens Locke's conception of reason. As contradistinguished from faith, reason was what deduced certain or probable truth from the association of ideas. However, more generally, reason referred to 'our natural Faculties', which, according to Locke, vouchsafed the truth of revelation.[176] In the *Essay*, Locke gave four examples of how both types of reason affected faith. The broad, natural-faculties-

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171 *Ibid*., p. 689.
172 Locke, *Works*, III, p. 281.
173 *Ibid*., p. 282.
174 Locke, *Essay*, p. 598.
175 *Ibid*., p. 698.
176 *Ibid*., p. 690.

understanding-of-reason was responsible for examining the grounds of faith, and establishing rational belief.[177] And, exerting a less direct influence, the narrow, basis-for-knowledge-understanding-of-reason established cognitive boundaries, clarifying faith's separation from knowledge. I will examine these instances in that order.

First, Locke described faith as 'a firm Assent of the Mind'. Therefore, 'He that believes, without having any Reason for believing…neither seeks Truth as he ought, nor pays the Obedience due to his Maker'. Assent 'cannot be afforded to any thing, but upon good Reason; and so cannot be opposite to it'.[178] In short, genuine or legitimate faith needed to invoke man's native reasoning faculty. This argument had a theological premise. God gifted man his natural faculties, and enjoined him to use them in the discovery of truth. Consequently, man had a duty to use reason judiciously. In fact, Locke maintained it was more important to use reason sincerely, than to reason to correct judgements. For 'he that makes use of the Light and Faculties GOD has given him, and seeks sincerely to discover Truth' discharges his duty as a rational creature, and even if 'he should miss Truth [i.e. assent to erroneous propositions], he will not miss the [God's] Reward of it.[179] Furthermore, anybody who assents to the truth by chance, without following reason, 'transgresses against his own Light, and misuses those Faculties'.[180]

This argument formed a major part of Locke's *A Letter Concerning Toleration*. Exiled in Holland and concerned about the accession of a Catholic, James II, to the English throne, Locke argued that sovereigns had neither the right, nor the ability, to coerce belief. This distinguished Locke from his latitudinarian colleagues, who favoured comprehension and a broad church, but denied outright toleration. According to Stillingfleet, plurality was dangerous because '*diversity of Sects…will be alwayes thought a plausible argument to draw Men to the* Popish pretences *of* Unity', and '*the allowed Sects will in probability grow more insolent*'.[181] Therefore, Tillotson argued, the magistrate must homogenise national religious sentiment: 'To countenance and support the true Religion, and to take care that the people be instructed in it, and that none be permitted to debauch and seduce men from it, properly belongs to the Civil Magistrate'.[182] However, for Locke, salvation was a personal issue with no bearing on the security of the

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[177] See Jolley, 'Locke on Faith and Reason', pp. 442-3.
[178] Locke, *Essay*, p. 687.
[179] *Ibid*., p. 688.
[180] *Ibid*., p. 688.
[181] Edward Stillingfleet, *The Unreasonableness of Separation: or An Impartial Account of the History, Nature, and Pleas of the Present Separation from the Communion of the Church of England*, (London, 1682), 'Preface', p. lxxx.
[182] John Tillotson, *The Protestant Religion Vindicated, from the charge of Singularity & Novelty*, (London, 1680), p. 9.

Commonwealth. As such, even dissenters who resisted comprehension should be tolerated.[183] The only essential Christian belief was that Jesus was the Christ, and 'Faith only, and inward Sincerity, are the things that procure acceptance with God'.[184] Coerced belief, regardless of its veracity, would not work. Salvific belief must be rational belief, for it was impossible to sincerely believe something disowned by one's reason or understanding.

The second way that reason affected faith was by validating scripture. Revelation was the source of faith. But in order to believe the contents of the Bible, one had to be persuaded that it was in fact the word of God. Crucially, it 'belongs to *Reason*, to judge of the Truth of its being a Revelation, and of the signification of the Words, wherein it is delivered'.[185] Consequently, 'the believing, or not believing that Proposition, or Book, to be of Divine Authority, can never be Matter of *Faith*, but Matter of Reason; and such, as I must come to an Assent to, only by the use of my Reason'.[186] Assenting to biblical truths was a rational act because assent was only granted when the man's faculties were assured that the source of revelation was divine.

