

Original paper UDC 1:2(045)

I Bacon, Francis

doi: [10.21464/sp34108](https://doi.org/10.21464/sp34108)

Received: 22 February 2018

Ünsal Çimen

Muş Alparslan University, Department of Philosophy, Güzeltepe 49250, Muş, Turkey
cimen.trky@gmail.com

Francis Bacon and the Relation between Theology and Natural Philosophy

Abstract

The Reformation in European history was an attempt to remove ecclesiastical authority from political (or secular) authority and culture – a process called secularisation. During the eighteenth and especially nineteenth centuries, however, secularisation gained a different meaning, which is, briefly stated, evolving from religiousness to irreligiousness. Instead of referring to becoming free from religious tutelage, it began to refer to the total isolation of societies from religion. For those who saw secularisation as atheism, having ideas which were supportive of secularisation and having a religious basis was contradictory. For example, Francis Bacon was interpreted as non-secular due to his usage of the Bible as his reference to justify his ideas regarding the liberation of science from theology. Contrarily, in this paper, I argue that Bacon's philosophy of nature is secular. To do this, alongside addressing Biblical references presented in his works, I will also explore how Bacon freed natural (or secular) knowledge from religious influences by removing final causes from natural philosophical inquiries.

Keywords

Francis Bacon, secularisation, natural philosophy, final causes, theology

Introduction

Some researchers have attempted to show that the *Great Instauration*¹ of Bacon is not secular by giving examples of how Bacon used religion as a guide for establishing his new philosophy of nature. For example, Stephen McKnight states:

1

The *Great Instauration* is Bacon's main project in which he develops his new method for natural philosophical investigation. As is stated well by McKnight: "Originally Bacon envisioned this work [*Great Instauration*] as a six-part magnum opus. The first was to be an inventory of the scientific disciplines that were already complete, those currently underway, and those not yet begun. The second was to provide a clear statement of the first principles of the true scientific method. The third would be a natural history of phenomena to be studied by Bacon's new science in order to gain the fullest benefit for humankind. The

fourth would offer examples or paradigms for applying the new science to crucial fields of investigation. The fifth was to catalog Bacon's own contributions to research, and the sixth and final section would provide a systematic statement of the 'final goals and benefits of his new science'." – Stephen A. McKnight, "Religion and Francis Bacon's Scientific Utopianism", *Zygon* 471 (2007) 42, pp. 463–486, p. 471, doi: <https://doi.org/10.1111/j.1467-9744.2007.00463.x>. Thus, in the rest of the paper, *Great Instauration* refers to Bacon's philosophy of nature.

“Bacon’s instauration is not a secular, scientific advance through which humanity gains dominion over nature and mastery of its own destiny. Bacon’s instauration is a program for rehabilitating humanity and its relation to nature that is to be guided by divine Providence and achieved through pious human effort.”²

Another example by Steven Matthews:

“In Aphorism 120 of the first book of the *Novum Organum* Bacon presented his intentions for his Instauration writings in terms of constructing a ‘holy temple’ rather than a secular or pagan monument.”³

John Gascoigne also writes:

“Religious motifs play such a large role in Bacon’s work and are so intimately bound up with his thought as a whole that one can draw no clear line of division between the ‘religious’ and the ‘secular’.”⁴

These authors seem to interpret secularism as anti-religious or anti-Christianity.⁵ Two issues arise from interpreting secularism in this way, which have resulted in two groups of opinion – first, seeing Bacon as anti-religious by interpreting his secularisation⁶ as irreligious, and second, interpreting him as nonsecular due to his usage of Biblical references for his scientific reformation. The first group accepts Bacon’s attempt at secularisation, but because they interpret secularisation as anti-religious, they wrongly interpret Bacon as an irreligious modern. Joseph de Maistre (1753–1821), who I will mention below, can be given as an example of the first group.⁷ The second group accepts Bacon’s religious references, but because they also interpret secularisation as anti-religious, they ignore Bacon’s secular position. The authors mentioned above, McKnight, Matthews, and Gascoigne, can be evaluated in the second group.

Seeing secularisation as irreligious was a later development which came to light in the eighteenth and nineteenth centuries. In the eighteenth century, philosophers such as Montesquieu, Voltaire, Denis Diderot, David Hume, Gotthold Lessing, and Baron d’Holbach interpreted the term in a way that it became seen as irreligious. In the nineteenth century, we can mention Marx and Nietzsche. During the Reformation, however, which took place between the fifteenth and seventeenth centuries, secularisation was a setting apart of society and culture from the tutelage of religious authority. In his recent work, “Secularisation: process, program, and historiography”, Ian Hunter argues that the term secularisation had not been used in the sense of a transformation of a society which is based on Christianity to one which based on human reason before the 1830s.⁸ Harvey Cox makes a distinct separation between secularisation and secularism. For him, while secularisation is “the passing of certain responsibilities from ecclesiastical to political authorities”, “secularism (...) is the name for an ideology, a new closed worldview which functions very much like a new religion”.⁹ By separating secularisation and secularism, Cox emphasises the different meanings which secularisation had gained, especially in the nineteenth century. John Henry argues that seeing Bacon “as one of the first to show a healthy lack of interest in religious considerations”¹⁰ started in the eighteenth century.

When we consider the Reformation, Luther made a distinction between the state (or the kingdom of the world) and the Church (or the kingdom of God), but this was not an irreligious act – indeed, the separation of earthly and heavenly authorities was deduced from the Bible.¹¹ As Cox states well, “secularisation arises in large measure from the formative influence of biblical faith on the world”¹² Luther justified secularisation by giving the Bible as his referen-

ce, and showing the Bible as a reference for his argument for the separation of the state and the Church cannot be seen as harmful to his secular position. As for Bacon, he found the separation of science and theology in the Bible,

2

Stephen A. McKnight, *The Religious Foundations of Francis Bacon's Thought*, University of Missouri Press, Columbia 2006, p. 31. Cf. S. A. McKnight, "Religion and Francis Bacon's Scientific Utopianism".

3

Steven Matthews, *Theology and Science in the Thought of Francis Bacon*, Ashgate Publishing, Hampshire 2008, p. 107.

4

See: John Gascoigne, "The Religious Thought of Francis Bacon", in: Carole M. Cusack, Christopher Hartney (eds.), *Religion and Retributive Logic: Essays in Honour of Professor Garry W. Trompf*, Brill, Leiden 2010, pp. 209–228, p. 226.

5

For similar arguments, see Elliott M. Simon, "Bacon's New Atlantis: The Kingdom of God and Man", *Christianity & Literature* 38 (1988) 1, pp. 43–61, doi: <https://doi.org/10.1177/014833318803800107>; John C. Briggs, "Bacon's Science and Religion", in: Markku Peltonen (ed.), *The Cambridge Companion to Bacon*, Cambridge University Press, Cambridge 1996, pp. 172–199; Benjamin Milner, "Francis Bacon: The Theological Foundations of Valerius Terminus", *Journal of the History of Ideas* 58 (1997) 2, pp. 245–264, doi: <https://doi.org/10.1353/jhi.1997.0020>; Perez Zagorin, *Francis Bacon*, Princeton University Press, New Jersey 1998. Cf. Fulton H. Anderson, *The Philosophy of Francis Bacon*, University of Chicago Press, Chicago 1948; David C. Innes, "Bacon's New Atlantis: The Christian Hope and the Modern Hope", *Interpretation* 22 (1994), pp. 3–37; Marina Leslie, *Renaissance Utopias and the Problem of History*, Cornell University Press, New York 1998; Richard Olson, *Science Deified and Science Defied: The Historical Significance of Science in Western Culture, Vol. 1*, University of California Press, Berkeley 1982; Suzanne Smith, "The New Atlantis: Francis Bacon's Theological-Political Utopia?", *Harvard Theological Review* 101 (2008) 1, pp. 97–125, doi: <https://doi.org/10.1017/s0017816008001740>; Jerry Weinberger, *Science, Faith, and Politics: Francis Bacon and the Utopian Roots of the Modern Age. A Commentary on Bacon's Advancement of Learning*, Cornell University Press, Ithaca 1985; Howard B. White, *Peace Among the Willows: The Political Philosophy of Francis Bacon*, Martinus Nijhoff, The Hague 1968.

