

Used Cars have Values: Science, Values, & Ethics in Sir Francis Bacon's Wake

Abstract. Some greater definition is needed at the conceptual boundary between science and values. In order for this work to be done, a more definitive account of what we mean by 'values' is in order. Two definitions are considered here – one broad and ubiquitous, another specific and limited. The broader notion is constructively engaged with respect to the thought of Sir Francis Bacon as an example of the way in which the 'values' in Bacon's 'ought' (which helped to shape the 'is' modern science) themselves traded on robustly ethico-theological convictions; suggesting, in turn, science and values may be more closely linked than usually supposed. The more limited notion of 'values' is, however, more critically engaged within its role in standard accounts of ethics vis-à-vis modern science and technology; suggesting this latter conception either be rejected or refined. The essay concludes by proposing that the broader conception of 'values', while also in need of greater conceptual clarification, opens up new possibilities for more robust engagement with the operative norms of modern science and technology.

Keywords: science and values, norms, bioethics, principlism, Francis Bacon, Baconian philosophy, knowledge, power, science and religion.

Facts worth knowing: Defining science and values

What is the relationship between science and values? Any attempt to answer such a question requires some notion of the working definitions at play. While an exact designation of science is still rife with live questions, our conception of science is perhaps (on the whole) clearer than any predominant notion of values. For the purposes of this essay, we will take a broad definition of 'science' – such as the one proposed by Martin Goldstein and Inge F. Goldstein – to be sufficient, namely: an activity (or set of activities) characterized by (1) a search for understanding (2) achieved by means of statements of general laws/principles (applicable to the widest possible phenomena) (3) which can be tested experimentally.¹ What, then, of 'values'?

Ian Barbour suggests a 'value' is "a general characteristic of an object or state of affairs that a person views with favor, believes is beneficial, and is disposed to act to promote."² His definition accords with that of Ernan McMullin who notes that 'value' "derives originally from *valoir*, to be of worth. To 'value' something is to ascribe worth to it, to have it serve as a goal of effort, to regard it as desirable, to have a positive attitude towards it. And, correlatively, 'value' is the characteristic that leads something to be so regarded."³ 'Values', on these definitions, denote the ascription or recognition of worth or worthiness in an activity, object, etc.

¹ Martin Goldstein and Inge F. Goldstein, *The Experience of Science: An Interdisciplinary Approach* (New York: Plenum Press, 1984), p. 3. For a good introduction to conceptualizing science, see A.F. Chalmer *What Is This Thing Called Science?* (St Lucia: University of Queensland Press, 2006, 3rd Edition).

² Ian Barbour, *Ethics in an Age of Technology* (San Francisco: HarperSanFrancisco, 1993), p. 26

³ Ernan McMullin, "Values in Science" in *A Companion to the Philosophy of Science*, ed. W.H. Newton-Smith (Oxford: Blackwell Publishers, 2001). Here, however, McMullin further delineates three slightly variant varieties of 'value' that stem from this common conception: relational, inherent, and quantifiable values. The first two – and the relation between them – are of primary interest here. Their difference lies in the purported level of subjective vs. objective valuation. If something is valuable "a value because of its relation to a valuer or a community of valuers" then "the value of a particular property will depend on the estimate on the part of a particular community of its desirability relative to other possible goods" and can be regarded as valuable only to the extent that that is a person or community valuing it, rendering it an

Our definitions of ‘science’ and ‘values’ are here quite broad and, as such, perhaps subject to critique. However, if we can at least take these operative definitions to be adequate for the present inquiry, an interesting set of questions begins to emerge... How, if at all, does the ‘ought’ of values relate to the ‘is’ of science? Is science solely objective? And are values merely subjective?⁴ Do our definitions imply that there is a distinction between what we *believe* with respect to values and what we *know* with respect to science? These are open questions undoubtedly worthy of further exploration. Taking our broad definitions at face value, the question before us is: How do values – estimations about what is beneficial, desirable, worthy, laudable, right, beautiful, good, true – map onto the scientific enterprise?

I want to suggest – with reference to one important figure at the nexus of science and values so construed – that this question need not necessarily be answered solely in the abstract. Instead, even a cursory view from the history of ideas suggests that ‘values’ (so conceived) have interacted robustly with science in ways that have shaped the scientific enterprise as it is today. Within the limits of the present inquiry, a glance at the work of Francis Bacon will suffice as an example of what I take to be a more general verity. To be sure, Bacon is but one among many possible examples; still he is an especially intriguing one insofar as he is both an immensely important figure in discussions of early modern science and one for whom normative conceptions explicitly and overtly shaped his project – and science in his wake.

