

“God hath made every thing in beauty according to season; also he hath set the world in man's heart, yet can he not find out the work which God worketh from the beginning to the end: declaring not obscurely that God hath framed the mind of man as a glass capable of the image of the universal world.”

- Francis Bacon, *Valerius Terminus of the Interpretation of Nature*

“For knowledges are as pyramides, whereof history is the basis: so of Natural Philosophy the basis is Natural History; the stage next the basis is Physic; the stage next the vertical point is Metaphysic. As for the vertical point, *the work which god worketh from the beginning to the end*, the Summary Law of Nature, we know not whether man's inquiry can attain unto it.”

- Francis Bacon, *Advancement of Learning*

Francis Bacon and the Emptiness of Nature: Directions towards an Appetite for Life

I begin with a quick note on genre. This is a paper written principally to aid in digestion. “Some Books are to be tasted, others to be swallowed, and some few to be chewed and digested.”¹ That being said, as a written piece of course work for you, my hope is that my more embarrassing cases of indigestion will stay away from these pages. Given the delicacy of Bacon-as-meal, and the stamina required to ingest it, safe to say that there was much gaseous brain-bubbling on my part, as our few email exchanges on the subject can attest.

This paper began as an investigation into Bacon's conception of law, particularly as it related to natural science but with an eye towards the development of his ideas in jurisprudence. This question of “what is law” quickly became wrapped up in this problem of what Bacon meant by this word “form.”² Then the bottom fell out of the whole endeavor. What follows in these pages is an attempt to put the bottom back in place.

¹ Francis Bacon, *Bacon's Essays*, (London: Adam & Charles Black, 1912), 277. Of course I immediately thought of Nietzsche's command to the same effect: to *ruminate*.

² I give a specific account of this problem in the third section of the paper.

The method I have chosen for this begins with a reading of a fragmentary text: *Valerius Terminus of the Interpretation of Nature with the Annotations of Hermes Stella*. There are two reasons for this. First, it is the earliest of Bacon’s philosophical work, and represents a kind of practice-run for what became the *Instauratio magna*.³ Second, and of great significance, Bacon goes out of his way to resist using the word “form” in this text—in fact he casts serious doubt on the usefulness of this concept for advancing knowledge generally. The outlines of what will become his forms are present, but he uses a different word: “direction.” Forms-as-directions, for Bacon at this early date, are *always in motion*.⁴ This has radical implications for Bacon’s understanding of the “limits and ends” of knowledge, and ultimately on the ability of “nature” to serve as a source of authority.⁵ Thus, this paper begins with a contextualization and interpretation of *Valerius Terminus* as a way of approaching Bacon’s metaphysics of matter, which I argue is—

³ Robert Leslie Ellis’s preface to *Valerius Terminus* in Spedding documents in some detail the correspondence between this early text and the later *Advancement of Learning* (1605) and *Novum Organum* (1620). Spedding himself gives some caution on making decisive statements on such a fragmentary text, but a recent discovery of a second manuscript fragment of this text (likely based on an earlier version than the Harleian manuscript that had been the sole source for the text, possibly pre-1603) has been suggested to firmly establish it as indeed a general first-draft of Bacon’s project for universal reform. See Richard Serjeantson, “The Philosophy of Francis Bacon in Early Jacobean Oxford, with an Edition of an Unknown Manuscript of the ‘Valerius Terminus,’” *The Historical Journal*, vol. 56, no. 4 (2013): 1087-1106.

⁴ The punchline of this argument is that Bacon’s metaphysics of matter was premised on the belief in the ultimate mutability of forms. Thus, for Bacon, a “universal natural law” is a contradiction in terms on two counts: universality (a doomed attempt at mimicking God, the actual cause of the fall, the attempt to establish firm distinction between good and evil) and naturalness (a place not to find answers but questions). I unpack below.

⁵ In my reading, these implications—by way of this category of *appetite*—resist collapsing into epicurean chance. See Guido Giglioni, “Mastering the Appetites of Matter: Francis Bacon’s *Sylva Sylvarum*” in Wolfe and Gal, eds, *The Body as Object and Instrument of Knowledge: Embodied Empiricism in Early Modern Science* (New York: Springer, 2010).

after God—the firmament of his epistemology, and its related methodological maxims premised on induction and natural history.⁶

Section 1: Context of *Valerius Terminus*

Context comes first. *Valerius Terminus*, until within the last decade, had come from a single manuscript source, first printed in 1734 by Robert Stephens.⁷ A second manuscript fragment, located in the 1607 notebooks of Brasnose College, Oxford student Edmund Leigh, was found in the early 2010s.⁸ There are a few remarkable things about its composition.

First, it was originally composed in English. This immediately sets it apart from the bulk of the latter versions of the *Instauratio* project, which were composed in Latin. The fragment of the text that appears in Leigh’s notebooks is the only English language writing in the entire volume, “a substantial quarto paper-book of 293 folios ... which survives in its original full leather binding with vestigial green silk ties.”⁹ I do not have much to say about this at the moment, other than that it is remarkable to me that Bacon’s project of universal reform began in English. That his first published philosophical work, *The Advancement of Learning* (1605) was also written in English cements that it was in that language that Bacon conceived the project before translating it into Latin, possibly with eyes to an international audience.

⁶ Of course ontology and epistemology are a nasty knot ... I make an argument about the primacy of ontology for Bacon in the following pages based on his theological position, which might be described as extra-epistemological if not supernatural.

⁷ It was printed by historiographer royal Robert Stephens. See Robert Stephens, ed. *Letters and remains of the Lord Chancellor Bacon* (London, 1734), 398-450.

⁸ Richard Serjeantson, “The Philosophy of Francis Bacon in Early Jacobean Oxford, With an Edition of an Unknown Manuscript of the ‘Valerius Terminus,’” *The Historical Journal*, vol. 56, no. 4 (2013): 1087-1106.

⁹ Serjeantson, “The Philosophy of Francis Bacon,” 1092.