6

The original usage of the term secularisation is stated by Christopher Nadon as follows:

"... secularisation (*saeculariatio*) is a term of Christian origin referring to the dispensation occasionally given a member of a religious order under solemn vows to return to 'the world' or *saeculum*. In this original usage, the religious did not necessarily become less religious by accepting it." – Christopher Nadon, "Enlightenment and Secularism: Introduction", in: Christopher Nadon (ed.), *Enlightenment and Secularism: Essays on the Mobilization of Reason*, Lexington Books, Lanham 2013, pp. xiii–xxviii, p. xxii.

7

De Maistre can be seen as one of the reasons for the anti-religious interpretation of Bacon.

8

Cf. Ian Hunter, "Secularisation: Process, Program, and Historiography", *Intellectual History Review* 27 (2017) 1, pp. 7–29, doi: <https://doi.org/10.1080/17496977.2016.1255461>.

9

Harvey Cox, *The Secular City: Secularisation and Urbanization in Theological Perspective*, Princeton University Press, New Jersey 2013, p. 24–25.

10

John Henry, *Knowledge is Power: How Magic, the Government and an Apocalyptic Vision Inspired Francis Bacon to Create Modern Science*, Icon Books, Cambridge 2003, p. 82.

11

Contrarily, there were others who founded their ideas relating to secularisation on premises apart from the Bible, such as Machiavelli. Cf. Graham Maddox, "The Secular Reformation and the Influence of Machiavelli", *The Journal of Religion* 82 (2002) 4, pp. 539–562.

12

H. Cox, *The Secular City: Secularisation and Urbanization in Theological Perspective*, p. 26. Cf. Jack D. Eller, *Introducing Anthropology of Religion: Culture to the Ultimate*, Routledge, New York 2015, p. 263. For the different meanings of 'secular', cf. Peter L. Berger, Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, Anchor Books Editions, New York 1967; Peter L. Berger, *The Sacred Canopy: Elements of a Sociological Theory of Religion*, Anchor Books Editions, New York 1990; Barry A. Kosmin, Ariela Keysar, *Secularism & Secularity: Contemporary International Perspectives*, CT: Institute for the Study of Secularism in Society and Culture, Hartford 2007. I should also emphasise that



and his usage of the Bible as his reference to justify his ideas cannot be seen as harmful to his secular position.¹³

Luther and Bacon did not define themselves as secular, but that does not mean it is not true. We can classify some philosophers as scholastics, even though they did not call themselves scholastics, or we can classify some poets as romantic, even if they did not call themselves romantic. Luther wanted to re-Christianize the Church and state, but it should not be forgotten that he believed that real Christianity makes a separation between earthly and religious authorities. Since Luther's understanding of Christianity supports the distinction between earthly and heavenly authorities, it can be called secular. Then, it is explicit that applying the definition of secularisation in the sense of anti-Christian or irreligious to the Reformation period is an obvious anachronism. Indeed, when we consider secularisation in the sense of delivering society, culture, and science (secular knowledge) from religious tutelage, there is nothing wrong with being religious and being supportive of secularisation at the same time. Then, since the topic of this paper is related to natural philosophy, we should consider whether Bacon tried to liberate natural philosophy (secular knowledge) from the tutelage of theology.

Bacon's role in the religious reform regarding natural philosophy should be considered by taking into account the unfavourable attitude towards secular knowledge, which was formed by religious authorities.¹⁴ This approach to secular knowledge, which was seen by Bacon as obstructive to the development of natural philosophy, can be classified into two categories. First, excessive knowledge of nature causes atheism. Second, natural knowledge should be appreciated if it can be used to understand the Scriptures.¹⁵ Bacon tried to remove these obstacles for the development of natural philosophy by reinterpreting the religious texts and removing the search for final causes from natural inquiries.

In section one, I will discuss how Bacon attempts to refute the claims of those who saw too much knowledge of nature as the cause of the fall of man and atheism. Bacon uses Biblical references to refute this claim. I will also discuss how the goal of natural philosophy as set by Bacon was an instrument which can cause us to regain our prelapsarian welfare. I argue that this argument frees the development of natural philosophy from the mentioned approach to secular knowledge caused by misinterpretation of the Bible, according to which secular knowledge was the cause of the Fall. The new goal for natural philosophy given by Bacon accords with the definition mentioned above of secularity because it encourages natural philosophical inquiries.

In sections two and three, I will discuss how Bacon draws a line between secular knowledge (the second causes) and the first cause (God) by showing true limitations of knowledge, and how he sees natural philosophy as the key to comprehending the bond between God and the second causes (his creatures). I argue that this role of natural philosophy cannot be interpreted as proof of non-secularity in Bacon's *Great Instauration*.

In section four, I will discuss how Bacon avoids intermingling natural philosophical inquiries with religion by using the Scriptures as references for his claim.

In sections five and six, I argue that Bacon's denial of mixing final causes with natural inquiries can be considered as proof of the secularity of his new philosophy of nature. To do this, I will make explanations regarding the classification of Baconian natural philosophy, and emphasise that Bacon assigns a different meaning than what Aristotle assigns to *philosophia prima*, *forms*

and *metaphysics*. Contrary to Aristotle, I will discuss that Baconian formal causes are not teleological, which is the reason that, unlike final causes, formal causes are considered by Bacon as the objects of natural inquiries. I argue that by excluding exploration into final causes from natural inquiries – which means ignoring God’s will in nature (but not denying it) – Bacon tries to protect the development of natural philosophy from the obstructive influences of natural and sacred theologies.

1. Is knowledge innocent?

Secular knowledge, or the knowledge of nature, was seen by most religious authorities as the cause of original sin or temptation of the human being, which caused the fall of man.¹⁶ It was believed, therefore, that if a man had

secularity does not necessarily refer to materialism or atheism. Bacon’s secular natural philosophy does not have to be a result of a belief that there is an enmity between secularity and religion. Paterson can be given as an example of someone who argues that Bacon was hostile to religion. Cf. Timothy H. Paterson, “On the Role of Christianity in the Political Philosophy of Francis Bacon”, *Polity* 19 (1987) 3, pp. 419–442, doi: <https://doi.org/10.2307/3234797>; Timothy H. Paterson, “The Secular Control of Scientific Power in the Political Philosophy of Francis Bacon”, *Polity* 21 (1989) 3, pp. 457–480, doi: <https://doi.org/10.2307/3234743>. Contrary to Paterson, I do not believe Bacon was hostile to religion, but I argue that even though his science is guided by divine Providence, Bacon’s natural philosophy is secular.

13

Christopher Nadon also argues that secularisation was not an irreligious act: “... as a historical question, it is beyond doubt that aspects of secularisation have often been initiated and motivated by religious concerns and passions, as, for example, in the role played by Baptists in the establishment of the separation of the church and state in the United States.” – C. Nadon, “Enlightenment and Secularism”, p. xxii. Nadon coined the term *religious secularism* to be able to define the position of those who support the secularisation through religious references: “I mean by ‘religious secularism’ the conscious effort to reform the practice and self-understanding of religion so as to make it more amenable to political or other ends that are not themselves grounded, nor believed to be grounded, on religious presuppositions.” – C. Nadon, “Enlightenment and Secularism”, p. xxii. Robert Faulkner argues in his *Bacon’s New Atlantis: From Faith in God to Faith in Progress* that Bacon’s *New Atlantis* transfers authority from priests to scientists who do not deny religion. Cf. Robert Faulkner, “Bacon’s New Atlantis: From Faith in God to Faith in Progress”, in: C. Nadon (ed.), *Enlightenment and Secularism*, pp. 55–66.