The ‘is’ that ‘ought’ to be: Bacon and the birth of science

While Francis Bacon is, according to most historical accounts⁵, a vital figure in the emergence of modern science and technology, his contribution was not so much a matter of a breakthrough scientific theory, specific epistemological postulation, or even methodological reformulation. Instead, as Patricia Fara suggests, Bacon “was better at prescribing what *should* be done.”⁶ His was not so much a contribution to the ‘what’ or ‘how’ of science as much as it was the ‘why’. Yet, his ‘why’ formulations lastingly marked the ‘what’ and the ‘how’ of science... his ‘ought’ indelibly shaped the ‘is’. Exactly how and to what extent Bacon achieved his desired effect on the reform of natural philosophy is the subject of another essay; it will here suffice to assume *that*

extrinsic or *relational* value. Conversely, if something is ‘a value in an entity of a particular kind because it is objectively desirable for an entity of that kind’ – whereby “the emphasis is not on the relation to a valuer but on the part played by the characteristic in the proper functioning of its possessor” – it is deemed valuable regardless of its relation to a valuing person or community and only in terms of its own ends, rendering it an *intrinsic* value.

⁴ Such definitions may seem to doom ‘values’ to an anemic state of subjectivity, yet Barbour maintains that “subscription to a value also includes beliefs about benefits or moral obligations that can be used to justify or defend it or recommend it to others” which are in turn “open to rational reflection and discussion.” Barbour, *Ethics*, p. 26-7

⁵ For examples, see: Stephen Gaukroger, *Francis Bacon and the Transformation of Early Modern Philosophy* (Cambridge: Cambridge University Press, 2001); Perez Zagorin, *Francis Bacon* (Princeton, NJ: Princeton University Press, 1998); Peter Harrison, *The Fall of Man and the Foundations of Science* (Cambridge: Cambridge University Press, 2007); E.A. Burtt, *The Metaphysical Foundations of Modern Science* (Mineola, NY: Dover Publications, 2003, Rev. Ed.); Antonio Perez-Ramos, “Bacon’s Legacy”, in Markku Peltonen, ed., *The Cambridge Companion to Bacon* (Cambridge: Cambridge University Press, 1996).

⁶ Patricia Fara, *Science: A Four Thousand Year History* (Oxford: Oxford University Press, 2009), p. 132. Emphasis mine.

Bacon did leave his mark and focus our attention on how the content of his purported reforms *entailed particular normative commitments* (or ‘values’ under our broad definition).

Three related examples bear reflection here: (1) Bacon’s conceptions regarding the cognitive effects of the Adamic Fall, (2) his attempt to address the widespread suffering attributable to the post-lapsarian state of humankind, and (3) his appeal to natural philosophy in terms of a ‘charity’ aimed at addressing and relieving humankind’s fallen estate. These elements of Bacon’s thought and rhetoric indicate a robust commitment to normative (ethico-theological) concepts which shape Bacon’s reformist agenda and – to the extent that he lastingly achieved his effect – science as we know it.⁷

First, Bacon’s theological commitment to a conception of the Adamic Fall found in Genesis (of the Hebrew and Christian scriptures) provided a major impetus for his critique of the knowledge-seeking endeavors of his day and his attempt to establish a knowledge-power enterprise on more sure ground. Bacon suggests that as a result of the Fall, human cognition was left in a rather diminished state:

For the mind of man is far from the nature of a clear and equal glass, wherein the beams of things should reflect according to their true incidence; nay, it is rather like an enchanted glass, full of superstition and imposture, if it be not delivered and reduced.⁸

To be sure, part of this deficiency was related to the superstition of certain religious dogmas, uncritical acceptance of received wisdom, the empty musings of Scholastic philosophy, etc.⁹ However, it is important to note that Bacon thought the mind was particularly vulnerable to being led so astray precisely because of its fallen estate.