Of course, this did not guarantee the rationality of biblical truths. '*Reason*', Locke said, 'must be our last Judge and Guide in every Thing', but 'I do not mean, that we must consult Reason, and examine whether a Proposition revealed from God can be made out by natural Principles, and if it cannot, that then we may reject it'.[187] In fact, turning to the ways that reason-as-knowledge effected faith, Locke said that when propositions were objects of knowledge *and* gifts from revelation, 'there is little need or use of *Revelation*, GOD having furnished us with natural, and surer means to arrive at the Knowledge of them'.[188] Faith was subordinate to knowledge because 'whatsoever Truth we come to the clear discovery of, from the Knowledge and Contemplation of our own *Ideas*, will always be certainer to use, than those which are conveyed to us by *Traditional Revelation*'.[189] (Traditional revelation was the biblical account of an original revelation, or a direct interaction with God). Belief in the divinity of revelation could never be as certain as the knowledge gleaned from the association of our own ideas. Thus, if knowledge and faith both pointed to the same thing, it made no sense to merely believe it.

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[183] Marshall, 'John Locke and Latitudinarianism', pp. 265-7.
[184] Locke, *A Letter Concerning Toleration*, p. 38.
[185] Locke, *Essay*, p. 694.
[186] *Ibid*., p. 693.
[187] *Ibid*., p. 704.
[188] *Ibid*., p. 690.
[189] *Ibid*., pp. 690-1.

However, Locke had one exception to the rule that knowledge effaces belief: his discussion of moral law in the *Reasonableness*. Reason disclosed fragments of the law, and, on occasion, Locke championed demonstrative morality. But, in general, he assumed reason was unlikely to deduce an entire system of morality, and consequently, scripture was called upon to provide moral instruction. Scriptural morality could and should be vouchsafed by reason. But, 'Tis no diminishing to Revelation, that Reason gives its Suffrage too to the Truths Revelation has discovered. But 'tis our mistake to think, that because Reason confirms them to us, we had the first certain knowledge of them from thence, and in that clear Evidence we now possess them'.[190] So, even if scriptural morality could be reformulated demonstratively, it remained a biblical truth.

The fourth part of the reason-faith dynamic stated that if faith contradicted knowledge, faith must be abandoned. 'We can never receive for a Truth any thing', Locke said, 'that is directly contrary to our clear and distinct Knowledge'.[191] To do so, would undercut the foundations of knowledge and undermine man's faculties. God, moreover, would not grant us the ability to acquire knowledge, and then require man to ingest knowledge that violated the basis of his knowing anything. Therefore, '*no Proposition can be received for Divine Revelation*, or obtain the Assent due to all such, *if it be contradictory to our clear intuitive Knowledge*'. For example, Locke rejected the doctrine of transubstantiation. The ideas of body and place agreed so clearly, he said, that the understanding ought never to assent to a proposition that held a body to be in two places simultaneously, even if 'it should pretend to the Authority of a divine *Revelation*'.[192] Of course, many people accepted the doctrine. But this was because when 'the *Idea* of Infallibility be inseparably join'd to any Person', namely, the Pope, the doctrine of 'one Body in two Places at once, shall unexamined be swallowed for a certain Truth, by an implicit Faith, when ever that imagin'd infallible Person dictates and demands assent without enquiry'.[193]

In theory, though, knowledge established what faith *could not be*. In other words, faith deferred to, and never contradicted, rational knowledge. For scholars like Ayers and Jolley, Locke therefore subordinated faith and curtailed the role of revelation.[194] However, this disregards the many ways Locke asserted and consolidated the importance of revelation or theology. It was true that, where certainty existed, faith had no place. But faith was not subsumed by knowledge; it was merely shaped by boundaries set by

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[190] Locke, *Writings on Religion*, p. 200.
[191] Locke, *Essay*, p. 692.
[192] *Ibid*., p. 692.
[193] *Ibid*., p. 400.
[194] Ayers, *Locke*, I, p. 121; Jolley, 'Locke on Faith and Reason', p. 444.

knowledge and reason. These boundaries were not hugely restricting. The knowledge ascertained by human faculties was partial because not everything about the world conformed to our limited cognitive capacities. '"Tis overvaluing our selves', Locke said, 'to reduce all to the narrow measure of our Capacities; and to conclude, all things impossible to be done, whose manner of doing exceeds our Comprehension. This is to make our Comprehension infinite, or GOD finite'.[195] It was in the areas beyond the scope of reason and knowledge that faith came into play. Locke said faith existed above reason: it pertained to those 'Propositions, whose Truth or Probability we cannot by Reason derive from those Principles' of ideational deduction.[196] Things 'beyond the Discovery of our natural Faculties, and above *Reason*, are, when revealed, *the proper Matter of Faith*…which *Reason* has, directly, nothing to do'.[197]