14

For the views of religious authorities about the relation between theology and natural philosophy, cf. Edward Grant, *Science and Religion, 400 BC to AD 1550: From Aristotle to Copernicus*, Johns Hopkins University Press, Baltimore 2006, pp. 191–220; Edward Grant, *A History of Natural Philosophy*, Cambridge University Press, New York 2007, pp. 239–273.

15

As Grant states about one of the Church Fathers: “Augustine strongly urged Christians not to seek secular knowledge for its own sake but to take only what is useful for a better understanding of scripture.” – E. Grant, *A History of Natural Philosophy*, p. 241. After the translations of Aristotle’s works had entered Europe during the late eleventh century and early twelfth century, theology started to be classified as a science through Alexander of Hales and Thomas Aquinas. As a result of this development, as Grant puts it, “while natural philosophy was virtually independent of theology, theology was utterly dependent on natural philosophy”. – E. Grant, *A History of Natural Philosophy*, p. 273. Classification of theology as a science seemed to be helpful to natural philosophers in avoiding introducing theological issues into their studies; however, theologians kept using natural philosophy in explaining the Scriptures, and, as I will discuss in the fourth section of this paper, Bacon was averse to applying natural philosophy to theology because it produces heretical religion.

16

For example, Peter Harrison cited the following words of St. Jerome, who was another one of the Church Fathers: “Is it not evident that a man who day and night wrestles with the dialectic art, the student of natural science whose gaze pierces the heavens, walks in vanity of understanding and darkness of mind?” – Peter Harrison, “Curiosity, Forbidden Knowledge, and the Reformation of Natural Philosophy in Early Modern Eng-



a vast knowledge of nature, it would cause him to swell with false pride.¹⁷ Concerning this, in his *Advancement of Learning* (1605),¹⁸ Bacon gives some examples from Biblical figures and says:

“I heare the former sort say, that knowledge is of those things which are to be accepted of with great limitation and caution, that thaspiring to ouermuch knowledge, was the originall temptation and sinne, whereupon ensued the fal of Man; that knowledge hath in it somewhat of the Serpent, and therefore where it entreth into a man, it makes him swel. *Scientia inflat*. That *Salomon* giues a Censure, *That there is no end of making Bookes, and that much reading is wearinesse of the flesh*. And againe in another place, *That in spatious knowledge, there is much contristation, and that he that encreaseth knowledge, encreaseth anxietie*: that *Saint Paul* giues a Caueat, *that we be not spoyled through vaine Philosophie*: that experience demonstrates, how learned men, haue beene Arch-heretiques, how learned times haue been enclined to Atheisme, and how the contemplation of second Causes doth derogate from our dependance vpon God, who is the first cause.”¹⁹

Bacon rejects the idea that learned men have a great tendency to be prideful, heretic and atheistic, and for him, this is because it had been thought that contemplation of the second causes reduced the interest of man to the first cause, namely God. Bacon does not accept this idea, and he argues in *The Advancement of Learning* that the reason for the Fall was not natural knowledge, but moral knowledge. He states:

“As for the knowledge which induced the Fall, it was, as was touched before, not the naturall knowledge of Creatures, but the morall knowledge of good and euill (...).”²⁰

Consequently, how Bacon interprets the fall of man is important to note. Bacon believes that the knowledge that caused the Fall was not the pure knowledge of nature, “but it was the proude knowledge of good and euill”.²¹ For him

“... it is an assured truth, and a conclusion of experience, that a little or superficial knowledge of Philosophie may encline the minde of Man to Atheisme, but a further proceeding therein doth bring the mind backe againe to Religion.”²²

In addition to natural knowledge, Bacon believes the quantity of knowledge cannot be the cause of arrogance because only the contemplation of God can fill the human soul. Related to this, Bacon gives another example from Solomon to show the innocence of the quantity of knowledge. According to these words of Solomon, there are two principal senses of inquisition: the eye and the ear.²³ For Solomon, the eye cannot be satisfied with seeing nor the ear with hearing, and Bacon interprets this as follows:

“... the Continent is greater, than the Content.”²⁴

What he means by this is that the human mind (the continent) is greater than the quantity of knowledge (content). Bacon also cites the following words of Solomon in his *Advancement of Learning*:

“*God hath made all thinges beautifull or decent in the true returne of their seasons. Also hee hath placed the world in Mans heart, yet cannot Man finde out the worke which God worketh from the beginning to the end.*”²⁵

As is seen, the world (nature) was placed in men’s hearts, but they still do not have enough ability to learn God’s work. In saying this, Solomon refers to the supreme law of nature, which cannot be discovered by man. Bacon believes, however, that Solomon did not undervalue the human mind because he also accepted human inquiry and invention. As cited by Bacon, Solomon states:

“The Spirite of Man is as the Lampe of God, wherewith hee searcheth the inwardnesse of all secrets.”²⁶

As a result, Bacon believed that, because the human mind has enough capacity, the quantity of knowledge is not a problem. Further, the Apostle (St. Paul) shows us the way to avoid a man’s brain from the swelling effect of knowledge when he says that, “*Knowledge bloweth vp, but Charitie buildeth vp*”.²⁷ Thus, for Bacon, charity should be seen as the goal of knowledge to be beneficial for the welfare of humanity, to regain the domination of the human being on nature that he had before the Fall.²⁸

2. True bounds of knowledge

There should, however, be some limitations for human knowledge, and Bacon interprets the words mentioned above by Solomon and St. Paul as those which show the true bounds of human knowledge. Solomon talks about anxiety as a result of excessive reading and writing, and St. Paul warns us that we should not be seduced by vain philosophy.²⁹ These words can be easily interpret-

land”, *Isis* 92 (2001) 2, pp. 265–290, p. 267, doi: <https://doi.org/10.1086/385182>. Cf. Peter Harrison, “Experimental Religion and Experimental Science in Early Modern England”, *Intellectual History Review* 21 (2011) 4, pp. 413–433, doi: <https://doi.org/10.1080/17496977.2011.623882>.

17

In 1 Corinthians it says: “Knowledge puffs up, but love builds up.” (1 Cor 8:1) – *The Holy Bible. New International Version, containing the Old Testament and the New Testament*, New York International Bible Society, New York 1979.

18

Most of Bacon’s explanations about the relation between religion and natural philosophy were made in his *Advancement of Learning* (1605) and *De Augmentis Scientiarum* (1623), and these explanations are similar to each other. However, in this paper, I have mostly used Bacon’s *Advancement of Learning* for his explanations. The reason I chose *Advancement of Learning* was that I found it more explanatory in terms of the subject. However, in the following pages, I have informed the readers where they can find similar passages in the *De Augmentis Scientiarum* to those which I have quoted from *Advancement of Learning*. As to the discussion on final causes in sections five and six, I preferred to use mostly *De Augmentis Scientiarum*, even though similar views can be found in the *Advancement of Learning*, as I found Bacon’s explanations about final causes in the *De Augmentis Scientiarum* clearer and more detailed.

19

Francis Bacon, *The Advancement of Learning*, in: Michael Kiernan (ed.), *The Oxford Francis Bacon Vol. IV*, Oxford University Press, New York, pp. 5–6.

20

Ibid., p. 34.

21

Ibid., p. 6.

22

Ibid., pp. 8–9.

23

Cf. *ibid.*, p. 6.

24

Ibid.

25

Ibid.

26

Ibid., p. 7.

27

Ibid., p. 7.

28

As Harrison states: “Francis Bacon, as is well known, saw in the sciences the prospect of restoring, or at least repairing, the losses to knowledge that has resulted from the Fall.” – Peter Harrison, *The Fall of Man and the Foundations of Science*, Cambridge University Press, Cambridge 2007, p. 4. Cf. Peter Harrison, “Francis Bacon, Natural Philosophy, and the Cultivation of the Mind”, *Perspectives on Science* 20 (2012) 2, pp. 139–158, doi: https://doi.org/10.1162/posc_a_00060; Stephen Gaukroger, *Francis Bacon and the Transformation of Early-Modern Philosophy*, Cambridge University Press, Cambridge 2001, pp. 74–83.