By contrast, nature – a gift of God to humankind – acutely and clearly revealed the mind of God (which, in opposition to the mind of humankind, was without confusion or error). Instead of dwelling on this gift, the error-prone philosophers of Bacon’s day allowed “their pride lead them to leave the oracle of God’s word, and to vanish into the mixture of their own inventions... *they ever left the oracle of God’s works*, and adored the deceiving and deformed images which the unequal mirror of their own minds, or a few received authors or principles, did represent unto them.”¹⁰ The syllogistic ruminations of the Scholastics were to be rejected as their arguments and disputations relied too heavily on the human mind, a mind subject to great finitude and error.

In place of this empty philosophizing based solely on a marred mind, Bacon proposed a learning and knowledge that corresponded more directly to nature... a philosophy based on observation and experiment where axioms were derived inductively from observation and not (merely) deductively by reason.

For the wit and mind of man, *if it work upon matter*, which is *the contemplation of the creatures of God*, worketh according to the stuff and is limited thereby; but if it work upon itself as the spider worketh his web, then it is endless and brings forth indeed cobwebs of

⁷ On the first two points, this essay follows the thesis presented by Peter Harrison in *The Fall of Man and Foundation of Science*. Bacon is here cited as a key figure in the overall thesis which suggests that, owing to theological developments in the Protestant Reformation, emphasis on the wide-ranging effects of the Fall broadly shaped methodological discussions pertaining to natural philosophy in the 16th and 17th centuries.

⁸ Francis Bacon, *Of the Proficiency and Advancement of Learning Divine and Humane* in *Great Books of the Western World* (Chicago: Encyclopedia Britannica, 1952), Robert Marnard Hutchins ed., p. 60

⁹ Bacon’s famous ‘Idols of the Mind’ serve as case in point here.

¹⁰ *Ibid.*, p. 13

learning, admirable for the fitness of the thread and work, but of no substance or profit.¹¹

Such a method could, as it were, restore to humankind that knowledge it once possessed prior to the Fall: “determining the degrees of certainty, whilst we, as it were, *restore the senses to their former rank*... and establish a new and certain course of the mind.”¹²

Second, not only was Bacon’s new learning to ameliorate the *cognitive* effects of the Fall, but indeed the *full gamut of corporeal suffering* humankind endured. One of the key themes in Bacon’s thought was the need to link more closely knowledge and the production of effects – demonstrability, utility, power. His stress thereupon, again, was related to his rejection of what he perceived to be the double deficiency of Scholastic philosophy. Not only was Scholastic philosophizing too disconnected from reflection on nature (and thereby prone to error), it was also characterized by uncouth, esoteric musings which bore no importance to the more immediate needs of humankind stemming from the suffering endemic to the Fall. The philosophy of the Scholastics entailed an “unprofitable subtilty [sic] or curiosity”¹³ which led only to a vortex of vain disputes: “when you descend into their distinctions and decisions, instead of *the fruitful womb for the use and benefit of man’s life*, they end in monstrous altercations and barking questions.”¹⁴

The rightful task of philosophy was to re-establish humankind’s pre-Fall graced state (or at least to mitigate the deleterious effects of the post-lapsarian estate) through the application of human ingenuity: “Let the human race only be given the chance to regain its God-given authority over nature, then indeed will right reason and true religion govern the way we exert it.”¹⁵ As mentioned, humankind had been afforded the gift of Nature by which it could ascertain the mind of God (at least in part). In turn, it had also been given the intellectual faculties to overcome the Adamic Fall, though as we have seen, these faculties had by and large been used towards esoteric ends. The task of the new philosophy was to set human knowledge on a new course, knit more tightly knowledge and power, and apply more immediately the intellectual enterprise to the human condition. In his attempted reform of philosophy, Bacon wished acutely “to see whether I can really lay firmer foundations for human power and prestige, and to extend their bounds yet wider.”¹⁶ Nowhere is this stated more boldly and clearly than in conclusion to *Novum Organum*:

For by his fall man lost both his state of innocence and his command over created things. However, both of these losses can to some extent be made good even in this life, the former by religion and faith, the later by the arts and sciences. For the curse did not quite put creation into a state of unremitting rebellion, but by virtue of that injunction *In the sweat of the face shalt thou eat thy bread*, it is now by labours (not for sure by disputations and the idle ceremonies of magic) at length and to some degree mitigated to allow man his bread or, in other words, for the use of human life.¹⁷

Here, once again, heavy stress is laid on demonstrability, utility, power. Over and against ‘empty musings’, Bacon again and again called for a philosophy that produced effects “to

¹¹ Ibid, p. 12. Emphasis mine.