Second, the way the fragments are ordered and structured in the Stephens version makes no sense at all. It is, however, an improvement over the Leigh manuscript, which has no organizational outline whatsoever and is only a copy of the first 800 or so words of the text.¹⁰ The confusing organizational arrangement is interesting in itself, given the ultimate aims of Bacon's project toward programmatic development. The book begins with the first chapter. The second part is a fragment of the 11th chapter. Then comes "a small portion" of the 9th and 10th chapters, followed by the 16th and then the 4th and 5th. Then comes the "6th chapter entire," a portion of the 7th, and the "8th chapter entire" to follow. Then we get another piece of the 9th chapter, and conclude with "the abridgment of the 12. 13. 14. 15. 16. 17. 18. 19. 21. 22. 25. 26th chapters of the first book." Bacon ends the piece with section number 13: "the first chapter of the book of the same argument written in Latin and destined to be separate and not public."¹¹ This disorganization continues in the text, where Bacon will occasionally promise three points and only deliver two before moving on. I don't want to dwell on this, only to point out that this disorganization has an affinity with his project that saw posthumous publication as *Elements of the Common Law* (1629) - the 25 maxims contained within were only a slice of a reported 300

¹⁰ One substantive change between the two documents might interest you particularly: the word *admiration* present in the earlier Leigh version was exchanged for the word *wonder* in the later manuscript. The words were used to the relationship between man and God mediated by knowledge of nature. **Leigh version:** "It is trewe that the contemplation of the creatures of God hath for end as to the nature of the creatures themselves knowledge, but as to the nature of God no knowledge, but **admiration**, which is nothing elles but contemplation broken of, or loosing it selfe." **Stephens version:** "It is true that contemplation of the creatures of God hath for end (as to the natures of the creatures themselves) knowledge, but as to the nature of God, no knowledge, but **wonder**; which is nothing else but contemplation broken off, losing itself."

¹¹ Spedding, *The Works of Francis Bacon*, vol. 6, 25-26. Note that Ellis's preface establishes the connections between the fragments of *Valerius Terminus* and their corresponding elements in *The Advancement of Learning/De Augmentis* and *Novum Organum*, if you are curious. See Spedding, *Ibid*, 10-11. Spedding, departing from Stephens originally 1734 publication, publishes *Valerius Terminus* in the numerical chapter order rather than by Bacon's seemingly confused original organization. Spedding says this was an obvious editorial decision, but I am not so sure.

maxims he had prepared.¹² Notice here the difference between this approach and someone like Descartes, who a half-century later only needed three laws to account for the universe, much less England. Bacon's approach was hardly Euclidean in orientation, marking a distance between his "proofs" or "axioms" and that of the geometer before even arriving in the rhetorical territory of law.¹³

A third feature of *Valerius Terminus* worth mentioning before getting into its contents is its apparently anonymous authorship. Leigh's manuscript has no author attribution other than the eponymous Valerius Terminus, and it has been suggested that Bacon preferred it this way: "the absence of Bacon's name from the copy raises the intriguing possibility that, far from merely being a learned conceit, Bacon's adoption of the persona of 'Valerius Terminus' was deliberately done to conceal his authorship—and that it served this purpose successfully. It seems likely his readers would have been distinctly surprised to learn that its author was his majesty's solicitor-general."¹⁴ The magical connotation of the tracts named commentator, Hermes, is clear, and bald speculation has been made regarding the meaning of this word "terminus," but why Bacon chose

¹² Paul H. Kocher, "Francis Bacon on the Science of Jurisprudence," *Journal of the History of Ideas*, vol. 18, no. 1 (1957), 5. It is worth noting Bacon originally presented these 25 maxims to Queen Elizabeth during the Parliament of 1597, in the context of Lord Keeper Puckering's speech urging "an abridgment of the multitude of old laws rather than the passage of new." If one believes Serjeanston's suggestion that *Valerius Terminus* was composed before James's accession in 1603, it must have been composed in relatively close proximity to what became *Elements of Common Law*.

¹³ "That never any knowledge was delivered in the same order it was invented, no not in the mathematic, though it should seem otherwise in regard that the propositions placed last do use the propositions or grants placed first for their proof and demonstration." Spedding, *The Works of Francis Bacon*, vol. 6, 70.

¹⁴ Serjeanston, "The Philosophy of Francis Bacon," 1103-1104.

this first name “Valerius” remains, as best I can tell, unhypothesized.¹⁵ Exactly why Bacon preferred anonymity in this case is unclear to me, but the hermetic quality of this text is made explicit in the fragment of chapter 18: “the discretion anciently observed ... of publishing part, and reserving part to a private succession, and of publishing in a manner whereby it shall not be to the capacity nor taste of all, but shall as it were single and adopt his reader, is not to be laid aside, both for the avoiding of abuse in the excluded, and in the strengthening of affection in the admitted.”¹⁶ The moral here is clear: in attempting to give an “interpretation of nature,” Valerius Terminus was undertaking no simple task, and thus Bacon’s manuscript was not for everyone. “The invention of knowledge,” he cautions, is a treacherous exercise full of obstacles, and the final half-dozen chapters of the book lay out some of these obstacles in detail.¹⁷

Before moving on to investigating the argument of the text, a brief summary of the introductory remarks: *Valerius Terminus* was written in English, and it is the earliest existing trace of Bacon’s philosophical project for philosophical reform. Its organization is hardly Euclidean, in that chapters originally followed each other in haphazard and non-sequential ways,

¹⁵ See Sophie Weeks, *Francis Bacon’s Science of Magic* (Ph.D. diss, Leeds, 2007), 3. See also Fulton H. Anderson, *The Philosophy of Francis Bacon* (Chicago: University of Chicago Press, 1948), 16 and Benjamin Farrington, *The Philosophy of Francis Bacon* (Liverpool: Liverpool University Press, 1964), 38-39. Weeks makes a connection between this and the court of King James, but if Serjeanston is right that the text already had this title under Elizabeth then Bacon was likely not making an allusion to James here. Weeks cites Vaughan Hart, *Art and Magic in the Court of the Stuarts* (London: Routledge, 1994).

¹⁶ Spedding, *The Works of Francis Bacon*, vol. 6, 71.

¹⁷ Chapter 18 begins with the the general impediments that inventing knowledge is Hard, including the remarkable claim that “it is easy to err in conceit that a man’s observation or notion is the same with a former opinion, ... because new conceits must of necessity be uttered in old words...”. Spedding, *Ibid*, 73. Chapter 21 - “the two extreme humors of admiration of antiquity and love of novelty” ; Chapter 22 - “the affection of pride, specially of one kind, which is the disdain of dwelling and being conversant much in experiences and particulars, specially such as are vulgar in occurency, and base and ignoble in use” ; Chapter 25 - the impediments from heathen religion and other superstitions ; Chapter 26 - the impediments “which have been in the nature of society and the policies of state. That there is no composition of estate or society, nor order or quality of persons, which have not some point of contrariety towards true knowledge.”

demonstrating that Bacon’s vision of the project did not necessarily require a distinctly specific ordering of the material. The message here was holistic, and this maps on to Bacon’s preference for aphoristic knowledge over “rules [digested] into a certain method or order.”¹⁸ Finally, it is distinctly possible that *Valerius Terminus* was purposefully distributed by Bacon as an anonymous manuscript. While the exact reason for this is unclear, it would be evidence that Bacon viewed his project with some trepidation from a professional and public standpoint even (perhaps especially) at this early date. The *Valerius Terminus* was not a meal to be digested by anyone and everyone, and anonymity could be useful if its contents happened to upset the wrong bellies.