29

As Bacon quotes St. Paul’s words: “That wee bee not seduced by vayne Philosophie”. – F. Bacon, *The Advancement of Learning*, p. 7. For vain (or imaginary) philosophy, see also section four in this paper.

ed negatively in regards to learning; however, Bacon states that when these words are rightly understood, they show us the true limitations of knowledge, which are three in number:

“The first, *That wee doe not so place our felicitie in knowledge, as wee forget our mortalitie.* The second, *That we make application of our knowledge to giue our selues repose and contentment, and not distast or repining.* The third: that we doe not presume by the contemplation of Nature, to attaine to the misteries of God.”³⁰

Among them, the third limitation is the most important for our inquiry because by showing the relation between the second causes (nature) and the first cause (God),³¹ it illustrates the secularity in Bacon’s natural philosophy.

Regarding the third limitation, we can say that when someone attempts to inquire into the material and sensible world to learn about the ‘will of God’ (the mysteries of God or the Scriptures), then he will be spoiled by vain (or imaginary) philosophy. Natural knowledge can be achieved through the contemplation of nature, but learning the ‘will of God’ by the light of nature produces ‘wonder’, that is, ‘broken knowledge’. As Bacon states:

“... if any man shall thinke by view and enquiry into these sensible and material things to attaine that light, whereby he may reueale vnto himselfe the nature or will of God: then indeed is he spoyled by vaine Philosophie: for the contemplation of Gods Creatures and works produceth (hauing regard to the works and creatures themselues) knowledge, but hauing regard to God, no perfect knowledg, but wonder, which is broken knowledge.”³²

As is seen, for Bacon, if someone tries to understand the ‘will of God’ (i.e. the Scriptures) through natural philosophy, the result of this inquiry produces ‘broken knowledge’ or ‘vain philosophy’. However, the true way to learn the ‘will of God’ is the Scriptures, and God’s creatures express only his power.³³ When we consider the traditional role of natural philosophy as the handmaiden of Christian theology, Bacon saved natural philosophy from being the handmaiden to theology by prohibiting using natural philosophy to explain the will of God (or the Scriptures).

Saint Augustine (354–430) was one of those who adopted natural philosophy as the handmaiden of theology. He emphasised that Christians should not seek secular knowledge for its own sake because it has little value; however, when it is used to apprehend God’s will, it becomes more valuable.³⁴ God’s power refers to his creativeness or being the first cause. When you see the link between the second causes and the first cause, you acknowledge God’s power as the first cause, and admitting God as the first cause through the study on nature (God’s work) is not something which is assigned by Bacon to natural philosophy, but to divine philosophy or natural theology.³⁵

Bacon accepts the role of natural philosophy (secondary causes) as the key to understanding the bond between God as the first cause and his creatures as the second causes. We can then ask whether the role of natural philosophy, being the key to seeing the bond between the first and the second causes, makes Bacon’s natural philosophy non-secular. I will answer this question below.

3. The foot of Jupiter’s chair

For Bacon, if someone has natural knowledge only in small quantities, s/he could be dragged into atheism. However, if someone learns more about the second causes, and if s/he has a deeper understanding of them rather than a superficial one, this deep knowledge of the second causes will reunite his or her mind with religion. As Bacon states in his *Advancement of Learning*:

“But further, it is an assured truth, and a conclusion of experience, that a little or superficial knowledge of Philosophie may encline the minde of Man to Atheisme, but further proceeding therein doth bring the mind backe againe to Religion: for in the entrance of Philosophie, when the second Causes, which are next vnto the sences, do offer themselues to the minde of Man, if it dwell and stay there, it may induce some obliuion of the highest cause; but when a man passeth on further, and seeth the dependance of causes, and the workes of prouidence; then according to the allegorie of the Poets, he will easily beleeeue that the highest Linke of Natures chaine must needes be tyed to the foote of *Iupiters* chaire.”³⁶

The bond between the first cause and the second causes, which can be comprehended by further knowledge of the second causes, is expressed by Bacon as ‘the foote of *Iupiters* chaire’.³⁷ What Bacon means by Jupiter’s throne is God as the first cause. Thus, natural or secondary causes should be linked to the first cause through the study of natural philosophy, and this study of the secondary causes will save us from atheism; however, we should not expect that a study of the second causes will help us to understand the Scriptures (except helping us to understand God’s existence as the first cause, which is seen by Bacon as the essence of the Scriptures). Seeing God as the first cause saves us against infidelity.³⁸ As mentioned above, this is one of the limita-

30

F. Bacon, *The Advancement of Learning*, p. 7.

31

For the separation between the first and the second causes, cf. St. Thomas Aquinas, *On the Truth of the Catholic Faith, Summa Contra Gentiles, Book Three: Providence Part I*, translated by Vernon J. Bourke, Doubleday & Company, Inc., New York 1956, pp. 258–260.

32

F. Bacon, *The Advancement of Learning*, p. 8.

33

Cf. F. Bacon, *The Advancement of Learning*, pp. 37–38. Francis Bacon, *Valerius Terminus of the Interpretation of Nature*, in: James Spedding et al (eds.), *The Works of Francis Bacon Vol. III*, Longman and Co., London 1857, p. 267; Francis Bacon, *Novum Organum*, in: Graham Rees, Maria Wakely (eds.), *The Oxford Francis Bacon Vol. XI*, Oxford University Press, New York 2004, p. 145.

34

St. Augustine, *De Doctrina Christiana*, translated by R. P. H. Green, Oxford University Press, New York 1995, p. 125.

35

Related to the handmaiden role of natural philosophy, I want to clarify what Bacon wrote in *Novum organum* (1620): “But if we take the matter rightly, natural philosophy after the Word of God is the best medicine for superstition and most highly recommended food for faith. And so to religion natural philosophy is rightly given as her most faithful servant, the former manifesting God’s will, the latter His power.” – F. Bacon, *Novum Organum*, p. 145. In reading these words, John Henry argues that “he [Bacon] clung to the traditional view that the correct natural philosophy, if we could

discover it, would be the perfect handmaid to the true religion”. – J. Henry, *Knowledge is Power*, p. 92. However, Bacon does not think in the same way as St. Augustine about the role of natural philosophy. First, according to Bacon, if you explain the Scriptures using natural philosophy, you end up with heretical religion (see section four in this paper for heretical religion). Natural philosophy, or the contemplation of nature, is the guarantor of faith and for this very reason Bacon accepts natural philosophy as the handmaiden to religion, but not as a tool which is useful to understand the Scriptures, as St. Augustine believes. Bacon sees the essence of the Scriptures as the existence of God, and the contemplation of nature (or the second causes) helps us to see the God as the first cause, so it protects us against infidelity, and this is the reason Bacon attributes a handmaiden role to religion.

36

F. Bacon, *The Advancement of Learning*, p. 9. Cf. Francis Bacon, *The Essayes or Counsels, Civill and Morall*, in: Michael Kiernan (ed.), *The Oxford Francis Bacon Vol. XV*, Oxford University Press, New York 2000, p. 51.

37

Bacon also indicates in the *De Augmentis Scientiarum* (1623) that nature’s chain is the famous chain of Homer, which is the chain of natural causes. Cf. Francis Bacon, *De Augmentis Scientiarum*, in: James Spedding et al (eds.), *The Works of Francis Bacon Vol. IV*, Longman and Co., London 1858, p. 322.

38

It should be emphasised again that this role of natural philosophy was evaluated by Bacon under the scope of natural theology.

tions of knowledge. Thus, one of the benefits of natural knowledge, apart from charity, is its ability to help us see the bond between God and his creation. Why then is this approach of Bacon accepted as secular? The answer is that it frees natural inquiries from being a reason to forget the highest cause, God.

