

Foreword:

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**From Experimental Natural Philosophy to Natural Religion:  
Action and Contemplation in the Early Royal Society**

Abstract:

In this paper, I wish to explore the ways in which the project of the Royal Society supports the transformation of religion into a practical and reasonable activity that essentially consists in a kind of natural religion, wherein we focus on what can be known about God and our duties through the natural light, understood in terms of an experimental approach to nature. More precisely, I will argue that the natural religion supported by figures in and around the Royal Society subverts the traditional hierarchy between contemplation and action found in the medieval period by subsuming contemplation into action – the fruit of which is a concept of religion that is above all practical. In the first section of this paper, I consider the way in which the ideal of religious contemplation is viewed differently between the Royal Society and earlier medieval perspectives that value speculative theology. I argue that figures in the Royal Society invert the traditional hierarchy found in the medieval period between the *vita activa* and the *vita contemplativa*. Instead of seeing action as dispositive and subservient to contemplation, experimental philosophers understand contemplation as an ultimately practical activity oriented toward bettering our condition on this Earth. In the second section of the paper, I show that the proper contemplation of nature in this view yields evidence of teleological design: we see a world of creatures governed by commodious laws and equipped to provide for themselves through industrious activity. Contemplation of nature, then, ultimately has a practical orientation insofar as recognition of divine design in nature is intended to strengthen the conviction that God too has designed human nature for practical ends.

In the third section of the paper, I argue that this serves to yield a ‘de-confessionalized’ conception of religion in which religious knowledge primarily consists in a minimal set of propositions about the world and the divine nature, all of which were verified by experience and oriented toward promoting ethical behaviour. Religion, in this sense, is essentially practical and has no place for contemplation as an end in itself.

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### Introduction:

Anglican and Reformed theological writings in the seventeenth and eighteenth centuries have a strong tendency to emphasize the idea that true religion is both practical and reasonable. Indeed, titles like – *A Practical Catechism, The Whole Duty of Man*, ‘The Agreement of Reason and Religion’, *Theologia Rationalis, The Reasonableness of Christianity* – speak to this fact. At the same time, we also see a parallel movement away from speculative approaches to natural philosophy. Indeed, the distinction between the speculative and the experimental – and the superiority of the latter over the former in the mind of natural philosophers in the early Royal Society – is of fundamental importance for understanding the development of scientific methodology in the early modern England.<sup>1</sup> That these developments are contemporaneous is unsurprising given that many of the clerics and other authors advancing a practical and reasonable religion were also members of the Royal Society or closely associated with it. Indeed, one of the major goals of many in the Royal Society was the advancement of physico-theology, which holds that the practice of natural philosophy and religion are mutually informing endeavours and that these two disciplines represent an integrated enterprise. The implication of this is that those who practice true religion will be better natural philosophers, and vice-versa.<sup>2</sup>

In this paper, I wish to explore the ways in which the project of theological writers within the ambit of the Royal Society supports the transformation of religion into a practical and reasonable activity that essentially consists in a kind of natural religion, wherein we focus on what can be known about God and our duties through the natural light, understood in terms of an experimental approach to nature. More precisely, I will argue that the natural religion supported

by figures in and around the Royal Society subverts the traditional hierarchy between contemplation and action found in the medieval period by subsuming contemplation into action – the fruit of which is a concept of religion that is above all practical. In the first section of this paper, I consider the way in which the ideal of religious contemplation is viewed differently between theological writers broadly associated with the Royal Society and earlier medieval perspectives that value speculative theology. I argue that figures in and around the Royal Society invert the traditional hierarchy found in the medieval period between the *vita activa* and the *vita contemplativa*. Instead of seeing action as dispositive and subservient to contemplation, experimental philosophers understand contemplation as an ultimately practical activity oriented toward bettering our condition on this Earth. In the second section of the paper, I show that the proper contemplation of nature in this view yields evidence of teleological design: we see a world of creatures governed by commodious laws and equipped to provide for themselves through industrious activity. Contemplation of nature, then, ultimately has a practical orientation insofar as recognition of divine design in nature is intended to strengthen the conviction that God too has designed human nature for practical ends. In the third section of the paper, I argue that this serves to yield a ‘de-confessionalized’ conception of religion in which religious knowledge primarily consists in a minimal set of propositions about the world and the divine nature, all of which were verified by experience and oriented toward promoting ethical behaviour. Religion, in this sense, is essentially practical and has no place for contemplation as an end in itself.

### I: The Inversion of the Hierarchy Between Contemplation and Action

The Gospel of Luke narrates a brief episode in which Jesus is hosted at the home of two sisters, Mary and Martha. Martha busily concerns herself with the necessities of hosting and becomes upset with Mary for spending her time listening to Jesus. Martha complains to Jesus, but Jesus tells her that Mary has chosen the better course of action. In the *Secunda Secundae* of the *Summa Theologiae*, St Thomas Aquinas, following St Gregory the Great, identifies Martha with the *vita activa* and Mary with the *vita contemplativa* (q.179, a.2). Aquinas argues that life is fittingly divided into the spheres of contemplative and active as the former refers to intellectual knowledge associated with the speculative intellect and the latter to operative knowledge associated with the practical intellect. For Aquinas, both the speculative intellect and the practical

intellect aim at truth, but the speculative intellect involves the contemplation of unvarying and necessary things, while the practical intellect deliberates about the variable and contingent and is oriented toward action. This, of course, follows Aristotle's distinction between *theoria* and *praxis*. The contemplative life, then, primarily involves the speculative intellect and the active life primarily involves the practical intellect. The active life consists in becoming fully virtuous while the contemplative life consists in a stepwise progression from the contemplation of creatures to the contemplation of God, which culminates in the beatific vision:

For the first step consists in the mere consideration of sensible objects; the second step consists in going forward from sensible to intelligible objects; the third step is to judge of sensible objects according to intelligible things; the fourth is the absolute consideration of the intelligible objects to which one has attained by means of sensibles; the fifth is the contemplation of those intelligible objects that are unattainable by means of sensibles, but which the reason is able to grasp; the sixth step is the consideration of such intelligible things as the reason can neither discover nor grasp, which pertain to the sublime contemplation of divine truth, wherein contemplation is ultimately perfected.<sup>3</sup>

*Summa Theologiae* II-II, q.180, a.4, resp. 3

Aquinas here is approvingly rendering an appropriate understanding of Richard of St. Victor's view of contemplation. According to Aquinas, consideration of sensible objects in the world has as its ultimate end the contemplation of divine truth through the speculative intellect, which culminates in the beatific vision. By contrast, I will argue that the consideration of sensible objects in the world ultimately has a practical rather than speculative orientation for those in the early Royal Society, since the practical is seen as superior to the speculative. On the other hand, Aquinas – following St Gregory the Great and St Augustine – holds that the contemplative life is superior to the active life. In his view, the active life is dispositive to the contemplative life – indeed, a failure to properly regulate the passions hinders one's ability to contemplate – but it is not essential to it and so is properly distinct from it. To be clear, it is not possible to contemplate without having a properly ordered active life, but the ends of the two lives are different from one another, with the contemplative life ultimately aimed at the beatific vision.

The idea of the active life giving way to the contemplative life gets developed in fifteenth and sixteenth-century mystical theology by figures like St Theresa of Avila and St John of the Cross into the doctrine of the progression of the *via purgativa* to the *via illuminativa*, culminating in the *via unitiva* (Garrigou-Lagrange, *Perfection chrétienne et Contemplation*, viii). This theme, for instance, can be seen in the ‘Stanzas of the Soul’ in *The Dark Night* by St John of the Cross. The soul’s progress to God begins in darkness:

One dark night,  
 fired with love’s urgent longings  
 – ah, the sheer grace! –  
 I went out unseen,  
 my house being now all stilled.<sup>4</sup>

Darkness represents the purgation that the soul must endure in order to be ultimately unified with God. But then the heart, illuminated by God, functions as a guide in seeking out union with God in the beatific vision. Finally, the soul’s journey culminates in unification with God, an activity in which the soul is passive in the sense of being purely receptive:

I abandoned and forgot myself,  
 laying my face on my Beloved;  
 all things ceased; I went out from myself,  
 leaving my cares  
 forgotten among the lilies.<sup>5</sup>

The *via purgativa* is akin to the active life and consists in an asceticism and mortification that purges the soul of pride and concupiscence and facilitates the acquisition of virtue. The *via illuminativa* and *via unitiva* involve the soul progressing in virtue, especially involving the continued growth of the theological virtues of faith, hope and charity, which are all perfected in the extreme. But these later stages of spiritual development yield infused acts of contemplation (which are passively received) that more and more prefigure the beatific vision as the soul

progresses. Consequently, these later stages are more closely associated with the contemplative life described by Aquinas. Practical activity is important in the progress made toward contemplative activity and, furthermore, contemplative activity may in turn encourage certain forms of practical activity (e.g., heroic acts of virtue). But there is, nevertheless, a clear hierarchy between practical activity and contemplative activity; the latter is superior to the former. While this account of contemplation is associated with the elevation of speculative theology, it is important to note another tradition in the medieval period that, over and against speculative theology, recommends an experimental theology.

In his article, 'Experimental Religion and Experimental Science in Early Modern England', Peter Harrison surveys the use of the term '*experimentum*' in the medieval period, this term being understood essentially as a kind of contrived experience. Harrison briefly traces the development of a kind of experimental theology beginning with Bernard of Clairvaux in the twelfth century, being recommended by the nominalist theologian Jean Gerson in the fourteenth century as superior to speculative theology, and then eventually being taken up by Luther and Calvin in the sixteenth century (2011, 417-418). We can see such a view in the work of Richard Baxter. In speaking about the uselessness of speculative forms of knowledge, Baxter says the following:

O that you knew what holy quietness and peace, what solid pleasure that knowledge bringeth, which kindleth and cherisheth holy love, and leadeth the Soul to Communion with God; and how much sweeter it is to have a powerful and experimental knowledge, than your trifling dreams? The Learnedst of you all have but the Husks or Shells of knowledge; and what great sweetness is in Shells, when the poorest holy experienced Christian hath the Kernel, which is far more pleasant? O try a more serious practical Religion, and I dare assure you, it will afford you a more solid kind of nourishment and delight. The pleasure of the speculative Divine in knowing, is but like the pleasure of a Mathematician or other Speculator of Nature; yea below that of the Moral Philosopher: It is but like my pleasure in reading a Book of Travels or Geography; in comparison of the true practical Christians, which is like their pleasure that live in those Countreys, and possess the Lands and Houses which I read of.