Section 2: the Aims of the Text

Now to the text. The first sentence of the *Valerius Terminus* establishes a fundamental distinction between religion on the one hand and philosophy on the other: “In the divine nature both religion and philosophy hath acknowledged goodness in perfection, science or providence comprehending all things, and absolute sovereignty or kingdom.”¹⁹ This urge—of both religion and philosophy—to comprehend absolutely, however, was the true source of the fall, first of the angels and then of man. The problem here, as Bacon points out, was not in the pursuit of philosophy or religion, but was instead its absolutist aims—aims which threatened to “approach

¹⁸ This comes from the preface of *Elements of Common Law*: “Whereas I could have digested these rules into a certain method or oder, which I know would have bin more admired, as that which would have made every particular rule through coherence and relation unto other rules seeme more cunning and deep, yet I have avoided so to do, because this delivering of knowledge in distinct and dis-joynd Aphorisms doth leave the wit of man more free to turne and tosse, and make use of that which is so delivered to more severall purposes and applications.” See Francis Bacon, *Elements of Common Law* (London: J. More, 1636).

¹⁹ Spedding, *The Works of Francis Bacon*, vol. 6, 27.

and intrud[e] into God's secrets and mysteries [and] was rewarded with a further removing and estranging from God's presence."²⁰

Bacon clarifies that there are some realms in which "advancing towards a similitude" with God which are not intrusions, however, namely in relation to "imitating" "the goodness of God:" "Love your enemies, be you like unto your heavenly Father ... we find it often repeated in the old law, 'Be you holy as I am holy' and what is holiness else but goodness, as we consider it separate and guarded from all mixture and all access of evil?" From this dilemma, namely, the question of what kinds of knowledge are appropriate for humans to pursue, Bacon arrives at the first and fundamental rule of his philosophical project, his "firmament": "that all knowledge is to be limited by religion, and to be referred to use and action."²¹ What follows, then, is humans cannot achieve, and indeed must not seek, philosophical knowledge of god: "and this appeareth sufficiently in that there is no proceeding in invention of knowledge but by similitude; and God is only self-like..." Instead, one must submit to faith first and foremost "for more worthy it is to believe than to think or know, considering that in knowledge (as we now are capable of it) the mind suffereth from inferior natures; but in all belief it suffereth from a spirit which it holdeth superior and more authorized than itself."²²

If the first maxim of Bacon's project is that religion serves as a necessary constraint on knowledge, the second maxim is that religion-as-limit points the way to a certain kind of knowledge as suitable to human appetites and consonant with God's commandments: natural

²⁰ Spedding, *The Works of Francis Bacon*, vol. 6, 28.

²¹ Spedding, *The Works of Francis Bacon*, vol. 6, 28.

²² Spedding, *The Works of Francis Bacon*, vol. 6, 29. Note, here, Bacon's rather remarkable suggestion that the fundamental limits of human knowledge are *mutable*, that is, not transcendental and instead subject to change: "knowledge (as we are now capable of it)..."

history. “For behold it was not that pure light of natural knowledge, whereby man in paradise was able to give unto every living creature a name to his propriety, which gave occasion to the fall: but it was an aspiring desire to attain to that part of moral knowledge which defineth of good and evil, whereby to dispute God’s commandments and not to depend upon the revelation of his will, which was the original temptation.” It is Man’s striving to determine for himself the contours of good and evil that is off-limits. “Natural knowledge,” epitomized by Adam’s taxonomy, is perfectly legitimate and is framed by Bacon as supremely worthy, both a kingly exercise and a children’s game: “The name Salomon the king affirmeth directly that the glory of God is to *conceal a thing, but the glory of the king is to find it out*, as if according to the innocent play of children the divine Majesty took delight to hide his works, to the end to have them found out...”²³ What has resulted from this divine arrangement is man’s “**thirst for knowledge**,” caused by “**an emptiness or want in nature and an instinct from God**.”²⁴ Nature, in this model, is not a source of authority—a source of answers. It is instead a source of questions. Nature should be “put on the rack” not to extract true confessions, but to prompt man into inhabiting the position of interrogator.²⁵ Of course this phrase is not Bacon’s, it comes from Leibniz’s gloss on Bacon.²⁶ Bacon does not use the vocabulary of torture or the rack, but rather

²³ Spedding, *The Works of Francis Bacon*, vol. 6, 31.

²⁴ Spedding, *The Works of Francis Bacon*, vol. 6, 31-32. I cannot emphasize enough the importance of this clause, I think. Our thirst (a type of appetite) for knowledge is an *instinct*, and it is prompted by an *emptiness or want* in Nature.

²⁵ If the key to knowledge is similitude, as Bacon remarks, then empathy becomes an attribute of chief importance for the scientist. And interrogation is an empathic art, I think.

²⁶ Peter Pesic, “Nature on the Rack: Leibniz’s Attitude towards Judicial Torture and the ‘Torture’ of Nature,” *Studio Leibnitiana*, bd. 29, h. 2 (1997), 189-197. “Bacon ... intended by the vexation of Nature a heroic mutual ordeal that will try both Nature and the scientist. His touchstone is Menelaus wrestling with Proteus, not the submissive torment of passive matter,” 195.

the “vexation” of nature. I agree with Peter Pesic’s take on this (expounded in an argument with Caroline Merchant) that vexation should not be read as a synonym for torture: “In contrast with the physical torments of the rack, vexation acts in the inwardness of the soul.”²⁷

But there is a final lesson here and it gets us to this question of forms: there is a danger in chasing abstract universals instead of particular details. “Those [who] gave contemplation an over-large scope, do offer too great a restraint to natural and lawful knowledge, being unjustly jealous that every reach and depth of knowledge wherewith their conceits have not been acquainted, should be too high an elevation of man’s wit ... an opinion that ariseth either of envy (which is proud weakness ...), or else of a deceitful simplicity.”²⁸ This relates exactly to the specific “impediment” to knowledge offered by Bacon in chapter 22: “the affection of pride, specially of one kind, which is the disdain of dwelling and being conversant much in experiences and particulars, specially such as are vulgar in occurence, and base and ignoble in use.”²⁹ This mistake of giving “contemplation an over-large scope” resulted, argues Bacon, in a rather specific complaint levied by the contemplators: their unjustified “restraint to natural and lawful knowledge” is a byproduct of their hang-ups regarding “second causes.” The root of the contemplators problem is actually their idolization of form, of the formal cause. This leads to what is, in my opinion, the most enigmatic sentence in an extremely enigmatic text:

“For if they mean that the ignorance of a second cause doth make men more devoutly to depend upon the providence of God, as supposing the effects to come

²⁷ Peter Pesic, “Wrestling with Proteus: Francis Bacon and the ‘Torture’ of Nature,” *Isis*, vol. 90 (1999), 81-94.

²⁸ Spedding, *The Works of Francis Bacon*, vol. 6, 30.