¹² Ibid., p. 1

¹³ Ibid., p. 13

¹⁴ Ibid., p. 13. Emphasis mine.

¹⁵ Francis Bacon, *Novum Organum in The Instauration Magna Part II: Novum Organum and Associated Text* (Oxford: Oxford University Press), Graham Rees and Maria Wakely eds., p. 197, S1r

¹⁶ Ibid., p. 175, P4v

¹⁷ Ibid., p. 447, 2T6v

the benefit and use of man”¹⁸ and thereby established for humankind “a true account of their gift of reason.” With such an injunction employed repeatedly, Bacon suggests that reflection on nature was a twofold good: “for the glory of the Creator and the relief of man’s estate.” Extending the logic, Bacon unequivocally suggests that the point of such a different orientation to philosophy was so that “*contemplation and action* may be more nearly and straitly [sic] conjoined and united together than they have been.” He suggests – by way of an analogy which has rightly raised the ire of feminist critics but nonetheless clearly depicts his line of thought – “that knowledge may not be as a courtesan, for pleasure and vanity only, or as a bond-woman, to acquire and gain her master’s use; but as a spouse, for generation, fruit, and comfort.”¹⁹

Beyond merely suggesting that knowledge should produce effects, Bacon comes perilously close to entirely conflating demonstrability, utility, power and truth: “Human knowledge and power come to the same thing”²⁰ and “the routes to human power and knowledge lie very close together and are almost identical.”²¹ Moreover, Bacon argues effect is a measure of validity: “Among the signs none is more certain or noble than that derived from fruits. For the discovery of fruits and works as it were guarantees and underwrites the truth of philosophies.”²² The whole point of human knowledge, especially that related to nature, was to uncover elements useful for the further extension of human power: “Now the true and legitimate end of the sciences is nothing other than to supply human life with new discoveries and resources.”²³

It should come as no surprise, then, that Bacon stands alongside his contemporaries in awe of recently-developed technologies and the potential benefits they bore for humankind, for “it helps to observe the force, virtue, and consequences of what has been discovered, and that nowhere more apparent than in those three things which were unknown to the ancients and whose origins, though recent, are dark and inglorious: namely the *Art of Printing*, *Gunpowder*, and the *Mariner’s Compass*. For these three have altered the whole face and state of things right across the globe....” Indeed, the fever pitch of his excitement even included a sense of divinely providential, prophetic fulfillment: “this proficience in navigation and discoveries may plant also an expectation of the further proficience and augmentation of all sciences; because it may seem they are ordained by God to be coevals, that is, to meet in one age. For so the prophet Daniel speaking of the latter times foretelleth, *Plurimi pertransibunt, et multiplex erit scientia* [Many shall go to and fro on the earth, and knowledge shall increase. Daniel 12.4]: as if the openness and through-passage of the world and the increase of knowledge were appointed to be in the same ages.”²⁴

¹⁸ Francis Bacon, *Advancement of Learning*, p. 16

¹⁹ *Ibid.*, p. 17. Emphasis mine.

²⁰ Francis Bacon, *Novum Organum*, p. 65, E2r

²¹ *Ibid.*, p. 203, S4r

²² *Ibid.*, p. 117, K1v

²³ *Ibid.*, p. 129, L2r

²⁴ Francis Bacon, *Advancement of Learning*, pt. 14, p. 37. Not only was the knowledge which produced effects a gift of God’s which *should* be used for the amelioration of suffering, cryptic prophetic tomes from the Hebrew scriptures seemed to foretell that Bacon’s proposed reforms *would* come about: “And we must not forget the prophecy of *Daniel* concerning the last ages of the world: that *Many shall go to and fro and knowledge shall be increased*, which manifestly hints and signifies that it was fated (i.e. Providence so arranged it), that through exploration of the world (which so many long voyages have apparently achieved or are presently achieving) and the growth of the sciences would meet in the same age.” (*Novum Organum*, p. 151, N3r) Bacon’s reform was part of an eschatological fulfillment of long-promised triumph over this-worldly suffering. Significantly, in the Baconian schema this was not just the hope for life in the world to come, but something that could, should, and would be fulfilled on the ‘already’ side of the eschaton.