*A Treatise of Knowledge and Love Compared, 275*

In Baxter's estimation, it is through the practical and the experimental that we come to have a genuine experience of God. Against the Thomistic view, Baxter holds that the practical is superior to the speculative. Indeed, the speculative divine has a mere shell of knowledge, while the practical Christian holds the kernel of the spiritual life.

It would be inappropriate to speak of a single medieval view on the nature of contemplation and theology. There are, rather, divergent traditions. Indeed, in the nominalist and reformed traditions, there is a marked emphasis on the experimental and the practical. By contrast, the Thomistic emphasis on the speculative gets taken up in the mystical theology of St Theresa of Avila and St John of the Cross. This more speculative approach does have a place for experimental contemplation as a kind of discursive prayer; but for these figures, this would represent an early stage of contemplation appropriate for beginners, which eventually gives way to infused forms of contemplation more appropriate to later stages of spiritual development. Early forms of contemplation, labeled 'acquired', are the fruit of human activity, but infused forms of contemplation consist in a passive act of vision that is a gift of the Holy Spirit (Garrigou-Lagrange 1923, 273-274). Infused contemplation is the domain of the speculative intellect.

In contrast to the view of spiritual development in the speculative tradition and in accord with the experimental and practical tradition described earlier, I argue that the *vita contemplativa* has a tendency<sup>6</sup> to become subsumed into the *vita activa* in the understanding of religion presented in and around the Royal Society in the seventeenth century. To see this contrast, it is worth seeing how certain elements of this tradition get discussed by polemicists defending the Royal Society. In his apologetic work, *The History of the Royal-Society*, Thomas Sprat argues that the new experimental philosophy contributes to the mortification of the soul, a key element of the *via purgativa*. Against the objection that it is difficult to purge ourselves of earthly desires while spending so much devoted to studying the world through the senses, Sprat argues that experimental philosophy requires a kind of mortification: the experimenter engages in a kind of repentance by surveying their errors and resolving to make amendments and the experimenter must develop

humility in becoming aware of their defects, weaknesses and limits. Sprat argues that experimental philosophy has an advantage over speculative knowledge in that it is more conducive to purgation:

...it may well be concluded, that the doubtful, the scrupulous, the diligent *Observer* of *Nature*, is nearer to make a modest, a severe, a meek, an humble *Christian*, than the man of *Speculative Science*, who has better thoughts of himself and his own *Knowledge*.

*History of the Royal Society*, 367

As pride hinders our ability to inquire into nature rightly, the experimental philosopher must undergo a kind of purgation akin to the *via purgativa* of the mystic. And this *via purgativa* leads into a kind of *via illuminativa*, in which the experimental philosopher – freed from pride and other vices – comes to be able to properly contemplate nature’s works. But against the speculative mystical tradition described earlier, Sprat holds that the value of the mortification involved in the practice of experimental philosophy consists primarily in making us serviceable to the world, rather than fitting us for ‘the secrecy of a *Closet*’ (1958, 366). The end goal of experimental philosophy is service to the world or action. For Aquinas, the *vita activa*, while clearly something of value, has as its end the facilitation of the *vita contemplativa*, which involves contemplation that eventually transcends the world of creatures as it comes to more and more prefigure the beatific vision. But in Sprat’s understanding, purgation, though it leads to a contemplation of the natural world, ultimately has the strengthening of the *vita activa* as its end. In fact, Sprat speaks disparagingly of contemplation separated from action. He holds that a ‘contemplation of the closet’ involves a kind of lofty romanticism that represents a disengagement from reality:

I cannot deny, but a meer contemplative man is obnoxious to this error: He converses chiefly in his *Closet*, with the heads and notions of things, and so discerns not their bottoms neer and distinctly enough: And thence he is subject to overlook the little circumstances, on which all human actions depend.

*History of the Royal Society*, 334

The experimental philosopher, however, does not fall into this error, by seeing nature in its reality, including all its advantages and failings. The ‘mere contemplative’ fails to understand nature properly; and in so failing, they are not fitted for action. Experimental philosophy, on the other hand, turns us to a range of works that are of practical benefit for society. Practitioners of experimental natural philosophy and their promoters self-consciously understood it to be a practical discipline.<sup>7</sup> In his essay ‘*Theologia Rationalis*’, the physician Thomas Sydenham argues that God has placed us in the world to be contemplators.<sup>8</sup> But the contemplation that Sydenham has in mind is that of God’s goodness displayed in the natural order; and in his view, such contemplation has as its end the development of virtue (1966, 150). For Sydenham, contemplation does not move beyond the world of creatures and it is principally oriented to furthering the active life, in which we strive to benefit humankind as much as possible. Following this idea of utility, Joseph Glanvill, in summarizing Robert Boyle’s works, maintains that they show us how useful experimental philosophy is for advancing human power over nature in such a way that better provides for the conveniences of life (1676a, 40). According to Glanvill, one of the chief advantages of experimental philosophy over the Peripatetic doctrines is the development of useful knowledge, such as would help to cure a cut finger or cool a hot head (1676a, 47-48). Following Francis Bacon, Glanvill thinks that the worth of both philosophy and religion is displayed in its works. As I will argue, experimental philosophy and practical religion form a continuous project. But first, I want to look at the idea of teleology as a bridge between experimental philosophy and religion.