²⁹ Spedding, *The Works of Francis Bacon*, vol. 6, 74.

immediately from his hand, I demand of them, as Job demanded of his friends,
*Will you lie for God as man will for man to gratify him?*³⁰

Here is how I read this line. Bacon is saying that the contemplators have confused the logical category “form” for transcendental truth, and thus have misunderstood the rules of God’s children’s game of hide and seek. They pretend that “forms” are not tools invented by humans for the purpose of use, but are instead “effects to come immediately from [God’s] hand,” some kind of divine grammar of the universe.³¹ For Bacon, this is not only wrongheaded but also dangerous—it is exactly this kind of thinking that got Adam kicked from the Garden and estranged from God in the first place, the usurpation of God’s sovereignty by hubristic discovery ... or something like that. In other words, Bacon is saying that forms are inventions. This opens the possibility for their mutability. Indeed, the purpose of natural inquiry, Bacon claims, is not to search for such “second causes” but instead “lineages and propagations.” Here we get to the punchline, which introduces most firmly this concept of “law.” Another big quote:

“God hath made every thing in beauty according to season; also he hath set the world in man's heart, yet can he not find out the work which God worketh from the beginning to the end: declaring not obscurely that God hath framed the mind of man as a glass capable of the image of the universal world, joying to receive the signature thereof as the eye is of light, yea not only satisfied in beholding the variety of things and vicissitude of times, but raised also to find out and discern those ordinances and decrees throughout all these changes are infallibly observed. And although the highest generality of motion or summary law of nature God

³⁰ Spedding, *The Works of Francis Bacon*, vol. 6, 30.

³¹ This, I think, is a legacy of Aristotle’s caution that in natural science the formal cause and the final cause (not to mention the efficient cause as well) often overlap. “In many cases, the last three of these causes come to the same thing. What a thing is and its purpose are the same, and the original source of change is, in terms of form, the same as these two: after all, it is a man who generates a man. This applies universally to everything which is changed itself when initiating change—and things which are not like this are not the province of natural science...” See Aristotle, *Physics*, II.7 (198 a 24-30 in Waterfield’s translation).

should still reserve within his own curtain, yet many and noble are the inferior and secondary operations which are within men's sounding."³²

And here, after this mantra to the changing ways of things, comes the pronouncement that would be immortalized on the frontispiece to the *Instauratio magna*: the prophecy of Daniel, in plain English: "Many shall pass to and fro, and science shall be increased; as if the opening of the world by navigation and commerce and the further discovery of knowledge should meet in one time or age." The world was changing, Bacon knew, and his project of reformation aimed at producing not timeless universal laws but instead a method of inventing knowledge premised on a metaphysics of matter that assumed permanent motion, constant change. This is why his voluminous aphorisms were (in his estimation) more useful than the "deceitfully simple" "rules and methods" that his readers might have preferred: they "doth leave the wit of man more free to turne and tosse."³³

Thus far I have pointed to (1) what Bacon perceived to be the legitimate limits of man's god-given "thirst for knowledge" which were determined by (2) his theological commitments regarding the ultimate unknowability of God himself (similitude is the path to knowledge and God is only self-like). We can refer to this as God's children's game, as Bacon colorfully characterizes it: the glory of God is to conceal a thing, and the glory of the king is to find it out. I've argued, further, that Bacon imagined the limits of knowledge to be in motion, rather than set

³² Spedding, *The Works of Francis Bacon*, vol. 6, 32.

³³ See Bacon, *Elements of Common Law*, and fn. 18, above. He reiterates this argument in the *Valerius*, claiming that philosophers who prioritize tidiness in presentation are to be chastised, as are those students who cling to firmly to their teachers' programs: "The error is both in the deliverer and in the receiver. He that deliverers knowledge desireth to deliver it in such form as may be soonest believed, and not as may be easiest examined. He that receiveth knowledge desireth rather present satisfaction than expectant search, and so rather not to doubt than not to err. Glory maketh the author not to lay open his weakness, and sloth make the disciple not to know his strength." Spedding, *The Works of Francis Bacon*, vol. 6, 40.

as transcendental conditions (with the exception of God), and those limits might be meaningfully impacted by things as mundane as navigation and commerce.³⁴ Finally, I've suggested that this epistemological position—that knowledge is in motion—is correlated to an ontological position regarding Bacon's metaphysics of matter that assumes the world to be fundamentally characterized by change. It will keep spinning until it stops.³⁵

A quick concluding point on the scope of Bacon's project before moving into this discussion of "form." Bacon is very explicit about the ends to which our knowledge ought be put to use: "the benefit and relief of the state and society of man; for otherwise knowledge becometh malign and serpentine ... and malice it taketh the mind of man to swell; as the Scripture saith excellently, *knowledge bloweth up, but charity buildeth up.*"³⁶ As long as man pursues knowledge for these reasons ("the endowment of man's life with new commodities"), Bacon suggests that a new world awaits invention: "Let it be believed ... that the new-found world of land was not greater addition to the ancient continent than there remaineth at this day a world of inventions and sciences unknown, having respect to those that are known, with this difference, that the ancient regions of knowledge will seem as barbarous compared with the new, as the new

³⁴ The question of whether or to what extent Bacon thought the senses or something like space and time constitute unmovable limits to knowledge is one I haven't focused on answering. My provisional hypothesis is he thought those limits could be moved as well. A telescope is a trivial example. I do not see why space and time are immune to this either, on the face of it. As Bacon suggests, "let no man presume to check the liberality of God's gifts, who, as was said, *hath set the world in man's heart.* So as whatsoever is not God but parcel of the world, he hath fitted it to the comprehension of man's mind, if man will open and dilate the powers of his understanding as he may." Spedding, *The Works of Francis Bacon*, vol. 6, 33.

³⁵ Notably, I don't think Bacon ever fully came around to heliocentrism. I think he remained a believer in the Tychonic system throughout his mature life. He makes a really interesting comment regarding this in *Valerius Terminus*, where he discusses the chain of sciences. He says Copernicus's theory can't be disproved by the astronomers "because it is not repugnant to any of the appearances," but thankfully "natural philosophy doth correct" it. Spedding, *The Works of Francis Bacon*, vol. 6, 44.

³⁶ Spedding, *The Works of Francis Bacon*, vol. 6, 34.

regions of people seem barbarous compared to many of the old.”³⁷ The forging of these “sciences unknown” is no small task, Bacon does not sugarcoat the labor required. But the difficulty and nobility of the task does not mandate a masochistic approach, instead one should work smarter, not harder “for as Salomon saith excellently, *The fool putteth to more strength, but the wise man considereth which way*, signifying the election of the mean to be more material than the multiplication of endeavour.”³⁸ Thus, Bacon justifies his labors towards a new philosophical program.