As well as holding sway over questions beyond the scope of reason, faith also had a determining influence over areas of probable knowledge. Probability was 'likeliness to be true…without certain Knowledge that it is so'.[198] If the mind failed to discern a clear dis/agreement between ideas, it could believe a proposition, depending on its probability. Probability was established by weighing up a propositions compatibility with one's own experience and knowledge, and/or its conveyance by large numbers of reliable, disinterested witnesses.[199] In cases such as these – and Locke recognised that 'most of the Propositions we think, reason, discourse, nay act upon, are such, as we cannot have undoubted Knowledge' – faith (potentially) had considerable influence.[200] '*Revelation*', he argued, 'where God has been pleased to give it, *must carry it, against the probable Conjectures of Reason*. Because the Mind, not being certain of the Truth of that it does not evidently know, but only yielding to the Probability that appears in it, is bound to give up its Assent to such a Testimony, which, it is satisfied, comes from one, who cannot err, and will not deceive'.[201] No matter how likely, a probable proposition carried some doubt. Thus, Locke argued, if a probable proposition conflicted with what reason vouched to be a divine dictate, the latter must override the former.

Faith and revelation therefore had a double mandate: to operate where reason could not deduce truth from ideas, and to govern probable knowledge. This theological

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195 Locke, *Essay*, p. 630.
196 *Ibid*., p. 687.
197 *Ibid*., p. 694.
198 *Ibid*., p. 655.
199 *Ibid*., pp. 655-6.
200 *Ibid*., p. 655.
201 *Ibid*., p. 694.

mandate impinged upon important natural philosophic topics, demonstrating that, for Locke, natural philosophy was, at least in part, governed by theology.

VI. Theology governing natural philosophy

In the *Conduct*, Locke described theology as the 'Comprehension of all other Knowledge'.[202] This notion clearly applied to natural theology, which used, and grew out of, natural philosophy. But theology-as-biblical-faith was also superior to natural philosophy because revelation had the authority to settle issues which reason was unable to answer with certainty.

It was a pedagogical commonplace to describe theology as the highest discipline. Before studying theology, one must complete the arts curriculum. For Locke, however, theology's status had a particular effect on the structure of his argumentation. Theology corrected and governed natural philosophy because, as a discipline, it was capable of greater certainty. In this section, I discuss two examples of this dynamic: the first, regarding the existence of spirits; the second, regarding the immateriality of spirit and thought. As these debates demonstrate, Locke used disciplines to order his thought and establish legitimate or viable claims about the world. Natural philosophy worked within limits set by man's rational understanding; theology then determined what reason was unsure of. The viability of a proposition was therefore contingent on disciplinary context.

Natural philosophy was probabilistic: it asserted likelihoods, not certainties. Like theology, or scriptural faith, it was therefore an object of belief. However, Locke said, in 'probable Propositions', the sort found in natural philosophy:

> 'an evident *Revelation* ought to determine our Assent even against Probability. For where the Principles of Reason have not evidenced a Proposition to be certainly true or false, there clear *Revelation*, as another Principle of Truth, and Ground of Assent, may determine; and so it may be Matter of *Faith*, and be also above *Reason*. Because *Reason*, in that particular Matter, being able to reach no higher than Probability, *Faith* gave the Determination, where *Reason* came short; and *Revelation* discovered on which side the Truth lay'.[203]

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[202] Locke, *Conduct*, p. 66.
[203] Locke, *Essay*, p. 695.

Once satisfied that revelation was authentic, the understanding accepted its content as divinely authored. This assurance was less secure than our certainty in knowledge – sensory, intuitive or demonstrative. But when knowledge was only probable, our (superior) assurance in the validity of the Bible ought to compel the understanding and settle uncertainties. In principle, then, theology could legitimately exercise control over all probable knowledge, including disciplines like natural philosophy.

The *Essay* provides two examples of this disciplinary relationship working in practice. The first concerned the existence of spirits, an example of faith ruling where reason had no way of determining the issue. In the final chapter, Locke said, 'Knowledge of Things…not only Matter, and Body, but Spirits also…[was called] *natural Philosophy*'.[204] Reflection furnished man with *ideas* of spirit – by observing the 'Operations of our own Minds…we are able to frame *the complex* Idea *of an immaterial Spirit*'.[205] However, this 'does not make us *know*, that any such Things do exist without us, or *that there are any finite Spirits*, or any other spiritual Beings, but the Eternal GOD'. This was because, 'our Senses not being able to discover them, we want the means of knowing their particular Existences'. Therefore, Locke concluded, 'concerning the Existence of finite Spirits…we must content our selves with the Evidence of Faith'.[206]

This granted theology a considerable role in natural philosophy. As discussed, in *Some thoughts concerning Education* Locke advised students to undertake scriptural study before engaging in natural inquiries. This, he argued, would ensure that matter and spirit were given equal weight in natural philosophy.[207] In the *Essay*, however, Locke went further, saying that scripture should actively intervene in natural philosophical inquiry. It was beyond man's sensory capacities to know if spirits existed. To settle the issue, we only had recourse to scripture. Natural philosophy, in this instance, relied entirely on biblical testimony. Theology, in other words, fleshed out our understanding of the world, left incomplete by reason and natural philosophy.