## II: Teleology and Natural Philosophy

To legitimize the experimental method for religion, one of the main goals of the physico-theological project held by many in the Royal Society was to combine natural philosophy with the study of final causes: for the *virtuosi*, the doctrine of divine providence provided a way to do this without returning to the Scholastic account of substantial forms.<sup>9</sup> But both Cartesian and Epicurean explanations of natural phenomena that exclusively focus on efficient causation are to be avoided. Descartes denies that final causes have a role to play in natural philosophy. In the *Principles of Philosophy*, he says the following:

When dealing with natural things we will, then, never derive any explanations from the purposes which God or nature may have had in view when creating them and we shall entirely banish from our philosophy the search for final causes. For we should not be so arrogant as to suppose that we can share in God's plans. We should, instead, consider him as the efficient cause of all things; and starting from the divine attributes which by God's will we have some knowledge of, we shall see, with the aid of our God-given natural light, what conclusions should be drawn concerning those effects which are apparent to our senses.<sup>10</sup>

*Principles of Philosophy* I, §28

Descartes goes on to say that since God is not a deceiver we can have confidence in the certainty of our clear and distinct perceptions. Furthermore, from divine immutability, we can infer certain physical laws of nature, namely that bodies tend to remain in their current state, move in a rectilinear fashion and transfer their motion in an impact in way that conserves the total motion. While features of the divine nature play a role in Descartes' natural philosophy, it is clear that God's wisdom or purposes are inscrutable to us. Consequently, Descartes' scientific program focuses on identifying efficient rather than final causes in nature. What this means is that natural philosophy does not give us any insight into the design of divine providence.

Robert Boyle respects certain aspects of Descartes' philosophical program, but he explicitly distances himself from Descartes' rejection of final causes in natural philosophy:

'Tis not without trouble, that I find my self oblig'd by the exigency of my design, so much to oppose, in several places of this present Discourse, some Sentiments of *Mr. Des-Cartes*, for whom otherwise I have a great esteem, and from whom I am not forward to dissent. And this I the rather declare to you, because I am not at all of Their mind, that think *Mr. Des-Cartes* a favourer of Atheism, which, to my apprehension, would subvert the very foundation of those Tenets of Mechanical Philosophy, that are particularly his. But judging that his Doctrine (at least as it is understood by several of his Followers, as well as his Adversaries;) about the rejection of Final Causes from the consideration of Naturalists, tends much to

weaken, (as is elsewhere noted) if not quite to deprive us of, one of the best and most successful Arguments, to convince Men, that there is a God, and that they ought to Admire, Praise, and Thank him: I think it my duty *to* prefer an important truth, before my respect to any Man, how eminent soever, that opposes it; and *to* consider more the Glory of the great Author of Nature, than the Reputation of any one of Her Interpreters.

*Disquisition on Final Causes*, 94

While Boyle criticizes Descartes' rejection of final causes, his rebuke of Descartes is fairly mild. Other critics, such as Edward Stillingfleet, were certainly harsher: indeed, Stillingfleet castigates Cartesian natural philosophy, as its rejection of final causes tends to atheism (1836, 327). While Stillingfleet is sympathetic to the new science, he excoriates those who attribute too much to the mechanical powers of matter and motion:

[A]ccording to [the] laws of mechanism, God only put matter into motion with such laws, and then everything came into the order it is in, without any design of Providence. Which takes away all life and spirit in religion, which depends upon God's managing the affairs of the world; and without that men may own a first Mover, and yet live as *without God in the world*.<sup>11</sup>

This does not seem to be an entirely fair criticism of Descartes, for Descartes thinks that God does govern the world providentially but that this cannot be confirmed through natural philosophy. Descartes certainly thinks that revelation gives us insight into God's ends in the world and indeed this is something that Boyle recognizes. Nevertheless, Boyle does share Stillingfleet's concern that the new science would encourage atheism, irreligion and moral turpitude if it did not include final causes. Boyle argues that the study of nature should involve both efficient and final causes.<sup>12</sup> In his *Disquisition on Final Causes*, he says the following:

The most wise and powerful author of nature, whose piercing sight is able to penetrate the whole universe and survey all the parts of it at once, did at the beginning of things, frame things corporeal into such a system, and settled among

them such laws of motion, as he judged suitable to the ends he proposed to himself, in making the world.

*Disquisition about Final Causes*, 111

In Boyle's estimate, both the structure of corporeal beings and the physical laws of motion reveal God's providential activity in nature. The examination of divine providence in nature has a moral dimension. Sydenham, for instance, argues that there is a continuity between God's natural providence of creatures and God's moral providence of human beings. Experimental philosophy furnishes us with evidence of an order in which God through design and the governance of creation with commodious laws provides for the preservation of individual creatures. In Sydenham's view, this functions as evidence for the existence of a providential God and it also leads us to conclude that we are governed by divine providence (1966, 146). As rational creatures, however, the laws governing our nature are moral and are meant to guide our freedom toward the ends set for us by God, namely the preservation of our being and sociable action that benefits the community. The inference of laws governing human nature from the evidence of laws governing the natures of lesser creatures is one that is found throughout the history of the natural law tradition and can be found in figures like Aquinas, Francisco Suárez, Richard Hooker and John Locke, among others. What grounds the inference made by earlier figures in the natural law tradition is the idea of the eternal law, the providential order by which God governs all of creation towards its proper ends. A similar inference is made by experimental philosophers; but instead of appealing to the eternal law, experimental philosophers bridge the natural and moral world through the use of natural history. An example of this can be seen in the work of the naturalist John Ray, who was a proponent of experimental natural philosophy.<sup>13</sup>