Section 3: Between Form and Direction

“For Plato casteth his burden and saith *that he will revere him as a God, that can truly divide and define*; which cannot be but by forms and differences. Wherein I join hands with him, confessing as much yet assuming to myself little; for if any man can by the strength of his *anticipations* find out forms, I will magnify him with the foremost ... Again Aristotle’s school confesseth that there is no true knowledge but by causes, no true cause but the form, no true form known except one, which they are pleased to allow; and therefore thus far their evidence standeth with us, that both hitherto there hath been nothing but a shadow of knowledge, and that which is agreed to be the worthiest to be sought, and hardest to be found.”³⁹

Bacon, in the *Novum Organum*, associates these words “form” and “law” in the following way:

“For though nothing exists in nature except individual bodies which exhibit pure individual acts in accordance with law, in philosophical doctrine, that law itself, and the investigation, discovery and explanation of it, are taken as the foundation both of knowing and doing. It is this law and its clauses which we understand by the term Forms, especially as this word has become established

³⁷ Spedding, *The Works of Francis Bacon*, vol. 6, 35-36. One should add this for context: “I would not willingly imitate the manner of those that describe maps, which when they come to some far countries whereof they have no knowledge, set down how there be great wastes and deserts there: so I am not apt to affirm that they knew little, because what they knew is little known to us.” Spedding, *The Works of Francis Bacon*, vol. 6, 38.

³⁸ Spedding, *The Works of Francis Bacon*, vol. 6, 35.

³⁹ Spedding, *The Works of Francis Bacon*, vol. 6, 58-59.

and is in common use.”⁴⁰ Bacon’s nominalism is on full display here, consonant with his earlier warning that “Forms or the true differences of things (which are in truth the laws of pure act) are impossible to discover and are beyond man.”⁴¹ Thus the mystery: this “law” is taken as “the foundation both of knowing and doing” but that same “law and its clauses,” as a Form, is impossible to discover and beyond man. This is the problem at the heart of Bacon’s philosophical project. How can one decenter form as the key to true knowledge while simultaneously not inviting epicurean chance in through the backdoor?⁴²

Before delving in, it is important to emphasize a point about Bacon’s position on language: “It is easy to err in conceit that a man’s observation or notion is the same with a former opinion ... because new conceits must of necessity be uttered in old words.”⁴³ Bacon, in developing his project, was well aware that what he viewed as a radically novel approach to nature and knowledge would have to be delivered in old words that might be ill-suited to it, particularly in his texts aimed at publication. Thus, regarding the eventual inclusion of this word “form” into Bacon’s project, Ellis’s preface to the *Valerius Terminus* claims that “The notion of the form or formal cause comes into his system only on historical grounds.”⁴⁴ Bacon’s reflective

⁴⁰ Francis Bacon, *The New Organon*, ed. Lisa Jardine (Cambridge: Cambridge University Press, 2000), 102-103.

⁴¹ Francis Bacon, *The New Organon*, 62.

⁴² That Bacon was no friend to Epicurus is revealed by this amazing dig at him in the *Valerius Terminus*: “The opinion of Epicurus that the gods were of human shape, was rather justly dried than seriously confuted by the other sects, demanding whether every kind of sensible creatures did not think their own figure fairest ... And the heresy of the Anthropomorphites was ever censured for a gross conceit bred in the obscure cells of solitary monks that never looked abroad.” He seems more friendly with Democritus, and even makes reference to how Epicurus seems to have built some part of his approach as a corruption of Democritus’s views. Spedding, *The Works of Francis Bacon*, vol. 6: 61, 56.

⁴³ Spedding, *The Works of Francis Bacon*, vol. 6, 73.

⁴⁴ Spedding, *The Works of Francis Bacon*, vol. 6, 12.

position on language thus invites a kind of hermeneutics of suspicion. When we see him use these words “form” and “law” to refer to “pure individual acts,” we should be aware that he is attempting to use this “established” word to get at something radically new: permanent motion. In the *Valerius Terminus*, a private text clearly intended for elite (possibly anonymous) circulation, Bacon ventures a different word to describe these pure individual acts: *direction*. The principle argument of this third section of my paper is that recovering this word *direction* and positioning it at the center of Bacon’s metaphysics of matter (alongside this word *appetite*, which describes the various instincts-to-move in this or that direction) helps to recover the conceptual gap between “law/form” and “pure individual acts” that emerged in Bacon’s later philosophical writing. Motion is not pulled by a formal cause to its end, but is pushed by appetite in directions whose end-points are at best unknowable. “The law and its clauses” might help us “divide and define” these directions and appetites, but those taxonomies will only ever be provisional, as the direction’s end-points (“the work that god worketh from beginning to end”) lay beyond the present horizon of human understanding—hence Bacon’s claim that any “form” currently conceived would be only a “figment of the human mind.”⁴⁵

We have thus arrived at the final nexus of investigation. Bacon’s use of form and law to describe individual acts is a common shorthand that has concealed a metaphysics of matter based on appetites and directions. What remains is to articulate Bacon’s view of these two related words. First comes directions, as Bacon fleshes out this word most fully in the text we have been

⁴⁵ Francis Bacon, *The New Organon*, 45. This emphasis on the provisional character of “dividing and defining” reminds me distinctly of Malebranche’s epistemological position regarding the importance of “rapport” and the relational character of knowing. See Sophie Roux, “Controversies on Nature as Universal Legality (1680-1710)” in *Natural Law and Laws of Nature in Early Modern Europe: Jurisprudence, Theology, Moral and Natural Philosophy*, eds. Daston and Stolleis (Surrey: Ashgate, 2008), 199-214.

dwelling on, *Valerius Terminus*. Second, I turn to Guido Giglioni's reading of *Sylva Sylvarum*—a text described by one editor of *The Advancement of Learning* as “but a dry catalog of natural phenomena, the collection of which, no matter how necessary it might be, Bacon viewed as a sort of mechanical labor, and would never have stooped to the task, had not the field been abandoned by the generality of philosophers unworthy of them.”⁴⁶ I suggest, following Giglioni, that this text instead holds the key to deciphering Bacon's labyrinthine project: appetite.⁴⁷

Ellis, in the preface to the *Valerius Terminus* in Spedding's edition of Bacon, has already made the argument that the concept of direction in that work clearly became the concept Bacon would later refer to as form: “The most important portion of *Valerius Terminus* is the eleventh chapter ... It corresponds to the opening axioms of the second book of the *Novum Organum*, but differs from them in containing very little on the subject of forms. What Bacon afterwards called the investigation of the form he here calls the freeing of a direction.”⁴⁸ Bacon argues that his description of direction is a key aim of his program, “for our purpose is not to stir up men's hopes, but to guide their travels.”⁴⁹

A direction, in the most general sense, is composed of “two conditions, certainty and liberty. Certainty is when the direction is not only true for the most part, but infallible. Liberty is when the direction is not restrained to some definite means, but comprehendeth all the means and ways possible; for the poet saith well *Sapientibus undique latoe sunt vice*, and where there is the

⁴⁶ Francis Bacon, *Advancement of Learning*, ed. Joseph Devey (New York: P.F. Collier, 1901), 6.