The second example of theology arbitrating in natural philosophy concerned the possibility of thinking matter. In this instance, faith discounted what reason held to be possible. At various points in the *Essay*, Locke wondered if matter, configured in a particular way, could acquire the power of thought. This idea was a logical consequence of his substance scepticism. The human faculties were incapable of accessing the real

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[204] *Ibid*., p. 720.
[205] *Ibid*., p. 305.
[206] *Ibid*., p. 637.
[207] Locke, *Some Thoughts Concerning Education*, p. 245.

essences of substances. This was as true of spiritual substances as it was for body. Thus, it was doubtful anybody had 'any *more, or clearer, primary* Ideas *belonging to Body, than they have belonging to immaterial Spirit*'.[208]

It was true that 'Sensation convinces us, that there are solid extended Substances; and Reflection, that there are thinking ones'. But 'the simple *Ideas* we receive from Sensation and Reflection, are the Boundaries of our Thoughts; beyond which, the Mind…is not able to advance one jot'. In other words, 'we are no more able to discover, wherein the *Ideas* belonging to Body consist, than those belonging to Spirit'. Some things are extended and some things think; but 'If we would enquire farther into their Nature, Causes, and Manner, we perceive not the Nature of Extension, clearer than we do of Thinking'.[209] Thus, the cohesion of bodies is 'incomprehensible', and motion by impulse 'is as obscure and unconceivable, as how our Minds move or stop our Bodies by Thought'.[210] In short, observing the qualities associated with each substance did not shed light on the nature of those qualities, nor the substances themselves.

The unknowability of real essences also made it impossible to know how or why particular substances related to particular qualities. Consequently, it was impossible to know if a quality related exclusively to a particular substance, or whether various substances exhibited the same quality. Thus, it was 'no harder to conceive how Thinking should exist without Matter, than how matter should think'.[211] Gottfried Leibniz read this as evidence that Locke was both a materialist and – because material souls must die with the body, only to be resurrected at the day of judgement – a mortalist too.[212] In a similar vein, some modern commentators argue that Locke was ambivalent towards, and quite possibly sympathetic to, materialist hypotheses.[213] These judgements are false. Locke was not endorsing materialism, nor claiming matter could think; he was making an argument about the scope of man's understanding. Namely, despite having 'clear and distinct *Ideas* in us of Thinking…[and] Solidity…whensoever we would proceed beyond these simple *Ideas*…and dive farther into the Nature of Things, we fall presently into Darkness and Obscurity'.[214] The essences of body and spirit were equally opaque.[215] Both substances' discernable qualities were therefore inexplicable, both in themselves, and in relation to

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[208] Locke, *Essay*, p. 306.
[209] *Ibid*., p. 312.
[210] *Ibid*., pp. 309, 311.
[211] *Ibid*., p. 314.
[212] See Marshall, 'Locke, Socinianism, "Socinianism", and Unitarianism', p. 158.
[213] See Wilson, 'The Limits of Mechanism in Locke', p. 145; Catherine Wilson, 'Managing Expectations: Locke on Moral Mediocrity', at the Royal Institute of Philosophy, Feb. 20th 2015.
[214] Locke, *Essay*, p. 314.
[215] *Ibid*., p. 313.

their respective essences. For Locke, these cognitive limitations meant it was impossible to make certain judgements about substances and their qualities. And, without an adequate explanation of either substance, it was not inconceivable that the qualities associated with one of them, might be present in the other.[216]

Later in the *Essay*, Locke added a theological dimension to this discussion, stressing God's omnipotence and freedom of action. 'It being impossible', he said:

> 'by the contemplation of our own *Ideas*, without revelation, to discover, whether Omnipotency has not given to some Systems of Matter fitly disposed, a power perceived and think, or else joined and fixed to Matter so disposed, a thinking immaterial Substance: It being, in respect of our Notions, not much more remote from our Comprehension to conceive, that GOD can, if he pleases, superadd to Matter a Faculty of Thinking, than that he should superadd to it another Substance, with a Faculty of Thinking; since we know not wherein Thinking consists, not to what sort of Substances the Almighty has been pleased to give that Power'.[217]