In his book, *The Wisdom of God Manifested in the Works of the Creation*, Ray spends fifteen pages describing the structure and function of the eye with the ultimate conclusion that the eye has been commodiously designed for our use by God (170-184). For example, Ray discusses the muscular power of the iris to dilate and contract the pupil of the eye in such a way that preserves it from being injured by 'too vehement or lucid an object' (1722, 173). Ray ultimately provides something of a natural history of the eye and other aspects of human anatomy, and he uses this history as evidence of providential design. Ray concludes *The Wisdom of God* with a number of

practical inferences, one of which is that, since God evidently made the body, it follows that God ought to have the service of it. Since God has fashioned the eye, it ought to be employed in the service of God: we must avoid the proud eye, the wanton eye, the covetous eye and the envious eye – in other words, the eye in the service of vice (1722, 230-277). Ray cites a number of biblical proof texts concerning the importance of not using our eyes in such a way. For Ray, the provision of a catalogue of the structure and function of the eye through the method of natural history<sup>14</sup> and the provision of an account of the way in which we ought to use our eye do not represent distinct endeavours, but rather a continuous project, one that bridges the natural and the moral. As a further example of this kind of project, Ray, in another work titled *Three Physico-Theological Discourses*, discusses the future dissolution of the world and gives four probable arguments for it deduced from knowledge of geology and astronomy: the first is the water overflowing and covering the Earth; the second concerns the future extinction of the Sun; the third is the eruption of a central fire from within the Earth; and the fourth is a conflagration of the world from increasing dryness and volcanic activity (1713, 296-387). Ray thinks, though, that reason shows that the world will not be completely destroyed but that the world in its present form will pass away and be replaced by a different state (1713, 411). All of Ray's natural historical arguments function as a support for Christian eschatology: indeed, they are intended to strengthen our conviction that there will be a future judgment in which we will be held accountable for our actions. And this, in turn, should shape our behaviour. All this is to say that many proponents of experimental philosophy sought to combine knowledge of God and our duty with knowledge of the natural world; in this tradition, the study of nature and the practice of religion illuminate one another and are mutually supportive.<sup>15</sup> What I will next argue is that experimental philosophy supports the development of practical religion.

### III: Rational Theology and Practical Religion

In *The History of the Royal-Society*, Sprat holds that there is a fundamental agreement between the Church of England and the design of the Royal Society in that both can lay equal claim to the word 'reformation' (1958, 371). In the tradition of *ad fontes*, both the Church of England and the Royal Society have set aside 'corrupt copies' and gone back to the 'perfect originals', the former hearkening back to the plain meaning of scripture and the latter to the world

of creatures. Following the two books tradition, experimental philosophy and Anglican theology represent a continuous project that seeks to reform religion through a proper reading of the Book of Nature and the Book of the Bible. Furthermore, Sprat holds that the reformation of religion involves finding a *via media* between Roman Catholic authoritarianism on one extreme and an unchecked enthusiasm on the other. The *via media*, according to Sprat, consists in ‘rational religion’, of which experimental philosophy can be of the utmost service, just as the British Oak serves the expansion of the British Empire (1958, 374). The development of rational religion, especially in the Restoration Church and beyond, consists in emphasizing a focus on practical activity, coupled with theological minimalism.

It is striking, for instance, that in a work titled ‘*Theologia Rationalis*’, Sydenham essentially focuses first on showing the existence of God and the work of divine providence through experimental reason and second on the moral implications for human action. In the Scholastic tradition – including into the sixteenth and seventeenth centuries – the term ‘*theologia rationalis*’, by contrast, refers to speculative metaphysics. We can find the distinction between the speculative and practical clearly articulated in Benedict Pereira’s *De communibus omnium rerum naturalium principiis et affectionibus*:

Speculative science is that which teaches us only to know and contemplate its subject matter, such as physics and the heavens, geometry and the triangle, and metaphysics and God. Whence speculation is the act of the intellect, whose end is the sole cognition of the subject matter about which it is conversant. It consists in the sole cognition of truth and does not proceed any further or direct through itself to any action or work.<sup>16</sup>

*De communibus principiis et affectionibus*, lib. I, cap. ii

Pereira holds that the speculative, including natural philosophy, is not oriented to action or work, but to contemplation. Pereira is clear that action is the domain of the practical intellect:

Practical science is that which does not only teach us to know its subject matter, but primarily to act or do; the end of the practical science is not to know or become acquainted with truth, but with action or work.<sup>17</sup>

*De communibus principiis et affectionibus*, lib. I, cap. ii

In Francisco Suárez's *Disputationes Metaphysicae*, '*theologia rationalis*' refers to a special area of metaphysics that deals with the ontology of God's nature known through the *lumen naturale* and it is properly speculative. According to Suárez, the end goal of metaphysics is contemplation, in which we ultimately find beatitude (*Disputationes Metaphysicae*, I.v.5). In the first of the *Disputationes Metaphysicae*, Suárez marks a clear distinction between speculative and practical theology. Suárez holds that rational or speculative theology considers God according to the nature of the ultimate end and supreme good; but it is not the work of rational theology to consider how that end may be obtained practically. Furthermore, following Aquinas, both Suárez and Pereira hold that the speculative is superior to the practical in theology, for the latter is a means to the former. In Sydenham's '*Theologia Rationalis*', by contrast, the focus is overwhelmingly on the practical implications of the existence and providence of God known through an examination of the natural world. This represents a much different view than that of the Scholastics discussed above, for the primary value of contemplation is seen in its capacity to lead us to action. In this sense, contemplation of nature is not speculative at all, insofar as it consists in action and work and not the sole cognition of truth. Religion, as a result, becomes something that is ultimately practical.