Teetering perilously close to what I would like to call the *tautological imperative*,²⁵ Bacon nonetheless does attempt to situate his reformist agenda within a larger framework. This, then, brings us to our third point. Bacon stressed demonstrability, utility, and power aimed at the relief of the human condition of suffering. He sought knowledge qua power and practicality. However, he stressed not *only* demonstrability, utility, and power; not *merely* power and practicality... The immediate ‘end’ of knowledge was to be indelibly linked with ‘charity’, for “if [knowledge] be severed from charity, and not referred to the good of men and mankind, it hath rather a sounding and unworthy glory, than a meriting and substantial virtue.” Such proximate ‘goods’ were situated squarely within a larger conception of ‘*the good*’. Bacon suggests “only let men beware that they apply both to *charity*, and not to swelling; to *use*, and not to ostentation; and again, that they do not unwisely mingle or confound these learnings together.”²⁶

Our conception of ‘charity’ means something more like ‘helping one in need’. Certainly, Bacon had something like this in mind. However, having already established that knowledge should be put to the use and benefit of humankind’s estate, Bacon suggests *further* that ‘charity’ should remain the preeminent ‘end’ of human endeavor. This stress on a charity that hovers preeminently over mere ‘relief of estate’ lends itself to the idea that the relief of suffering is an aspect of, but does not finally determine, the ‘charity’ he had in mind. Instead, Bacon’s conception of ‘charity’ was more robust and determinative – involving a love of neighbor which stems from a love of God. Sven Knebel suggests that within the context that Bacon was writing, ‘charity’ was situated preeminently among the virtues precisely because it linked love of God, love of neighbor, and the whole of human endeavor: “Charity, our love for God, was not regarded merely as one virtue among others. Rather, the role which it played was also a formal one.... [C]harity is a certain attitude, a *modus agendi*, which supervenes on actions of quite different types and which confers on them their moral value. Treatises on charity, therefore, were the stage for major decisions.”²⁷ Though we cannot be certain, it is probable that this sense of ‘*charitate*’ more closely approximates what Bacon would have been suggesting in his utilization of this term – and why it would have figured so prominently in his overall agenda. Bacon’s insistence on the preeminence of this virtue in the intellectual pursuit is perhaps seen in his veritable benediction in the preface to *Instauratio Magna*:

²⁵ I want to suggest ‘the tautological imperative’ goes something like this: it’s good if it works and if it works it’s good. In his close identification of the ‘ends’ of knowledge and the production of effects, Bacon is perhaps an early progenitor of this fallacious ethical position. Apparently, he is conscious of this fact. In response to the contention that this stress on the strong relation (perhaps even conflation) of knowledge and effect – as well as the resultant emphasis on firsthand engagement with nature and the physical order – did injustice to the more pure form of philosophy achieved through contemplation, Bacon retorts: “People will no doubt think too that I am guilty of the very charge that I lay against others, namely that the goal or target that I have established for the sciences is neither a true one nor the best. For it might be said that the contemplation of truth is worthier and nobler than all utility and magnitude of works, and that this long and agitated lingering on experience and matter... fastens the mind on mere dust or rather casts it into the blackest hell of confusion and distress, and deflects and distracts from the peace and tranquility of abstract wisdom (as from a state more divine). Now I freely admit this whole case, for this end which they mark out as preferable is what I am driving at over and above all else. For I lay foundations in the human intellect for a true pattern of the world as we actually find it and not as someone’s own private reason hands it down to him.... Thus truth and utility are (in this situation) the very things themselves; and the very works give much more as guarantors of the truth, than providers of material benefits.” Francis Bacon, *Novum Organum*, p. 187, R1v

²⁶ Francis Bacon, *Advancement of Learning*, p. 4. Emphasis mine.

²⁷ Sven K. Knebel, “Causistry and the Early Modern Paradigm Shift” in *Moral Philosophy on the Threshold of Modernity*, Jill Kraye and Risto Saarinen eds. (Dordrecht: Springer, 2005), p. 122

Lastly, I desire every last one of us be admonished to think on the true ends of knowledge; that we seek it not for personal gratification, or for contention, or to look down on others, or for convenience, reputation, or power, or any such inferior motive, but for the benefit and use of life, and *that is be perfected and regulated in charity*. For from desire for power the angels fell, and from desire for knowledge men; but there is no excess of charity, and neither angel nor man was ever imperiled by it.²⁸

Bacon here attempts to situate his reforms within a larger ethico-theological narrative. As we have seen, Bacon heavily stresses his preference for knowledge *qua* effects, demonstrability, utility, and power applied to the relief of suffering and the human condition. However, we see finally that these are the proximate aims of an overarching and ultimately determinative conception of *charitate* that is, in turn, irreducibly theological. For Bacon, his reforms are approximations and partial fulfillments of that love towards which the human is properly oriented – the love of God that compels and constitutes the love of neighbor.