Again, the limitation of our ideas, and our consequent ignorance of substances, meant the compatibility of particular substances and particular qualities could not be ruled out. Furthermore, it was plausible that God could produce natural phenomena that confounded man's limited understanding of substance. The connection between our ideas of sensory qualities and the imperceptible motions in bodies that gave rise to them was incomprehensible. There was no obvious connection between a type of motion and the colour yellow; God merely annexed the latter (a sensation) to the former (a power). Likewise, the fact that man could not comprehend the idea of thinking matter was not grounds to assume God was incapable of fabricating such matter.[218] God's power dwarfed man's ability to understand. Anybody with 'the confidence to conclude, that Omnipotency it self, cannot give Perception and Thought to a Substance, which has the modification of Solidity' was therefore overstating their ability to know.[219]

Unfortunately, not all Locke's readers grasped the import of this argument. Locke had to remind Stillingfleet that he was not positing 'matter [as] a thinking thing, as thereby to question the being of a principle above matter and motion in the world'; rather, he was using the possibility of thinking matter as a way of affirming God's omnipotence. In fact,

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[216] This is not the only time Locke expresses an epistemic argument within an outlandish ontological proposition. For example, he talks about creatures living on Jupiter – 'that it is possible…no body can deny' – not to suggest that they exist, but to make a point about epistemic limitations. See *Ibid.*, p. 690.
[217] *Ibid.*, pp. 540-1.
[218] *Ibid.*, p. 541.
[219] *Ibid.*, p. 542.

he argued, it was impious to suggest the 'infinite omnipotent Creator' was incapable of infusing certain parcels of matter with thought.[220] Locke's underlying point was epistemological, not ontological. Based on the information contained in our ideas, one could not rule out the possibility of thinking matter. This was not an ontological assertion, but an observation about the limitations of man's faculties, and the restrictions placed upon knowledge. Consider Locke's remark in the *Essay* about the soul's immateriality: 'I say not this [that matter might be made to think], that I would any way lessen the belief of the Soul's Immateriality: I am not here speaking of Probability, but Knowledge'.[221] The soul's immateriality could not be *known* because man lacked the ideas necessary to produce knowledge. But one could – and Locke did – *believe* that spirit or the soul were immaterial, on the basis of (very high) probability.[222]

This returns us to the issue of theology governing natural philosophy. Locke was sure the soul was immaterial. However, his assurance did not derive from his faculties, which conceded the possibility of material thought, but rather from theology or revelation. 'What we hope to know of separate Spirits in this World', he said, 'we must, I think, expect only from Revelation'.[223] Advocating the importance of non-material explanations of natural phenomena in *Some Thoughts concerning Education*, Locke claimed that 'Notions of Spirits and their Power', which were 'beyond bare Matter and its Motion', were 'deliver'd in the Bible'.[224] Divine testimony therefore allowed Locke to assert in the *Essay* that 'the more probable Opinion is, that this consciousness is annexed to, and the Affection of one individual immaterial substance'.[225] Actually, he went further, claiming that matter was 'evidently in its own nature void of sense and thought', and that 'the thinking Substance in Man must be necessarily suppos'd immaterial'.[226] Whatever the nature of Locke's assurance, the point is that his ability to determine the issue with confidence owed to the weight, on one side, of theological testimony.[227] In natural philosophic terms, '*a solid extended Substance,* [was] *as hard to be conceived, as a thinking immaterial one*'.[228] Consequently, philosophical discourse conceded the possibility of thinking matter. It fell to revelation to settle what reason and natural philosophy could

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[220] Locke, *Works*, III, p. 294.
[221] Locke, *Essay*, p. 541.
[222] Rogers, 'John Locke: Conservative Radical', p. 111.
[223] Locke, *Essay*, p. 647.
[224] Locke, *Some Thoughts Concerning Education*, p. 247.
[225] Locke, *Essay*, p. 345.
[226] *Ibid*., pp. 541, 344.
[227] Not very convincingly, Locke also said that God's immateriality – known demonstratively – was a reason to believe that finite thinking substances were probably immaterial. See Ayers, *Locke*, II, p. 46.
[228] Locke, *Essay*, p. 310.

not. Therefore, when it came to establishing the immateriality of spirit, theology guided and, if necessary, corrected natural philosophy.

However, although theology had the right to govern natural philosophy, it only exercised that right regarding issues broached in scripture, like spirit. As such, theology could not, and would not, constantly, or even regularly, dictate the outcomes of natural philosophical questions. Neither, moreover, did Locke regard natural philosophy as unimportant, or without value. On the contrary, in *Some Thoughts concerning Education*, he said he 'would not deterr any one from the study of Nature, [just] because all the Knoweldge we have, or possibly can have of it, cannot be brought into a Science'.[229] In good Baconian fashion, he claimed there were 'very many things in it that are convenient and necessary…And a great many other, that will abundantly reward the Pains of the Curious with Delight and Advantage'.[230] Lending support to Anstey's view that Locke was an experimentalist before he was a corpuscularian or a mechanist[231], Locke held that the advantages of natural philosophy were 'rather to be found amongst such Writers, as have imploy'd themselves in making rational Experiments and Observations, than in starting barely speculative Systems'.[232]