I should emphasise that the bond between God and the second causes is a justification of God's existence because it helps us to see the whole chain of causes which springs from a certain source, God (the first cause); and, it also removes the barriers to a knowledge of nature (secular knowledge) because it encourages natural inquiries by saving us from the belief that the knowledge of nature is one of the causes of atheism. Then, we can say that the bond between the second causes and God makes Bacon's natural philosophy secular in the sense of freeing natural inquiries from the argument of religious authorities who saw secular knowledge as a threat to religion.

4. Heretical religion or imaginary philosophy

To prevent natural philosophical inquiries from intermingling with religion, Bacon accepts the Scriptures as something that shows us the 'will of God', and he accepts nature, that is, the 'works of God', as something that shows us the power of God.³⁹

For Bacon, contemplation of the second causes is the main key to comprehending the highest cause, God. Concerning the key for the highest cause, he states:

"... as concerning DIVINE PHILOSOPHIE, or NATVRALL THEOLOGIE, It is that knowledge or Rudiment of knowledge concerning GOD, which may be obtained by the contemplation of his Creatures: which knowledge may bee truely tearmed Diuine, in respect of the object; and Naturall in respect of the Light."⁴⁰

As mentioned in the previous section, for Bacon, the acknowledgement of God (that is, seeing God as the first cause) by the contemplation of the second causes is part of divine philosophy or natural theology, because while its object is divine, its light is nature, that is, the works of God.⁴¹

As mentioned above, Bacon believes that the knowledge of nature is enough to prevent people from putting their faith in atheism; however, it is not enough to inform religion. Acknowledgement of God is possible through the contemplation of nature, but to derive the points of faith from the contemplation of nature is not safe. Bacon explains:

"... wherfore by the contemplation of Nature, to induce and inforce the acknowledgement of God, and to demonstrate his power, prouidence, and goodnesse, is an excellent argument, and hath bene excellently handled by diuerse. But on the other side, out of the contemplation of Nature, or ground of humane knowledges to induce any veritie, or perswasion concerning the points of Faith, is in my iudgement, not safe."⁴²

'Sacred theology' (divinity), in comparison, deals with the 'words of God' (mysteries of God). However, as mentioned above, we should not try to explain the 'words of God' by appealing to natural philosophy, or we should avoid finding the truth of nature among the 'words of God' (i.e. the Scriptures). More clearly, if someone tries to find the truth of natural philosophy by appealing to the Scriptures, he makes an imaginary and fabulous philosophy; and if someone tries to explain the 'words of God' by appealing to natural philosophy, he makes a heretical religion. Thus, in both ways, with the mix-

ing of philosophy and religion, the results are these mentioned errors, either imaginary philosophy or heretical religion.⁴³

Now, let us examine how Bacon emphasises avoiding mixing philosophy with religion, which is a necessary attitude for the goodness of them both:

“To conclude therefore, let no man, vpon a weake conceite of sobrietie, or an ill applyed moderation thinke or maintaine, that a man can search too farre, or bee too well studied in the Booke of Gods word, or in the Booke of Gods workes; Diuinitie or Philosophie; but rather let men endeauour an endless progresse or proficience in both: only let men beware that they apply both to Charitie, and not to swelling; to vse, and not to ostentation; and againe, that they doe not vnwisely mingle or confound these learnings together.”⁴⁴

Bacon also explains these two errors by appealing to the ‘words of God’. In the Bible, God says that “Heauen and Earth shall passe, but my worde shall not passe”.⁴⁵ Thus, for Bacon, if someone seeks heaven and earth (that is, the second causes), in the ‘words of God’, he seeks transitory things among the perpetual. Bacon thinks that seeking philosophy in divinity can be likened to seeking the dead among the living. Similarly, seeking divinity in philosophy is a similar thing to seeking the living among the dead.⁴⁶ As seen, divinity (the will or words of God) should not be sought in nature, and natural philosophy should not be sought in divinity.⁴⁷

Bacon gives Paracelsus and the Paracelsians as an example of searching for the truth of natural philosophy in the Scriptures.⁴⁸ Related to this, Silvia Manzo argues that Bacon made the same mistake as the Paracelsians did. For Manzo, Bacon used the Bible as a source for the construction of the principle of the constancy of matter, and this shows us that there is “a tension between

39

F. Bacon, *The Advancement of Learning*, p. 37. Also: “... no light of nature extends to declare the will and worship of God. For as all works show forth the power and skill of the workman (...).” – F. Bacon, *De Augmentis Scientiarum Vol IV*, p. 341.

40

F. Bacon, *The Advancement of Learning*, p. 78. Cf. F. Bacon, *De Augmentis Scientiarum Vol IV*, pp. 341–342.

41

Bacon distinguishes theology into ‘natural theology’ and ‘sacred theology’. For Bacon, while ‘inspired theology’ (or ‘sacred theology’) springs from the Scriptures, ‘natural theology’ (or ‘divine philosophy’) springs from the light of nature. Natural theology includes inquiries concerning God, unity, the nature of good, angels, and spirits. Cf. Bacon, *De Augmentis Scientiarum Vol IV*, p. 346. For the difference between inspired (sacred) and natural theology, cf. Silvia Alejandra Manzo, “Francis Bacon: Freedom, Authority and Science”, *British Journal for the History of Philosophy* 14 (2006) 2, pp. 245–273, doi: <https://doi.org/10.1080/09608780600601417>.

42

F. Bacon, *The Advancement of Learning*, p. 79. Cf. F. Bacon, *De Augmentis Scientiarum Vol IV*, pp. 341–342.

43

Cf. F. Bacon, *The Advancement of Learning*, p. 188; F. Bacon, *Novum Organum*, p. 103; F. Bacon, *De Augmentis Scientiarum Vol IV*, p. 342.

44

F. Bacon, *The Advancement of Learning*, p. 9.

45

Ibid., p. 188.

46

Cf. *ibid.* Also cf. F. Bacon, *De Augmentis Scientiarum*, p. 117.

47

John Briggs problematically argues: “In the section just quoted, Bacon’s use of <<unwisely>> suggests that divinity and nature (he means divine philosophy and natural philosophy) can indeed be mixed if mixed wisely.” See: J. C. Briggs, “Bacon’s Science and Religion”, p. 175. It seems that Briggs confuses divinity with ‘divine philosophy’. As mentioned before, divinity refers to the Scriptures or ‘sacred theology’, but ‘divine philosophy’ refers to ‘natural theology’.

48

Cf. F. Bacon, *The Advancement of Learning*, p. 188.

Bacon's proclaimed views and his actual practise".⁴⁹ However, I do not believe Bacon used the Scriptures for the construction of his natural philosophy. Firstly, as it is also emphasised by Manzo herself, the axiom regarding the constancy of matter is the object of *Philosophia Prima* or *Summary Philosophy*. Bacon states that *Philosophia Prima* and metaphysics have been accepted as the same thing; however, he accepts them as two separate disciplines. *Philosophia Prima* has a different meaning in the Baconian schema than in the Aristotelian one. Bacon defines *Philosophia Prima* (Universal Science) as "a science be constituted, which may be a receptacle for all such axioms as are not peculiar to any of the particular sciences, but belong to several of them in common".⁵⁰ The axioms of universal science belong to more than one particular science. Bacon gives several examples of these kinds of axioms. For instance, an axiom which holds in mathematics holds in ethics, or an axiom in physics holds in politics.⁵¹ As to the principle of the constancy of matter, Bacon states:

"All things are changed and nothing is lost", is in like manner a rule in Physics, exhibited thus, 'The Quantum of nature is neither diminished nor increased'. The same holds in Natural Theology, with this variation, 'It is the work of omnipotence to make somewhat nothing, and to make nothing somewhat'; which likewise the Scripture testifies; 'I know that whatsoever God doeth, it shall be for ever; nothing can be put to it, nor anything taken from it'.⁵²

As is seen, the axiom of the constancy of matter holds in physics, natural theology, and the Scriptures. We cannot deduce from the above words of Bacon that he appeals to the Scriptures to justify and construct the principle of the constancy of matter. Bacon also mentions other axioms which hold both in physics and politics and both in physics and morals. If we consider these examples, can we deduce from them that Bacon appeals to morals and politics to construct and justify his physics? As a result, it is worth noting that Bacon did not make the same mistake as the Paracelsians did, which is seeking the truth of nature in the Scriptures.⁵³