⁴⁷ Guido Giglioni, “Mastering the Appetites of Matter: Francis Bacon's *Sylva Sylvarum*” in Wolfe and Gal, eds, *The Body as Object and Instrument of Knowledge: Embodied Empiricism in Early Modern Science* (New York: Springer, 2010)

⁴⁸ Spedding, *The Works of Francis Bacon*, vol. 6, 12.

⁴⁹ Spedding, *The Works of Francis Bacon*, vol. 6, 52.

greatest plurality of change, there is the greatest singularity of choice.”⁵⁰ Bacon associates this with “the two commended rules [set down by Aristotle] whereby the axioms of sciences are precepted and made convertible, and which the latter men have [...] surnamed the one the rule of truth because it preventeth deceit, the other the rule of prudence because it freeth election.”⁵¹

Ellis, in the preface, links this argument of Bacon’s to Peter Ramus’s critique of Aristotle found in the *Posterior Analytics*. I think this is likely right on the nose: if Bacon inherited this style of thought from anywhere, Ramus seems like a promising suspect.⁵² Thus, for Bacon, “the principles of every science (axiomata artium)” are truth and prudence. Here one can see the great distance between Bacon’s language of axioms and the conception of “natural law” reached by the end of the 17th century: they discarded liberty in the name of certainty (and it was Leibniz who was the most severe of these violators, no wonder his understanding of Bacon was poor enough to enable him to be the source of that terminal misconception that Bacon advocated putting nature “to the rack”).⁵³ Throughout the remaining pages of this chapter-fragment, Bacon expounds on his notion of direction through a hypothetical series of experiments into “the effect to be produced [namely] *Whiteness*.” The first direction involves the intermingling of air and water and “is certain, but very particular and restrained, being tied but to air and water.” The

⁵⁰ Spedding, *The Works of Francis Bacon*, vol. 6, 53. I am tempted to see a parallel between Bacon’s description of these two poles of direction and Ian Hacking’s discussion of Nietzsche’s position on chance from *The Taming of Chance*.

⁵¹ Spedding, *The Works of Francis Bacon*, vol. 6, 53.

⁵² It is worth noting that Ramus interpreted Aristotle as having laid down three rules: truth, justice, and wisdom. As Ellis points out, Bacon’s revision contains no mention of the rule of justice, and explicitly claims there are only two rules: truth and prudence. Much more work could be done to excavate this relationship between Ramus and Bacon in more detail. Spedding, *The Works of Francis Bacon*, vol. 6, 12-13.

⁵³ Peter Pesic, “Nature on the Rack: Leibniz’s Attitude towards Judicial Torture and the ‘Torture’ of Nature,” *Studio Leibnitiana*, bd. 29, h. 2 (1997), 189-197.

second direction involves the grinding of transparent glass or crystal, or the white of an egg, all of which are transparent on their own but become white upon being mixed with air: “here you are freed from water, and advanced to a clear body, yet still tied to air.” The fourth direction removes the clear body and takes colored bodies, which found to powder also become white. The fifth direction is that bodies which are transparent “but in an unequal degree” (such as water and oil) become white if they are mixed, which frees us finally from air, which had stubbornly stuck around from the first direction until this point.

At this point, Bacon gives a warning: things get complicated from here and could drag on forever, so he will only sketch two more steps. The sixth direction takes the form of a kind of definition: “all bodies or parts of bodies which are unequal equally, that is a simple proportion, do represent whiteness.” From this, and “confusedly by way of derivation and not by way of induction,” Bacon posits a handful of conclusions: “whiteness and blackness are most incompatible with transparence; that whiteness keepeth light, and blackness stoppeth light, but neither passeth it ... that whiteness seemeth to have an affinity with dryness, and blackness with moisture...” etc. This kind of derivation of further directions is useful, but Bacon suggests that when the field begins to open like this “you need a reduction back to certainty or verity.” This causes him to reflect on some border cases, and come to the conclusion that in order for whiteness to be the effect of a simple proportion, the “bodies or parts of bodies so intermingled as before [must] be of a certain grossness or magnitude ... for the unequalities which move the sight must have a further dimension or quantity than those which operate many other effects.”⁵⁴ In other words, the “whiteness” oriented proportion has to be the dominant component of the

⁵⁴ Spedding, *The Works of Francis Bacon*, vol. 6, 56.

mixture: a sprinkling of dye into too small a liquid could displace the primacy of the whiteness-proportion, but a sprinkling of dye into the ocean would not make a dent. This implied, for Bacon, a need for “a further freeing of this sixth direction.” This seventh direction is a fairly radical departure from the others: it is about experimenting with the operation of the eye itself. Here Bacon gets extremely cagey, and basically pleads ignorance. He says people (“improperly and untruly”) say that sight is caused either by “some effluxion of spiritual species [or, alternatively, by] an investing of the *intermedium* with a motion which successively is conveyed to the eye.” All he is willing to say is that thinking about this business—the operation of the eye—seems complicated and so he won’t push the direction any further than this seventh direction.⁵⁵

He then concludes this demonstration with a final point aimed at asserting the novelty of this method:

“Neither do I contend but that this motion which I call the freeing of a direction, in the received philosophies (as far as a swimming anticipation could take hold) might be perceived and discerned; being not much other matter than that which they did not only aim at in the two rules of *Axioms* before remembered [certainty and liberty], but more nearly also in that which they term the form or formal cause, or that which they call the true difference; both which nevertheless it seemeth they propound rather as impossibilities and wishes than as things within the compass of human comprehension.”⁵⁶

Thus, Bacon’s method of inquiry mirrors its subject: it is fundamentally characterized by motion.

That he discarded this language of direction in favor of that “old word”—form—in his later writing reflects not a change in Bacon’s metaphysics of matter, but rather in an attempt to make

⁵⁵ That so many in the early modern period were compelled by the ultimate perfection of the eye as a clear sign of intelligent design makes Bacon’s comments that one should be willing to alter the operations of their eyes to engage in science all the more radical, in my reading.

⁵⁶ Spedding, *The Works of Francis Bacon*, vol. 6, 58.

his project more digestible to common readers, perhaps especially in the international context of Latinate scholarship.