Furthermore, he argued, 'Systems of *Natural Philosophy*…are to be read, more to know the *Hypotheses*, and to understand the Terms and Ways of Talking of the several Sects, than with hopes to gain thereby a comprehensive, scientifical, and satisfactory Knowledge of the Works of Nature'.[233] Natural philosophical systems were flawed inasmuch as they pretended a comprehension and certainty unattainable by man's faculties. Natural knowledge could not be demonstrative, and therefore it was not systematic. Hypotheses were useful for stimulating and directing the collection of empirical data, which produced natural histories.[234] But theories of nature could only ever track our limited experiences. Consequently, when he spoke about metaphysical systems, Locke was cautious, claiming that 'the Modern *Corpuscularians* talk, in most Things, more intelligibly than the *Peripateticks*'.[235] This echoed his more circumspect remarks in the *Essay*. 'The corpuscularian Hypothesis', he said, goes 'farthest in an intelligible Explication of the Qualities of Bodies', though 'the Weakness of human Understanding is scarce able to substitute another'. Corpuscular matter theory provided the most

[229] Locke, *Some Thoughts Concerning Education*, p. 248.
[230] *Ibid.*
[231] Anstey, *John Locke and Natural Philosophy*.
[232] Locke, *Some Thoughts Concerning Education*, p. 248.
[233] *Ibid.*, p. 247.
[234] See Anstey 2003.
[235] Locke, *Some Thoughts Concerning Education*, p. 247.

sensible account of bodies, but until we know 'what Qualities and Powers of Bodies have a *necessary Connexion or Repugnancy* one with another', it remained merely a best guess.[236]

VII. Conclusion

In keeping with virtually all his peers, Locke was anxious to ensure natural philosophy was compatible with basic religious tenets or conceptual assumptions. He was therefore sceptical of out-and-out mechanism or corpuscularianism, (especially after the publication of Isaac Newton's *Principia* in 1687).[237] Not only did divine providence, or superaddition, underpin gravity, it also mediated the relationship between primary and secondary qualities, and the connection between thought and motion.[238]

Within this general framework, natural philosophy and theology had a complex and shifting disciplinary relationship. In the *Essay* (1689), Locke argued that natural philosophical inquiries yielded theological conclusions. This meant both disciplines studied God and substance, and proceeded by natural observation. These conceptual and methodological overlaps were the foundations of natural theology. However, in the 1690s, Locke reconceptualised theology, and reconstituted its disciplinary relationship with natural philosophy. Responding to English debates about predestination, and deistic claims against revealed religion, Locke said salvation required faith and scripture. Consequently, in the *Reasonableness* (1695), he downplayed the importance of natural theology, and argued that Christianity hinged on biblical faith in Jesus. Jesus' divinity was not proved or suggested by natural inquiries, it was simply believed as a biblical truth. Theology, therefore, was detached from natural philosophy.

Although theology was no longer grounded in natural philosophy, it still had the authority to govern it. This was because articles of faith were known with more certainty than natural philosophical propositions. The real essences of substances were unknowable. So, the connection between, and explanation for, a substance's inner constitution and its recurring observable qualities was a mystery. It was therefore impossible to acquire demonstrative knowledge of substances, and natural philosophy

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[236] Locke, *Essay*, pp. 547-8.
[237] Locke, *Works*, III, pp. 467-8. Still, in the 'Epitome' of his *Essay* (written 1683-84), Locke said motion by impulse was a question of personal conception. This partial scepticism of impulse-as-the-exclusive-means-of-motion implies that Newton (who published later, in 1687), was not the only influence on Locke's natural philosophic thinking. See James Hill and J.R. Milton, 'The Epitome (*Abrégé*) of Locke's *Essay*', in Peter R. Anstey (ed.), *The Philosophy of John Locke: New Perspectives*, (London, 2003), 3-25, p. 20.
[238] See McCann, 'Locke's Philosophy of Body', pp. 73-5.

dealt only in probabilities. Biblical faith also lacked certainty, as belief was less certain than knowledge. But the authenticity of the Bible was more evident to reason than claims about nature. Therefore, Locke argued, the content of the Bible should be believed more willingly than propositions about nature. In short, theological truths took precedence over – i.e. could correct or overrule – philosophical probabilities, or issues for which knowledge was lacking. For example, theology made the final judgement on the existence of spirit, and the substantial origins of thought.