A practical orientation of religion coupled with theological minimalism can be seen in the writings of many figures interested in experimental philosophy. In his essay 'The Usefulness of Real Philosophy to Religion', Joseph Glanvill argues that the most valuable form of knowledge is practical and that speculative knowledge in religion should be put aside, for it has the tendency to engender strife and harmful useless disputes (1676c, 14). Glanvill argues that the 'Modern, Experimental *Philosophy of God's Works*' is an antidote to speculative theology, which he pejoratively refers to as '*notional Superstition*' (1676c, 14).<sup>18</sup> Glanvill thinks that religion is essentially practically oriented around the idea of duty. Recognizing, though, that duty must be guided by knowledge, he proposes three fundamental principles of religion: (1) the being of God;

(2) the providence of God; and (3) the existence of moral good and evil. In Glanvill's view, these are essentially treated as practical principles, as they are meant to guide action. Interestingly, Glanvill refers to the Gospel and the contents of the Apostle's Creed as merely accessory principles that extend and confirm the fundamental principles. But even these accessory principles are really practical principles in Glanvill's estimation, for they are understood as essentially conducive to devout and virtuous living (1676b, 5). Glanvill unequivocally states that religion consists primarily in duty.

In Locke's writings about religion, we see a similar theological minimalism that is oriented toward practice. One of the principal topics of Locke's *The Reasonableness of Christianity* is justification and the doctrine of salvation. Locke thinks that justification consists of three essential elements: (1) believing in the existence of God; (2) assenting to the statement that Jesus is the Messiah; and (3) trying to follow the moral laws of nature.<sup>19</sup> One of the key elements of Locke's *Essay concerning Human Understanding* is the idea that our epistemic capacities are suited not for speculative metaphysics, but rather the knowledge of God's existence and our moral duties. Indeed, Locke thinks that both of these can be known demonstratively through experience. All this supports the idea that those committed to experimental philosophy<sup>20</sup> tended to see religion as essentially practical and held to a theological minimalism.

#### Conclusion: Natural Religion and Reversals in the History of Philosophy

Natural religion – what can be known about God and our duty through the natural light – couples theological minimalism with a practical focus on moral obligations. In the *Essay concerning Human Understanding*, Locke emphasizes the value of natural religion over revealed religion:

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 the 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.

*Essay III.ix.23, 490*

Locke's recommendation of natural religion over revelation has an irenic dimension, as he thinks that disputes over revelation have a tendency to be both useless and harmful. While many in and around the early Royal Society recommended natural religion and emphasized it in their writings, figures like Boyle, Stillingfleet, Wilkins, Locke and others thought that natural religion was a useful preparatory for approaching the scriptures and that revelation was something important and valuable.<sup>21</sup> But in emphasizing reason and practice as the essentials of religion, they may have set the stage for a further change of religion into a kind of providential deism held by figures like Tindal, Collins and Toland that focuses on a practical natural religion to the exclusion of any robust theological commitments.<sup>22</sup> Indeed, the historian Henry McAdoo attributes the development of purely ethical religion in eighteenth-century Britain to the rise of a theological minimalism that downplays the importance of the beatific vision as the aim of theology:

...[T]he loss of any coherent teaching on the vision of God was largely responsible for the almost total eclipse of anything that could safely be termed a moral theology in the eighteenth-century Church of England, and for the ultimate substitution of ethics (regarded as self-sufficing and as an end in itself) for a theological view of human conduct.

*The Structure of Caroline Moral Theology, 26*

We have seen that experimental philosophy focuses on the practical rather than the speculative, both in religion and in natural philosophy. In the medieval tradition of Aquinas, Suárez, Theresa of Avila and John of the Cross, however, the practical is subordinated to the speculative, as the goal of the *vita activa* is the development of the *vita contemplativa*. But in disparaging the

speculative, experimental philosophy transforms religion into something that consists in the *vita activa*, a concept of religion essentially oriented toward practice and coupled with theological minimalism.