5. A virgin consecrated to God: Final causes as a result of barren inquisitions

Bacon divides the speculative (theoretical) part of natural philosophy into three parts: natural history, physics, and metaphysics.⁵⁴ The important issue for our concern in this classification is the use of the term 'metaphysics' in a different sense from the accustomed one.⁵⁵ Bacon accepts metaphysics as a branch of natural philosophy,⁵⁶ and when he compares physics with metaphysics regarding their scopes in natural philosophy, he states:

"And herein without prejudice to truth I may preserve thus much of the conceit of antiquity, that Physic handles that which is most inherent in matter and therefore transitory, and Metaphysic that which is more abstracted and fixed. And again, that Physic supposes in nature only a being and moving and natural necessity; whereas Metaphysic supposes also a mind and idea."⁵⁷

By taking the scopes of physics and metaphysics into consideration, Bacon assigns material and efficient causes for physics, and formal and final causes for metaphysics. But what should draw our attention is that while "physic supposes in nature only a being and moving and natural necessity; (...) metaphysic supposes also a mind and idea". Here, 'a mind and idea' refers to final causes which are teleological. As final causes are teleological causes, natural philosophers should ignore them. For Bacon, final causes can only be argued in metaphysical speculations. However, formal causes, which are also a part of metaphysics, are the objects of natural philosophers.⁵⁸ Thus, we can say

that metaphysics can be considered part of natural inquiries because formal causes are the objects of natural philosophers. But, even though final causes are a part of metaphysics, they are not the objects of natural philosophers because Bacon believes that final causes are specious and shadowy, and they “obviously come from the nature of man rather than of the universe”.⁵⁹ His words do not mean final causes are not true, but the human mind cannot reveal that final causes; they can only be speculated. Bacon specifically says ‘metaphysical speculations’ because, as mentioned above, final causes are related to man’s nature instead of the nature of the universe.

Formal causes, however, are the proper objects of natural philosophers, so they should be investigated with the proper method of natural philosophy, which is Bacon’s new inductive experimental method.⁶⁰ This distinction be-

49

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) 2, pp. 114–126, p. 125, doi: <https://doi.org/10.1163/157338299x00256>

50

F. Bacon, *De Augmentis Scientiarum Vol IV*, p. 337.

51

Cf. *ibid.*, pp. 337–339.

52

Ibid., p. 338.

53

Peter Forshaw states: “In a similar way to Luther, Paracelsus had called for a return to scripture, though for him this meant God’s two books, Word and World. (...) It is evident, too, that he understands these books to be mutually revelatory.” – Peter J. Forshaw, “Vitriolic Reactions: Orthodox Responses to the Alchemical Exegesis of Genesis”, in: Kevin Killeen, Peter J. Forshaw (eds.), *The Word and the World: Biblical Exegesis and Early Modern Science*, Palgrave Macmillan, New York 2007, pp. 111–136, p. 112. Being mutually revelatory comes to mean that both natural philosophy and the Scriptures can be used in explaining each other. Forshaw also states that “Paracelsus took Genesis as the legitimising basis for his own research”. – *Ibid.*, p. 113. Allen Debus also states: “For them [chemical philosophers, Paracelsians] the Creation account in Genesis and the belief in the importance of fresh observational evidence were always united.” – Allen G. Debus, “Motion in the Chemical Texts of the Renaissance”, *Isis* 64 (1973) 1, pp. 4–17, p. 15, doi: <https://doi.org/10.1086/351040>.

54

For Bacon’s classification of sciences, cf. Sachiko Kusakawa, “Bacon’s Classification of Knowledge”, in: M. Peltonen (ed.), *The Cambridge Companion to Bacon*, pp. 47–74, doi: <https://doi.org/10.1017/CCOL052143498X.003>;

Peter R. Anstey, “Francis Bacon and the Classification of Natural History”, *Early Science and Medicine* 17 (2012) 1–2, pp. 11–31, doi: <https://doi.org/10.1163/157338212x631765>.

55

Cf. F. Bacon, *De Augmentis Scientiarum Vol IV*, pp. 345–346.

56

Ibid.

57

Ibid., p. 346.

58

On Baconian forms, cf. Virgil K. Whitaker, “Bacon’s Doctrine of Forms: A Study of Seventeenth-Century Eclecticism”, *Huntington Library Quarterly* 33 (1970) 3, pp. 209–216, doi: <https://doi.org/10.2307/3816635>; Mary Horton, “In Defence of Bacon: A Criticism of the Critics of the Inductive Method”, *Studies in the History and Philosophy of Science* 4 (1973) 3, pp. 241–278, doi: [https://doi.org/10.1016/0039-3681\(73\)90010-1](https://doi.org/10.1016/0039-3681(73)90010-1); Doina-Cristina Rusu, *From Natural History to Natural Magic: Francis Bacon’s Sylva sylvarum*, University of Bucharest, Bucharest 2013, pp. 192–197.

59

F. Bacon, *Novum Organum*, p. 87. Bacon also says that “the human intellect being unable to stop still lusts after things still better known to nature. But then straining for what is further off it falls back on something closer to, namely final causes”. – *Ibid.* pp. 85–87.

60

On the inductive method (or logic) of Bacon, cf. M. Horton, “In Defence of Bacon”; Mary Hesse, “Francis Bacon’s Philosophy of Science”, in: Brian Vickers (ed.), *Essential Articles for the Study of Francis Bacon*, Archon Books 1968, pp. 114–139; Brian Vickers, “Francis Bacon and the Progress of Knowledge”, *Journal of the History of Ideas* 53 (1992) 3, pp. 495–518, doi: <https://doi.org/10.2307/2709891>; Michel Malherbe, “Bacon’s Method of Sci-



tween formal and final causes should be remembered. Final causes are a part of metaphysics, which is a branch of natural philosophy, but they are not the objects of natural philosophers. For Bacon, the issue related to final causes is searching for them in physics, as he states in his *De Augmentis Scientiarum*:

“The second part of Metaphysic is the inquiry of Final Causes, which I report not as omitted, but as misplaced. For they are generally sought for in Physic, and not in Metaphysic. And yet if it were but a fault in order I should not think so much of it; for order is matter of illustration, but pertains not to the substance of sciences. But this misplacing has caused a notable deficiency, and been a great misfortune to philosophy. For the handling of final causes in physics has driven away and overthrown the diligent inquiry of physical causes, and made men to stay upon these specious and shadowy causes, without actively pressing the inquiry of those which are really and truly physical; to the great arrest and prejudice of science.”⁶¹

Bacon believes that not only Plato, but Aristotle, Galen and many others made the same mistake, which is mixing final causes with physical causes.⁶² However, Joseph de Maistre criticises Bacon for thinking that mixing final causes with physical inquiries prevents the progress of the sciences. He believes that Bacon contradicts himself with his thoughts on final causes.⁶³ Why does de Maistre think this? The answer can be found in the following words of Bacon:

“For the cause rendered, ‘that the hairs about the eyelids are for the safeguard of the sight’, does not impugn the cause rendered, ‘that pilosity is incident to orifices of moisture’; Nor the cause rendered, ‘that the firmness of hides in animals is for the armour of the body against extremities of heat or cold’, does not impugn the cause rendered, ‘that this firmness is caused from the contraction of the pores in the outward parts by cold and depredation of the air’; and so of the rest; both causes being perfectly compatible, except that one declares an intention, the other a consequence only.”⁶⁴

De Maistre’s point is that, on the one hand, Bacon says that mixing final causes with physical inquiries is wrong, but on the other hand, Bacon says that both causes are perfectly compatible. And compatibility among these causes means that we can deduce physical causes from final causes. Regarding this, I believe that de Maistre interprets Bacon’s words incorrectly. As de Maistre says, Bacon holds that physical and final causes are compatible, and I believe this is true. The reason for this is that they are real causes, so they must be compatible. However, what is neglected by de Maistre is that, for Bacon, as human beings cannot achieve final causes, these causes have to be speculations for us. Deducing physical causes from these speculations, as in the above examples given by Bacon, means that we are deducing physical causes from speculations. Thus, yes, in nature there are final causes, and they are compatible with physical causes, but we do not have any ability to reveal final causes, so they can only be argued as metaphysical speculations and should not be mixed with physical inquiries.