The relationship between natural philosophy and theology reveals much about Locke's conceptualisation of disciplines. Disciplines were more than a means of parcelling subjects and concepts into appropriate bundles. They also enabled Locke to situate knowledge on scales of certitude and intelligibility. By reflecting the scope and limits of human understanding in different areas of learning, disciplines defined the structure and presentation of thought and argument. Thus, natural philosophy's subordination to theology was not due to the latter's lofty subject matter. After all, 'God…Angels, [and] Spirits' also fell within the purview of natural philosophy.[239] Rather, both disciplines were ranked by epistemic credibility: theology being placed higher. The inner structures of nature were opaque to man. Contrarily, important theological truths were easy graspable – disclosed by either basic ratiocination (the *Essay*), or scriptural dogma (the *Reasonableness*). When it came to understanding the fundamentals of each discipline, the mind was simply more suited to theology than natural philosophy.

Locke therefore demonstrates that, at the start of the eighteenth century, theology was still the dominant, most authoritative discipline. Arguably, however, in relative terms, its status was reduced. Not only did Locke cast doubt on the viability of theological *knowledge*, he also construed biblical faith as merely less uncertain than natural philosophy.

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[239] Locke, *Essay*, p. 720.

Conclusion

In the medieval scholastic tradition, theology was the pinnacle of learning. As one of three graduate subjects, it was the most prestigious university discipline, and an obvious and respectable route to employment. Moreover, it engaged the most important subjects – the divine and the spiritual. Natural philosophy inquired into the constitutions, causes and effects of natural phenomena – usually, though not always, construed as material substances. It could be, and was, studied in its own right. But its place on the arts course meant that – at universities, at least – it was considered a propaedeutic for higher subjects. In particular, natural philosophy was used to explicate, or expand upon, theological doctrine, which, in turn, set conceptual parameters for natural philosophy.

Both disciplines underwent changes in the seventeenth century. Theology was ultimately concerned with knowledge of God. But the relationship between types of religious writing – e.g. ecclesiology, church governance, and sectarian polemic – was constantly changing. At the same time, natural philosophy became increasingly corpuscular and mechanistic. Nevertheless, the hierarchy between the disciplines remained relatively undisturbed. The case studies in this thesis had varied professional and institutional commitments, and represent dissimilar views on philosophy, theology and religion. Clerics like Thomas White and Henry More predictably asserted the pre-eminence of theology, and the instrumentality of natural philosophy to higher subjects. But even John Locke, who avoided taking holy orders, and was famed for his philosophical treatises on the understanding and civil government, respected theology's place at the top of the disciplinary pile. For the most part, then, judgements about disciplinary hierarchy transcended intellectual orientation. Therefore, the status of theology, and its relationship to natural philosophy, or vice versa, was not determined by sectarian interest – religious or philosophical.

It was widely assumed that natural philosophy and theology promoted, informed, or enforced one another. Francis Bacon counselled against their admixture, and Thomas Hobbes mandated a very strict separation. Nevertheless, each case study – Bacon included – promoted natural theology: endorsing or describing instances of rational and

natural philosophical inquiry leading to theological understanding. This says something about disciplinary boundaries. Strict and absolute boundaries – such as Hobbes's – prohibited theological inferences being made from natural philosophical observations and propositions. As Hobbes famously remarked, 'we understand nothing of *what he* [God] *is*, but only *that he is*'.[1] However, natural theology – formed by reasoning and/or observing nature – occurred at the disciplinary intersection between natural philosophy and theology proper. Drawing attention to the profusion of seventeenth-century natural theology, this thesis demonstrates that, in the majority of cases, the disciplinary boundary between natural philosophy and theology was porous and flexible.

As well facilitating natural theology, this type of boundary affected the basic functioning of both disciplines, and allowed each to influence the other. White provides perhaps the best example of theology's reliance on natural philosophy. For him, elements of the latter (method, conceptual glosses etc.) were responsible for clarifying, qualifying and developing theological doctrine. But porous boundaries also worked the other way. Locke, for instance, said theological or scriptural accounts of spirit should govern and correct natural philosophical inquiries struggling to apprehend incorporeality.

Thus, although the generic, structural relationship between the two disciplines was broadly agreed upon, there was no consensus about the exact role played by each, or the type of influence they exerted on one another. These disagreements were a product of the looseness and changeability of disciplines. Disciplines contained bodies of knowledge and doctrine, but they were composed of, and constituted by, many other, disparate elements. Not only were they underpinned by particular methods and conceptual preoccupations; they also invoked a multitude of cognitive processes and apparatuses; and admitted of varying degrees of certitude and belief – resulting in different categories of knowledge or opinion. Moreover, authors could emphasise or combine the different elements of disciplines as they saw fit. Therefore, within loose but usually consensual parameters, different people constituted the same discipline in different ways. Disciplines were capable of so much variety that, despite an established hierarchy, the details of disciplinary relationships were complex and varied.