In *The Human Condition*, Hannah Arendt argues that the history of philosophy involves significant reversals that are important to identify in order to understand the specific thought patterns of an age (1998, 292-293). According to Arendt, one such reversal that is important for understanding the modern age is that of the inversion between contemplation and action, which she argues consists in seeing thinking as ‘the handmaiden of doing’ (1998, 292); this, in turn, has the ultimate result of doing away with contemplation as understood by the ancients and medievals. Much of what I have argued in this paper serves to confirm Arendt’s thesis, for we see that both experimental natural philosophy and natural religion consider the ultimate value of knowledge to be practical. One related trend that this reversal can help to illuminate is the inversion of value in comparing the liberal and mechanical arts between the medieval and modern ages. The medievals generally thought the liberal arts – the *trivium* and *quadrivium* – to be nobler than the mechanical arts, for the liberal arts concern the freedom of the soul while the mechanical arts concern the service of the body (and are sometimes referred to as ‘servile arts’ – *artes serviles*). The liberal arts, in this view, are ultimately oriented toward contemplation through the activity of the speculative intellect. The reversal of contemplation and action finds a parallel in the diminution of the hierarchy between the liberal and mechanical arts. In the entry on ‘Art’ in his *Encyclopédie*, Denis Diderot argues that it is a prejudice to think the liberal arts superior to the mechanical arts and that such a prejudice ‘has tended to fill the cities with proud thinkers and useless contemplators’.<sup>23</sup> Diderot chides those who unfairly malign and neglect the mechanical arts. After approvingly citing Francis Bacon, among others, Diderot proceeds to say that too much praise has been given to those who ‘spend their time making us think that we are happy’ and not enough to those who ‘actually bring us happiness’ (‘Art’).<sup>24</sup> In his estimate, it would seem that the mechanical arts are of more value than the liberal arts in making for our true happiness. Such a view makes sense in light of the reversal between contemplation and action. In this paper, I have shown that figures in the early Royal Society helped to contribute to this reversal in broadly valuing the practical over the speculative in their approach to experimental natural philosophy and religion.

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<sup>1</sup> For more on this theme, see Anstey 2005.

<sup>2</sup> Sorana Corneanu argues that physico-theology represents a 'lived physics' in which the study of nature becomes a religious activity. She shows that physico-theology is a transformative exercise of the mind in keeping with the *cultura animi* tradition. See Corneanu 2011, 169-172. In this sense, the term is broader than natural theology, for it has a vocational dimension that renders the study of nature consistent with the religious life. This, for instance, makes it legitimate for clerics to study the natural world, for true religion is improved by the experimental study of nature. For more on this, see Harrison 2005, 177ff.

<sup>3</sup> (Fathers of English Dominican Province Translation) 'Nam in primo gradu ponitur perceptio ipsorum sensibilium; in secundo vero gradu ponitur progressus a sensibilibus ad intelligibilia; in tertio vero gradu ponitur diiudicatio sensibilium secundum intelligibilia; in quarto vero gradu ponitur absoluta consideratio intelligibilium quae per sensibilia pervenitur; in quinto vero gradu ponitur contemplatio intelligibilium quae per sensibilia inveniuntur non

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possunt, sed per rationem capi possunt; in sexto gradu ponitur consideratio intelligibilium quae ratio nec invenire nec capere potest, quae scilicet pertinent ad sublimem contemplationem divinae veritatis, in qua finaliter contemplatio perficitur.’ *Summa Theologiae* II-II, q.180, a.4, resp. 3, 428.

<sup>4</sup> (Kavanaugh and Rodriguez Translation)  
 ‘En una noche oscura  
 con ansias en amores inflamada  
 ¡oh dichosa ventura!  
 salí sin ser notada  
 estando ya mi casa sosegada.’

<sup>5</sup> (Kavanaugh and Rodriguez Translation)  
 ‘Quedéme y olvidéme  
 el rostro recliné sobre el amado;  
 cesó todo, y dejéme  
 dejando mi cuidado  
 entre las azucenas olvidado.’

<sup>6</sup> Since I will be referring to apologetic works given by certain members of the Royal Society, who may not fully represent the diverse set of views held by all the members of the society, it is fitting to use the word ‘tendency’.

<sup>7</sup> The earlier medieval tradition recognized a distinction between the speculative and the practical; while the former was seen as superior to the latter, the two were seen as complementary to one another. By contrast, early modern experimental philosophers instead saw an antagonism between the speculative and the experimental, rather than any kind of complementarity (Anstey and Vanzo 2012).

<sup>8</sup> It is worth noting that Sydenham was not a fellow of the Royal Society and that the ‘*Theologia Rationalis*’ was limited in circulation. Nevertheless, I take his view of contemplation and action to be representative of concepts of religion espoused by many in and around the Royal Society regarding the practical and moral value of examining the natural world.

<sup>9</sup> In particular, Catherine Wilson argues that the law concept for these figures serves to bridge the gap between divine providence and a mechanistic, atomistic view of nature (2008, 20). In this sense, final causality is extrinsically imposed onto nature through the providential fashioning of laws. This, for instance, is Boyle’s view. For more on the connection between divine providence and the physico-theological explanation of nature, see Harrison 2005, 172-183.

<sup>10</sup> (CSM I, 202) Ita denique nullas unquam rationes, circa res naturales, a fine quem Deus aut natura in iis faciendis sibi proposuit, desumemus: quia non tantum nobis debemus arrogare, ut ejus consiliorum participes esse putemus. Sed ipsum ut causam efficientem rerum omnium considerantes, videbimus quidnam ex iis ejus attributis, quorum nos nonnullam notitiam voluit habere, circa illos ejus effectus qui sensibus nostris apparent, lumen naturale, quod nobis indidit, concludendum esse ostendat. AT VIII A, 16-17.

<sup>11</sup> *Origines Sacrae* vol. II, bk. 1, ch. ii, 409. Reference here is to the 1836 Clarendon Edition.