The final piece of the puzzle is this question of appetite. If the two directions of certainty and liberty are the way humans move towards knowledge, it is the “thirst for knowledge” that pushes humans along and between those two lines. This human thirst for knowledge is only one example of appetite and direction. For Bacon, all “pure individual acts” (that is to say, all motions) are the result of appetites and their directions. This paper is approaching its page limit, and my work on this appetite question has only modestly advanced Giglioni’s work on appetite by establishing this link between appetites and the concept of “direction” and bringing that to bear on the question of what Bacon meant by this word form. But as Giglioni ultimately argues, it is precisely this correspondence between metaphysics and epistemology that motivates Bacon’s project, and ultimately turns his natural philosophy into an approach to law:

“It is only by knowing and subduing the appetites of matter that man can master the intractable forces of nature, thereby restoring humankind’s original control of its appetites—i.e. the original paragon of cognitive and moral perfection embodied by the prelapsarian Adam. In Bacon’s philosophy, then, there is a basic correspondence between the motions of the mind and the motions of the bodies, a correspondence which derives from the fact that both orders of reality are rooted in the unstable realm of appetitive drives ... The *New Organon*—the reorganization of man’s mental faculties—and the *New Atlantis*—the reorganization of the social order—work in parallel. This is the fundamental reason that the chief institution in Bensalem ... which is devoted to the study of appetites in matter (the “secret motions of things”), is also in charge of preserving the political order. Men of science are in power because by knowing the appetites of matter they have a better knowledge of the very roots of human appetites.”⁵⁷

There is one component of Giglioni’s conclusion I want to draw particular attention to: that, for Bacon, the political-scientist is in charge of *preserving* the political order. That an institution of utopia is charged with the labor of *persevering* utopia is, to me, remarkable. The reason this is

⁵⁷ Giglioni, 167. The full citation is above. I highly recommend this chapter. But also, was Bacon-as-technocrat a Cass Sunstein type? Does that mean Cass Sunstein is a Hobbesian?

necessary, says Giglioni, is because “there is no condition of absolute rest in Bacon’s material universe ... Rest [only] prevails over change because the primordial appetite is the appetite which always seeks to reestablish the original condition. Every change is produced in order to resist change ... Reaching a state of rest is the deepest desire in matter and yet the atomistic constitution of the appetites, their factional and divisive nature, prevents the particles of matter from reaching a state of peaceful coexistence. Matter is constantly at war with itself.”⁵⁸ This is the reality of a fallen world, a world of perpetual conflict driven by appetite. The two pure directions described by Bacon, certainty and liberty, are only completely achievable by God. What we are left with is what Bacon calls *status anceps*. Giglioni defines it this way: “Here *anceps* is definitely an adjective fraught with meaning: literally, it means ‘facing in two directions,’ but also, ‘critically poised,’ ‘wavering,’ ‘indecisive,’ ‘unsettled.’ The two directions that constantly destabilize the appetites of matter are, on the one hand, the search for ways to put an end to the state of motion, and on the other, the condition of perpetual motion ... Not *horror vacui* (one of the typical bugbears of atomism), but *horror motus* is the real linchpin of Bacon’s natural philosophy.”⁵⁹

In my first response, I said something like “the nature of things is uncertain,” which I contrasted to the statement “uncertainty is the nature of things.” Bacon, it seems, agrees with me

⁵⁸ Giglioni argues that this explains the importance of the final two types of basic motion in the *Novum Organum*: the “motion of trepidation (*motus trepidationis*) and the motion of rest, also called the ‘dread of motion’ (*motus decubitus sive exhorrence motus*) ... These two motions ... are both expression of matter’s longing for repose and, at the same time, of its ultimate inability to avoid motion and change.” Giglioni, 165-166.

⁵⁹ One can see clearly how the two poles of direction defined in the *Valerius Terminus* map on to the two ends of the *status anceps*: certainty (the end of motion) and liberty (perpetual motion). Giglioni does not cite *Valerius Terminus* or discuss Bacon’s concept of direction, so I do think my intervention here actually does add to Giglioni’s already powerful analysis. Giglioni, 166.

in his pronouncement of our *status anceps*. Authority, then, is not derived from nature (which contains only appetites) but is instead *willed* onto nature. Giglioni identifies this position with Bacon's expansion of the cosmology of Bernardino Telesio (in which this conflict happened only at the boundary between heaven and earth) into "a cosmos [fully] ravaged by wars led by opposing armies ... Constant conflict is the rule, and if some sort of harmony seems to keep the world together it is only because the unbounded energy of one nature's power is curbed by the similarly unbounded energy of another's. The disposition of the universe, seemingly stable but in fact precarious and always on the point of breaking into complete anarchy, 'does not result from the laws that regulate covenants and agreements, but from sheer power' (*impotentia*, in the sense of inability to restrain one's own power)."⁶⁰ One can start to see Hobbes's position emerge here.

Conclusion

I will conclude with some remarks on nature's authority. This comes in two parts. First, I offer a description of what this phrase "the authority of nature" means. Second, I offer an account of what the above investigation into Bacon's philosophy might reveal regarding Bacon's stance on the authority of nature.

The first half of this question requires two moves: defining nature and defining authority. First, this word nature has to be dealt with. Notoriously one of the slipperiest words in the intellectual history of West, it is premised on an original division between those things which have an origin in themselves (the realm of *physis*, of the seed that grows into a tree) and those things which have an origin in another (the realm of *techne*, the domain of the craftsman and her art, the bed crafted of the tree's wood). This presumption of fundamental difference between

⁶⁰ Giglioni, 161-162.

the natural and the artificial remains the most powerful conceptual sieve for defining what “nature” is today, even if there might be multiple ways to define the two terms in opposition (beyond or separate from the *physis/techne* description I just gave).⁶¹

Next comes this word authority. This is a word as powerful as it is complex. Its use in this phrase “nature’s authority” privileges two related shades of its meaning: (a) authority as command, as the condition of assigning an obligation and (b) authority as a source of answers to hard questions. These two directions get combined in the authority of nature: nature becomes both the place to look for answers to hard questions, and its presumed authority then becomes normative: nature’s answers must be the right answers, and we are thus obligated to take them into account when we decide what ought to be done.

With both halves of the problem laid out, we can see that the fusion of this word nature to this word authority is premised on an original shadow argument: nature (as *physis*) is a more powerful authority than artifice (as *techne*). If the natural is definitionally constituted as the non-artificial, then an appeal to the authority of nature is always also a denial of the authority of artifice. Making this shadow argument explicit begs the question: why should the natural be privileged as a site of authority over and above the artificial?⁶² This question can be productively exploded in two ways. Either (z) people are wrong to privilege the natural, and the artificial is a more legitimate source of authority, or (y) the distinction between the natural and the artificial is

⁶¹ The further distinction you have highlighted between specific natures and local natures is useful, but I think it requires this original nature versus artifice distinction in order to become operable. It is interesting to think of the following analogy, though: Specific Nature is to Local Nature as _____ Artifice is to _____ Artifice. One wonders what kind of symmetry could be found here. I do not even have a provisional answer. The relationship between this category of “artifice” and this word “custom” is also fraught (consider the Longheads). It is why I am quite curious about this Greek word “eikos” and the relationship between something like “likelihood” and something else we call “similitude.”