In addition to this, pursuing final causes does not provide anything to the man. They are useless and barren because there is nothing which corresponds to final causes in the operative part of natural philosophy. For example, there are mechanics for physics and magic for formal causes; however, there is nothing in the operative part of natural philosophy for final causes. As stated by Bacon in the *De Augmentis Scientiarum*:

“THE operative doctrine concerning nature I will likewise divide into two parts, and that by a kind of necessity, for this division is subject to the former division of the speculative doctrine; and as Physic and the inquisition of Efficient and Material causes produces Mechanic, so Metaphysic and the inquisition of Forms produces Magic. For the inquisition of Final Causes is barren, and like a virgin consecrated to God produces nothing.”⁶⁵

Contrary to Aristotle, Galen, and Plato, who mixed their physical inquiries with final causes, Bacon presents the philosophy of Democritus as a better one for natural philosophical inquiries:

“And therefore the natural philosophy of Democritus and others, who removed God and Mind from the structure of things, and attributed the form thereof to infinite essays and proofs of nature (which they termed by one name, Fate or Fortune), and assigned the causes of particular things to the necessity of matter, without any intermixture of final causes, seems to me (so far as I can judge from the fragments and relics of their philosophy) to have been, as regards physical causes, much more solid and to have penetrated further into nature than that of Aristotle and Plato.”⁶⁶

For Bacon, mixing final causes with physical inquiries is an obstacle for the progression of natural philosophy. According to Bacon, removing God and mind from the structure of things, and assigning ‘the causes of particular things to the necessity of matter, without any intermixture of final causes’ gave Democritus the chance to establish a better way to be followed in natural philosophy. Since Bacon defines the Scriptures as the ‘will of God’, and since the ‘will of God’ refers to a mind in nature, we can say that the Scriptures include final causes. Thus, using natural philosophy to learn the Scriptures, or vice versa, can be defined as mixing natural inquiries with final causes, which is prohibited by Bacon.

6. Teleology or non-teleology in nature

Bacon criticises Aristotle for putting nature, instead of God, as the fountain of final causes.⁶⁷ He believes that Aristotle made nature pregnant to final causes, wasted time on final causes, and mixed his natural philosophy with these specious and shadowy causes. Bacon did not believe that Democritus and Epicurus wasted time on final causes; however, their idea that “the fabric of the universe itself had come together through the fortuitous concourse of the atoms, without a mind”⁶⁸ was also censured by Bacon. For Bacon, Democritus and Epicurus “were met with universal ridicule”⁶⁹ when they offered a

ence”, in: M. Peltonen (ed.), *The Cambridge Companion to Bacon*, pp. 75–98, doi: <https://doi.org/10.1017/ccol052143498x.004>; John P. McCaskey, *Regula Socratis: The Rediscovery of Ancient Induction in Early Modern England*, Stanford University 2006.

⁶¹ F. Bacon, *De Augmentis Scientiarum Vol IV*, p. 363. Cf. F. Bacon, *The Advancement of Learning*, p. 86.

⁶² Cf. F. Bacon, *De Augmentis Scientiarum Vol IV*, p. 363. Physical causes, which are material and efficient, are a part of physics. Formal causes are a part of metaphysics in the Baconian classification of natural philosophy; however, because they are one of the objects of natural (or physical) inquiries, I also call formal causes ‘physical’. Bacon uses the same expression, physical causes, for the objects of natural inquiries.

⁶³ Cf. Joseph de Maistre, *Examination of the Philosophy of Bacon: Wherein Different Ques-*

tions of Rational Philosophy Are Treated, translated by Richard A. Lebrun, McGill-Queen’s University Press, Buffalo 1998, p. 248.

⁶⁴ F. Bacon, *De Augmentis Scientiarum Vol IV*, p. 364. For mixing final causes with physical inquiries, cf. F. Bacon, *The Advancement of Learning*, pp. 86–87.

⁶⁵ F. Bacon, *De Augmentis Scientiarum Vol IV*, p. 365.

⁶⁶ *Ibid.*, pp. 363–364.

⁶⁷ Cf. *ibid.*, p. 364.

⁶⁸ *Ibid.*, p. 365.

⁶⁹ *Ibid.*

coincidental gathering of atoms for the fabric of the universe. Bacon cites the following words of Aristotle to show the effect of final causes in Aristotle's conception of nature:

“Nature does nothing in vain, and always affects her will when free from impediments.”⁷⁰

This citation of Bacon from Aristotle shows that final causes refer to purpose in nature; namely, nature always acts to reach a certain end. Because Aristotle puts nature as a fountain of final causes, he does not need God anymore; however, instead of ascribing teleology to nature, Democritus and Epicurus assigned accidentality in the formation of nature. They chose the fortuitous concourse of the atoms for the formation of the universe, which is a ridiculous idea for Bacon. However, it was helpful to Democritus and Epicurus not to waste their time on final causes.

Democritus assigns accidentality to the movements of atoms during their formation, which is called the chaotic stage. Later, the chaotic stage of the fortuitous concourse of the atoms gave its place to necessity. This is the non-teleological universe of Democritus, and if there is no purpose in nature but necessity, you cannot talk about a mind which rules over physical or secondary causes.⁷¹

In conclusion, I would like to note that for Bacon, even though final causes are true and can be argued in metaphysical speculations, natural philosophers should ignore them because they are useless, shadowy, and beyond human comprehension. When a natural philosopher ignores final causes, indeed, he ignores divine purpose in natural events, and from the point of natural inquiry, the difference between Democritus' natural philosophy and Bacon's natural philosophy disappears. When final causes are ignored, Baconian physical causes and the necessity of Democritus become equal because Democritus assumes there are no final causes, and Bacon excludes them from natural inquiries. This closeness between the natural philosophy of Democritus and Bacon, in practice, is one of the reasons why Bacon praises Democritus' natural philosophy more than Plato's and Aristotle's.⁷²

7. Conclusion

When we examine the Biblical references used by Bacon, we see that he used them to free secular knowledge from the idea of those who saw it as a threat to religion. When we try to decide whether Bacon's *Great Instauration* is secular or not, we should compare him with those who thought that natural knowledge should be used to understand the Scriptures and that too much natural knowledge causes atheism. However, those who think that Bacon's *Great Instauration* is not secular take the idea that secularism cannot include any religious motif as their reference point, so they conclude that Bacon's *Instauration* is not secular. Bacon's religious idea that humanity can regain his or her prelapsarian position via the advancing of natural philosophy is a counter-argument against those who saw natural philosophy as a threat to religion. Bacon uses religious references to free natural philosophy from the misinterpretations as mentioned earlier regarding the Bible, which were obstacles to the development of natural philosophy. Bacon's *Great Instauration* should be accepted as secular because it offers natural philosophy freedom from the religious barriers caused by those misinterpretations of the Bible.

Religious (secular) reform was not an irreligious reform. There were possibly atheists or deists among them, but Francis Bacon was not one of them, and

indeed many of the defenders of secular knowledge were religious. The Reformation was not an act made against Christianity, but it was made against certain interpretations of the Scriptures. Bacon tried to free natural inquiries from the religious obstacles sourced from the Biblical misinterpretations.