<sup>12</sup> For more on Boyle’s use of final causes in natural philosophy, see Shanahan 1994. Shanahan argues that Boyle’s use of final causes in natural philosophy reflects the context of the Royal Society of the seventeenth century in which it was important to resist forms of mechanism that had negative implications for the doctrine of divine providence. For more on Boyle’s response to the atheistic dimension of Epicurean atomism, see MacIntosh 1991. For a general account of the problem of mechanism and providence in the Royal Society in the seventeenth century, see Westfall 1958.

<sup>13</sup> In *The Wisdom of God*, Ray laments the lack of experimental philosophy at the university (i.e., Cambridge) since it has the capacity to be used to show the greatness of God in creation (125-126). Furthermore, in his preface to

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*Flora in Britain*, Ray clearly recommends the practice of experimental philosophy and places his own work in the context of ‘a philosophy solidly built on the foundation of experiment’ (in Raven 1942, 251).

<sup>14</sup> It is worth noting that in employing the method of natural history, physico-theology was oriented toward the anti-speculative and non-metaphysical approach to natural philosophy. See Gaukroger 2010, 30.

<sup>15</sup> One, though, could object to this view and argue that the emphasis on the practical dimension of experimental philosophy in terms of encouraging religiosity was really something of a veneer and should not be taken that seriously. To decide this matter, of course, would require considering the authenticity of this emphasis in a variety of figures – and one would find varying degrees of commitment to the relation between religion and natural philosophy. I, though, do think a good hermeneutical principle is to avoid suspicious or esoteric readings of texts, unless there is sufficient evidence to warrant such a reading. And I certainly think that a case can be made for numerous figures that they are genuinely committed to the project of physico-theology. But whatever conclusion is reached on this matter, it nevertheless does not change the fact that the concept of religion employed by figures in and around the Royal Society was essentially practical and that the speculative contemplation of nature was of little to no value.

<sup>16</sup> (My translation) ‘Speculativa scientia ea est, quae res sibi subiectas docet nos tantummodo scire et contemplari, ut Physica, coelum; Geometria, triangulum; Metaphysica, Deum. Unde speculatio est actio intellectus, cuius finis sola cognitio eius rei circa quam versatur: vel quae in sola cognitione veri consistit, nec ulterius progreditur, aut per se dirigitur, ad aliquam actionem seu opus.’ *De communibus principiis et affectionibus*, lib. I, cap. ii, 5.

<sup>17</sup> (My translation) ‘Scientia vero practica est quae res circa quas versatur, non solum docet nos scire, sed praecipue operari vel facere, ut finis scientiae practicae non sit scire, aut cognoscere verum, sed actio seu opus aliquod. *De communibus principiis et affectionibus*,’ lib. I, cap. ii, 5.

<sup>18</sup> Figures committed to experimental philosophy often refer to speculative knowledge in religion as ‘notions’ or ‘mere notions’.

<sup>19</sup> Locke does not think that justification and salvation require assent to the historic creeds of the church. In his Prayer Book, Locke added the inscription ‘Rom. X.9’ beside the introduction of the Athanasian creed. Contrary to the creed, Locke does not think that a belief in Trinitarianism is necessary for salvation, only confessing that Christ is the Messiah as it is stated in Romans 10:9. Against the idea that theology should be focused on confessional points of doctrine, Locke thinks that one should focus instead on trying to live a moral life. Corneanu is right to hold that theology is essentially a practical science for Locke that focuses on trying to live life in conformity to God’s will, i.e., trying to follow the duties set for us in the moral laws of nature (2011, 201).

<sup>20</sup> As Peter Anstey argues, Locke is committed to the experimental method of natural history in his approach to natural philosophy (2011). Furthermore, Locke as a Christian virtuoso thinks that experimental philosophy can be used to encourage belief in divine providence, which in turn supports the duties of natural religion. For more on this view of Locke as a Christian virtuoso, see Nuovo 2017. Nuovo’s basic argument is that Locke sought to combine experimental philosophy with the Christian faith throughout the course of his life; an appreciation of these theological themes can open up interesting points of continuity and coherence in Locke’s corpus.

<sup>21</sup> See Anstey 2007, 249-250. In this paper, Anstey more broadly explores how principles of natural philosophy are used within English natural theology in the late seventeenth and early eighteenth centuries to ground principles of natural religion.

<sup>22</sup> See Pailin 1994, 219-222. For more on this broader theme, see Taylor 2007, 221-269. On a similar note, Roger Emerson argues that the employment of empiricism in natural philosophy and ethics has the result of denuding these areas of any specifically Christian content and that this is evident in the Scottish enlightenment (1900, 80-89); and see Emerson 1991.

<sup>23</sup> The French reads the following way: ‘Préjugé qui tendait à remplir les villes d’orgueilleux raisonneurs et de contemplateurs inutiles...’. Hoyt and Cassirer translate the offending characters in the preceding phrase as ‘useless spectators’ and ‘proud men engaged in idle speculation’. While this translation generally captures the idea, I think it

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worthwhile to emphasize the dimension of pride and futility in relation to contemplation – given the context of the rejection of contemplation and speculation as a form of useless hubris.

<sup>24</sup> ‘...on a bien plus loué les hommes occupés à faire croire que nous étions heureux, que les hommes occupés à faire que nous le fussions en effet.’