⁶² At least since the middle of the 17th-century, this concept of universality is the shadow’s caster.

not conceptually sustainable and thus authority belongs to neither category, but must be located elsewhere or figured by other means.

Thus, my three paragraph summary of the simple problem of nature's authority. The question now is: what did Bacon make of this? My position is that Bacon falls between these (z) and (y) arguments, leaning heavily towards (y).⁶³

The simplest way of describing Bacon's position goes like this: only God is the source of ought. God is neither nature, nor artifice (God is only like God). Therefore, nature has no authority of its own. To be tempted to uncover an ought from nature is to be lured to the worship of idols.⁶⁴ The "summary law of God," that which "he worketh from beginning to end," lays *beyond* nature *and* artifice, although the conditions of its revelation might be connected to both of these things via commerce and navigation, as Bacon makes clear is his reading of Daniel. This summary law is the pinnacle of the pyramid whose base is history (described in the introductory quote to this paper), but there is no reason to suspect that every layer of that pyramid will be built in the same way, via the same method. Thus, even though the pyramid progresses from natural

⁶³ The position is complicated but is not entirely inconsistent with the position on Bacon that emerges out of Chapter 6 of your book with Katherine Park. "Although Bacon claimed that art (in the broad sense of all that is manmade, including technology) and nature differed in neither essence nor form but only in 'efficients' (that is, the causes that move each), he nonetheless described art as nature under constraint ... [but] marvels were proto-art, nature anticipating art ... Nature and art met in marvels, because marvels of both kinds forced nature out of its ordinary course." Now I ask you: what does this phrase "ordinary course" mean in that sentence? Sounds like "form" with an asterisk. In other words, I want to keep pushing here. See Lorraine Daston and Katherine Park, *Wonders and the Order of Nature, 1150-1750* (New York: Zone Books, 1998), 222. Later your position gets linked up with Shapin's arguments about "matters of fact" from *A Social History of Truth*, which is right on the money. But that book has a key problem, and it is linked to your distinction between Bacon's facts and the facts of the early Royal Society: the book entirely skips the English Civil War and basically goes from Bacon to the Restoration. In fact, one could read a whole field in 17th century English science and be forgiven for not knowing much at all about the political events of the "mid-century moment of crisis." Bless Shapin though as a fellow graduate of Reed College, Portland, OR USA.

⁶⁴ Here Galton's remarks on the normal curve and pagan religion take on special significance ... I suppose a member of a family of quaker gunmakers can be excused for sloppy theology.

history to natural philosophy (a useful progression per Bacon, otherwise we would lack the philosophical ammunition needed to refute Copernicus's daft conclusion, which does not disagree with the mere appearances) and ultimately ends with universal revelation, it does not follow that Bacon was certain that natural philosophy could ever, on its own, transmute history into revelation. Bacon's pyramid of knowledge is radically heterogenous in method between the layers. To put a point on it: Bacon's utopia is not the completed pyramid. It is merely an arrangement for the undertaking of the pyramid's construction. And Bacon learned the lesson of Babel: the pyramid can only be completed by God. The work of fallen man is to prepare the base and middle of the pyramid for that divine authorial finish. This is Bacon's (y) position: authority is located neither in nature nor artifice, but in God.

But this raises a point of complication: is Bacon's prescription for the arrangement of society an ought? Does it carry normative weight? And of course the reality of Bacon as an actual living person between the late 16th and early 17th-century then comes to bear with significant weight on how one goes about bringing his philosophy back to earth. He was a Lord Chancellor, and the subject of an impeachment at that! A sharp thinker on foreign policy and an old hand at court intrigue! And whatever Bacon thought about the unique monopoly of God on oughts, he did write his own *Elements of Common Law*, and it was something other than a copy of the ten commandments. Making sense of this requires investigating what I think is Bacon's provisional interest in the (z) position: that the artificial has more authority than the natural, if we have been forced by our estrangement from God to put some authority in one or the other.

The simplest argument I have in favor of this is that Bacon consistently refers to the "invention of knowledge" rather than the "discovery of knowledge." I suspect this choice is

something more than quaint idiosyncrasy. But I haven't done enough work to say much else on it yet.

I have two further, more substantial points. First, because Bacon is interested in denying the similitude between God and nature, the best arguments in favor of investing nature with authority get immediately short-circuited. Nature is for brutes. And if God did inscribe beauty onto the heart of man, then true beauty can be found in Bensalem (in the alley of forges and workshops as much as the halls of the scholars), not in some muddy hut next-door to the state of nature. Beauty is *cultivated*, for Bacon. That's why humans are so busy all the time. The value of brute nature is precisely its openness to manipulation, its possibility-of-becoming art. And if one can uncover the appetites of brute nature, one can perhaps learn more powerful means of intervening and manipulating. Of inventing. Of building a pyramid.

Second, Bacon insisted that the end destination of human knowledge was presently unknowable. This has an important implication: the rules of the game can change. "Those who gave contemplation an over-large scope" failed to realize that a sturdy wind might blow their intricately woven spiderwebs away. Nature is a poor authority because it is fickle. For this reason, I think, Bacon denied that nature could give many answers—nature was primarily a source of questions and further questions; of directions, not forms. Instead, it is our various art-sciences where we store and retrieve answers.

Thus, for Bacon, nature fails both components of authority: it lacks the *gravitas* to command, and it fails to give answers to hard questions. Artifice might fail similarly on the ability to command, but at least it can instruct. And if one is looking to invent answers to hard questions, instruction might be exactly what the Doctor prescribed.

“But the use of this part of Metaphysic which I report as deficient, is of the rest the most excellent in two respects; the one, because it is the duty and virtue of all knowledge to abridge the infinity of individual experience as much as the conception of truth will permit, and to remedy the complaint of *vita brevis, ars longa*, which is performed by uniting the notions and conceptions of sciences. For knowledges are as pyramides, whereof history is the basis: so of Natural Philosophy the basis is Natural History; the stage next the basis is Physic; the stage next the vertical point is Metaphysic. As for the vertical point, *Opus quod operatur Deus a principio usque ad finem*, the Summary Law of Nature, we know not whether man’s inquiry can attain unto it. But these three be the true *stages* of knowledge; and are to them that are depraved no better than the giants’ hills, [Pelion, Ossa, and Olympus, piled upon each other], but to those which refer all things to the glory of God, they are as the three acclamations, *Sancte, sancte, sancte*; holy in the description or dilatation of his works, holy in the connexion or concatenation of them, and holy in the union of them in a perpetual and uniform law. And therefore the speculation was excellent in Parmenides and Plato, although but a speculation in them, That all things by scale did ascend to unity...”

- Bacon, *The Advancement of Learning* (Spedding, vol. 6, 222).