The above analysis suggests that as Bacon articulates the need for a ‘new science’ he does so in terms that are expressly normative (ethico-theological) – ‘value’-laden on our broader definition. As his normative prescriptions for the reform of natural philosophy take hold (to a greater or lesser extent), these ‘values’ are (again, to a greater or lesser extent) retained as constituent of the scientific endeavor. Science as an ever-increasing store of knowledge readily lending itself to the relief of human suffering would, I assume, strike us as an altogether commonplace conception of science. It matters none whether the genesis of such conceptions regarding the ‘goods’ of science is well known or acknowledged for such conceptions to be fully operative. However, in attempting to name and clarify the constitution of those values inherent to the scientific enterprise, a genealogical account of their emergence may well be illuminating.

To the extent that the ‘is’ of modern science is indebted to the ‘ought’ of Francis Bacon, we can suggest that science is at least partially value-determined. Bacon’s ‘ought’, in turn, trades on highly normative (ethico-theological) ‘values’ that provided the context and impetus for his reformist agenda. From the stress on effects/demonstrability/utility/power to the close identification between power/utility/demonstrability/effect and truth to the relief of suffering... these ‘values’ remain operative in the scientific enterprise today. Attention to the genealogy of these ‘values’ accordingly helps to shed some light on the constitution of science as we now know it, particularly the latent values on which it operates. Perhaps this opens up a possibility for a thick assessment of the aims and ends of scientific and technological endeavors, with the goods they articulate interrogated in terms of their meaning and genesis. Be that as it may, all of this is predicated on the more broad conception of ‘values’ articulated at the outset. It makes sense to consider the ‘values’ of Bacon’s ‘ought’ and how they shaped the ‘is’ of science only to the extent that our conception of ‘values’ is broad enough to mean ‘an operative conception of the good in/of an activity or object’. However, this is not necessarily the most common conception of ‘values’ at work in discussions of science today. Another conception of ‘values’ accordingly warrants reflection.

²⁸ Francis Bacon, “*Great Instauration preliminaries*” in *The Instauration Magna Part II: Novum Organum and Associated Text*, Graham Rees and Maria Wakely eds. (Oxford: Oxford University Press), p. 23, A6r. Emphasis mine.

In spite of the preceding analysis of values under a broad definition, perhaps the predominant theoretical plane for the interaction of science and ‘values’ has been that of ethics – particularly that rather new permutation of ethics known as *bioethics*. The meaning of ‘values’ in the prevailing schema that has come to characterize this still nascent field is slightly but significantly different than our definition above. In common accounts of ethics and science, ‘values’ has come to mean something far more particular and specific. Before explicating this divergence in meaning, however, the enterprise of bioethics should be set in context.

As the discipline of bioethics began to emerge in the 1960s and 70s in the United States, Daniel Callahan (co-founder and president of the prominent bioethics research institution, The Hastings Center) acknowledged: “Bioethics is not yet a full discipline... [it lacks] general acceptance, disciplinary standards, criteria of excellence and clear pedagogical and evaluative norms,” yet he suggested further that this lacuna nonetheless provided an opportunity to craft a discipline “not yet burdened by encrusted traditions and domineering figures.”²⁹ However, with the publication of the discipline-defining *Principles of Biomedical Ethics* by James F. Childress and Tom Beauchamp in 1979, bioethics arguably found its ‘encrusted traditions and domineering figures’.³⁰

The approach of *Principles*, as the name implies, is based on a certain approach to morality dubbed ‘moral principlism’. Amidst the cacophony of identity-claiming traditions in a pluralistic society and the resultant dizzying diversity of moral norms, the authors of this text suggest that despite real divergence between assorted moral claims stemming from varied moral traditions, we can nonetheless distill a “set of norms that all morally serious persons share,” what the authors refer to as ‘*the common morality*’.³¹ This ‘common morality’ is both absolute³² and fundamental: “The common morality contains moral norms that bind all person in all places; no norms are more basic in the moral

²⁹ Daniel Callahan, “Bioethics as a Discipline”, *The Hastings Center Studies*, Vol. 1, No. 1 (1973), p. 68