Seeking final causes has two obstacles to the development of natural inquiries. First, deducing physical causes from suspicious (speculative) final causes. This way of inquiry must be accepted as a harmful attempt for the new experimental method of Bacon. Second, removing the seeking into final causes (will of God) from natural inquiries was seen by Bacon as a way to save these inquiries from intermingling with theology. It is a protection against searching the truth of natural philosophy in the Scriptures and understanding the Scriptures via natural philosophy. As to natural theology, Bacon limits the role of natural philosophy in natural theology by seeing the bond between God and the second causes, which can be defined as the justification for God's existence. This role of natural philosophy cannot be seen as something which is against the secular character of Bacon's natural philosophy because it is not an obstacle to the development of natural philosophy, but indeed, it is an argument made to refute the claim which sees secular knowledge as one of the causes of atheism.

Luther insisted on the words of Jesus to justify the sovereignty of the secular authority on worldly things. In the Bible, Jesus says the following:

"Give to Caesar what is Caesar's, and to God what is God's."⁷³

70

Ibid.

71

Karl Popper stated Bacon's role regarding the relation between science and religion as follows: "The movement inaugurated by Bacon was a religious or semi-religious movement, and Bacon was the prophet of the secularized religion of science. He replaced the name 'God' by the name 'Nature', but he left almost everything else unchanged. Theology, the science of God, was replaced by the science of Nature. The laws of God were replaced by the laws of Nature. God's power was replaced by the forces of Nature." – Karl Raimund Popper, "Science: Problems, Aims, Responsibilities", in: Mark Amadeus Notturmo (ed.), *The Myth of the Framework: In Defence of Science and Rationality*, Routledge, New York 1997, pp. 82–111, pp. 82–83. It seems that Popper interprets Bacon's natural philosophy as irreligious. As I mentioned above, Bacon's natural philosophy is equal to Democritus', but only in practice. This aspect of Bacon's natural philosophy may have caused others to think that Bacon's *Great Instauration* is irreligious and materialist; however, as mentioned, this equality is possible only in practice, not in reality because Bacon accepts the reality of final causes in nature. For Bacon, the laws of nature are the laws of God.

72

Another reason for Bacon's preference for Democritus was about his theory of matter.

Bacon had a conception of matter as an active entity. Bacon states: "... almost all the ancients, *Empedocles, Anaxagoras, Anaximenes, Heraclitus* and *Democritus*, though differing in other respects about primary matter, were as one in maintaining that matter was active, had some form and imparted its form, and had the principle of motion within itself." – Francis Bacon, *On Principles and Origins According to the Fables of Cupid and Coelum*, in: Graham Rees (ed.), *The Oxford Francis Bacon Vol. VI*, Oxford University Press, New York 1996, p. 209. Further, Bacon finds a relation between rationalistic philosophy of Aristotle and his passive matter theory, and experimental philosophies and active matter theory. Bacon believed that, as is seen in the above quotation, Democritus' theory of matter was active, and since he saw atoms as the principles of motion in matter, Bacon thought that it was the best philosophy among other ancient theories of matter. He saw Democritus' philosophy as the closest philosophy which turned our attention to nature itself rather than the specious forms of Aristotle. For further explanations about Bacon's preference of Democritus, cf. Ünsal Çimen, "Did Francis Bacon See Democritus As a Mechanical Philosopher?", *Kaygı* 29 (2017), pp. 1–17, doi: <https://doi.org/10.20981/kaygi.342162>.

73

See Matthew (22:21), Mark (12:17), and Luke (20:25).

And, what Bacon did regarding natural philosophy is similar to what Luther did regarding the relation between state and the Church. Bacon justified the liberation of natural philosophy from theology with these words from the Bible:

“The glorie of God is to conceale a thing, But the glorie of the King is to find it out.”⁷⁴

Ünsal Çimen

Francis Bacon i veza između teologije i prirodne filozofije

Sažetak

U europskoj povijesti, Reformacija je bila pokušaj uklanjanja crkvenog autoriteta iz političkog (ili sekularnog) autoriteta i kulture – postupak koji nazivamo sekularizacija. Tijekom osamnaestog i napose devetnaestog stoljeća, sekularizacija je zadobila drugačije značenje koje, kratko rečeno, evoluirala iz religioznosti u ireligioznost. Umjesto da se odnosi na postajanje slobodnim od crkvenog tutorstva, počelo se odnositi na potpunu izolaciju društva od religije. Za one koji su sekularizaciju vidjeli kao ateizam, istovremeno nositi sekularizacijske ideje i imati religijsku osnovu bilo je proturječno. Primjerice, Francis Bacon je interpretiran kao nesekularan zato što je koristio Bibliju kao izvor za opravdanje svojih ideja vezanih za oslobođenje znanosti od teologije. Suprotno tome, u ovom radu argumentiram da je Baconova prirodna filozofija sekularna. Da bih to dokazao, izuzev referiranja na biblijske izvore u njegovim radovima također ću istražiti kako je Bacon oslobodio prirodno (ili sekularno) znanje od religijskog utjecaja time što je uklonio konačne uzroke iz prirodofilozofskog ispitivanja.

Ključne riječi

Francis Bacon, sekularizacija, prirodna filozofija, konačni uzroci, teologija

Ünsal Çimen

Francis Bacon und das Verhältnis zwischen Theologie und Naturphilosophie

Zusammenfassung

Die Reformation in der europäischen Geschichte war ein Versuch, die kirchliche Autorität von der politischen (oder säkularen) Autorität und Kultur zu entfernen – ein Prozess, der Säkularisierung genannt wird. Während des achtzehnten und insbesondere des neunzehnten Jahrhunderts erlangte die Säkularisierung jedoch eine andere Bedeutung, die sich, kurz gesagt, von Religiosität zu Irreligiösität entwickelt. Anstatt sich auf die Befreiung von religiöser Bevormundung zu beziehen, begann sie sich auf die völlige Isolation der Gesellschaften von der Religion zu konzentrieren. Für diejenigen, die Säkularisierung als Atheismus betrachteten, war es widersprüchlich, Ideen zu haben, die zugleich die Säkularisierung unterstützten und eine religiöse Grundlage hatten. Beispielshalber wurde Francis Bacon als nicht-säkular interpretiert, und zwar aufgrund seiner Verwendung der Bibel als Quelle, um seine Vorstellungen bezüglich der Befreiung der Wissenschaft von der Theologie zu rechtfertigen. Im Gegensatz dazu argumentiere ich in diesem Artikel, dass Bacons Naturphilosophie säkular ist. Um dies zu bekräftigen, werde ich abgesehen von der Adressierung der in seinen Werken vorgestellten biblischen Referenzen auch erforschen, wie Bacon natürliches (oder säkulares) Wissen von den religiösen Einflüssen befreite, indem er Endursachen aus naturphilosophischen Untersuchungen herausschnitt.

Schlüsselwörter

Francis Bacon, Säkularisierung, Naturphilosophie, Endursachen, Theologie

Ünsal Çimen

Francis Bacon et la relation entre théologie et philosophie naturelle

Résumé

Au fil de l'histoire européenne, la Réforme était une tentative d'éliminer l'autorité ecclésiastique de l'autorité et de la culture politique (ou laïque) – un processus appelé sécularisation. Au cours du XVIIIe siècle et surtout du XIXe siècle, la sécularisation acquit un sens différent, qui, brièvement dit, passe de la religion à l'irréligiosité. Au lieu de se référer à la libération de la tutelle religieuse, elle a commencé à se référer à une isolation absolue des sociétés de la religion. Pour ceux qui considéraient la sécularisation comme athéisme, avoir des idées favorables à la sécularisation et avoir une base religieuse était contradictoire. A titre d'exemple, Francis Bacon a été considéré comme non laïque en raison de son recours à la Bible comme référence pour justifier ses idées concernant la libération de la science de la théologie. Au contraire, dans cet article, je soutiens que la philosophie de la nature de Bacon est laïque. Afin de le démontrer, outre une étude des références bibliques présentées dans ses travaux, j'explorerai également comment Bacon a libéré le savoir naturel (ou laïc) d'influences religieuses en supprimant les causes finales des enquêtes philosophiques naturelles.

Mots-clés

Francis Bacon, sécularisation, philosophie naturelle, causes finales, théologie