Natural philosophy and theology could never, or only very rarely, be described as straightforwardly connected or separate. Like many early modern disciplines, they related to one another on a number of levels simultaneously. They might derive from the same source material, but focus on different subject matter. Or they might operate by different

[1] Hobbes, *Leviathan*, p. 271.

methods, but interrogate the same ideas and concepts. In sum, they could both pull together, creating areas of overlap, and pull apart, courtesy of particular incompatibilities.

Bacon associated each discipline with particular (and incommensurable) cognitive processes, subject matters, and methods; and forbade their admixture. However, he endorsed natural theology, and consented to the extraction of philosophical premises from theology, via mythopoetics. For White, natural philosophy and theology were founded on reason and faith respectively. Nevertheless, to establish theological doctrine, articles of faith were philosophically or syllogistically glossed. Both disciplines therefore relied on the accuracy and effectiveness of language. More said philosophical and theological knowledge had originally been united in a single cabbalistic textual tradition. His philosophy was informed and hemmed in by the (theological) doctrines of necessitarianism and Origenism. Yet the truth of theological doctrine was uncertain, and thus philosophy was needed to defend it. Finally, Locke argued that studying nature offered clearer and more certain truths about God than about nature itself. However, he later reconstituted theology as a faith-based discipline. In this guise, theology governed natural philosophy, but did not spring from natural inquiries.

These studies demonstrate that, in seventeenth-century England, natural philosophy and theology were in flux, and that their disciplinary relationship was complex, entailing degrees of overlap and alienation. Primarily, natural philosophy and theology investigated the nature and constitution of the world, and, together, determined the relationship between its constituent parts – natural and divine. However, they also reflected the scope of man's cognitive faculties, establishing which bits of the world were knowable, and outlining the grounds for, and appropriate degrees of, certainty and belief. Thus, both disciplines, and their relationship with one another, contributed to broad discussions about, truth, certainty and opinion. This, in turn, established normative guidelines. To some extent, the rightness or wrongness of belief and behaviour was determined by particular definitions of, and relationship between, natural philosophy and theology. As such, man's place in the world – his relationship with nature, God and his fellow man – was triangulated through these disciplines.

The intermingling of natural philosophy and theology, and, further, the profusion of natural theological writing, shows that the seventeenth century bore witness to the early stages of what is now called "interdisciplinarity". Sharing doctrine, method, or source material, each discipline operated in keeping with, and in due consideration of, the other. In many cases, it was said they explicated and promoted the same or similar ends – the

existence of God, his attributes and laws. Even when their origins, remits and conceptual preoccupations were not considered the same, they were thought to be related or complementary.

These specific assumptions about natural philosophy and theology were subject to greater critical scrutiny in the eighteenth century. For example, in David Hume's *Dialogues Concerning Natural Religion* (1779), the character Philo remarks that:

> 'To say that all this order in animals and vegetables proceeds ultimately from design is begging the question; nor can that great point be ascertained otherwise than by proving, *a priori*, both that order is, from nature, inseparably attached to thought, and that it can never of itself or from original unknown principles belong to matter'.[2]

This undercuts a major premise of the design argument for God's existence, found variously in Bacon, More and Locke. It also reiterates Locke's scepticism about the relationship between thought and substance, without falling back on his biblical assurance that thought was annexed to spirit.

However, this does not change the fact that disciplines are useful tools for assessing intellectual change. In fact, it demonstrates how important and necessary disciplines are to the way we create knowledge and understand the world. In the eighteenth century, compared to the seventeenth, it became less tenable to assert that natural philosophical observations regarding the orderliness of nature supported, or led to, providential claims about creation. As the logical inference from one discipline (natural philosophy) to another (theology) was challenged or undermined, the boundary between them was strengthened or widened. In turn, this reduced the range of things one could say about certain (theological) subjects. Thus, when the scope of a discipline or disciplines changes, our understanding of the world and ourselves changes also.

This is as true now as it was in the early modern period. Knowledge is constituted through, and in, disciplines. "Scientific" knowledge, in particular, is characterised by exponential disciplinary and sub-disciplinary fragmentation.[3] Modern scientific disciplines are more specialist than their seventeenth-century counterparts. However, in both cases, the content of a discipline, and its relationship with others, established the nature and limits of knowledge.

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[2] David Hume, *Dialogues Concerning Natural Religion, with Of the Immortality of the Soul, Of Suicides, Of Miracles*, edited and with introduction by Richard H. Popkin, (Hackett, 1998), pp. 46-7.
[3] Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science*, (Cambridge, 1998), pp. 67-73.

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