³⁰ On the absolute centrality of this text and the influence it exerted over the entire discipline of bioethics, Jonathan H. Evans suggests: “According to observers of the profession, this one book has more than anything else ‘shaped the teaching and practice of biomedical ethics in this country... [becoming] a standard text in courses and a virtual bible to some practitioners’. The ethical framework provided by the book ‘shapes much of the discussion and debate about particular bioethical issues and policy, whether in the academy, the literature, the public forum or the clinic’. The institutionalization of this form of argumentation for human experimentation and increasingly for other problems was so strong that one set of critics would go so far as to begin their essay with the mocking claim that ‘throughout the land, arising from the throngs of converts to bioethics awareness, there can be heard a mantra ‘... beneficence... autonomy... justice...’ Fox and Swazey claim that the approach in the book ‘has been so widely disseminated across national boundaries that it has become a kind of bioethical lingua franca.”

³¹ Tom L. Beauchamp and James F. Childress eds., *Principles of Biomedical Ethics*, 5th Ed. (Oxford: Oxford University Press, 2001), p. 3. The authors nonetheless acknowledge that “*Morality* consists of more than the *common morality*, and we should never confuse or conflate the two. For example, morality includes *moral ideals* that individuals and groups voluntarily accept, *communal norms* that bind only members of specific moral communities, extraordinary *virtues*, and the like. The common morality, by contrast, comprises all and only those norms that all morally serious persons accept as authoritative.” While one may ascribe to a set of (voluntarily held) beliefs (i.e., a religious faith or personal code of ethics), such subjective standards cannot trump the common morality. There’s no opting out of the common morality if one wants to be considered a ‘morally serious person’.

³² Not in the sense that any one moral norm is absolute for “various moral principles can and do conflict.” (Ibid., p. 11) Here the authors defer to W.D. Ross’s conception of a “distinction between *prime facie* and *actual* obligations” whereby a “*prime facie* obligation must be fulfilled unless it conflicts on a particular occasion with an equal or stronger obligation.” (Ibid., p. 14)

life.” The common morality is, in turn, predicated on and comprised of a “set of principles” which “express the general values underlying rules” that “function as an analytical framework.”³³ The authors thus identify “four key principles” which “derive from considered judgments in the common morality” and constitute the starting point of bioethical inquiry. The task from there on out is simply “to develop, specify, and balance these principles” in application to specific contextual problems.³⁴

The dominance of this approach is evidenced by David Resnick’s *The Ethics of Science*, wherein he echoes almost verbatim the approach of Childress and Beauchamp in articulating what he considers a standard (and unproblematic) account of ethical theory:

Each person in society gets exposed to a *commonsense morality*. This morality consists of a wide variety of standards of conduct, duties, obligations, values, and principles that come from disparate sources... norms that most people learn and practice without any explicit theorizing or deeper analysis... Some of these commonsense values include happiness, honesty, justice, charity, courage, integrity, community, love, knowledge, and freedom.³⁵

Resnick unpacks this ‘commonsense morality’ by contrasting it with a ‘*moral theory*’, the former representing untheorized *prime facie* assumptions and the later “attempts to provide a justification or foundation” for them.³⁶ Surveying, then, a menu of divergent approaches to ‘moral theory’, Resnick suggests philosophers and theologians have collectively taken to theorize what he calls “commonsense *values*,” despite their deviating approaches and conclusions. As with Childress and Beauchamp’s principlism, Resnick argues coherence can be achieved despite the cacophony (which splinters us according to our variant philosophical differences, tribal and sectarian allegiances, complex assortments of cognitive commitment, etc.) via ‘reflective equilibrium’ – the Rawlsian conception of moving dialectically between moral judgements about particular issues in light of their consistency with other similar cases, broader moral principles, and other issues and judgements, having first stepped behind the veil.³⁷ Through this theoretical mechanism, we can discover that “although these theories look very different at first glance, they often end up supporting similar standards and values” and ultimately “most theories have similar practical implications.”³⁸

³³ Ibid., p. 12

³⁴ Ibid., p. 23

³⁵ David B. Resnick, *The Ethics of Science: An Introduction* (New York: Routledge), p. 18

³⁶ Ibid., p. 19

³⁷ See John Rawls, *A Theory of Justice* (Cambridge, MA: Harvard University Press, 1971). See especially p. 48f where this approach is exemplified as follows: “The need for this idea arises as follows. According to the provisional aim of moral philosophy, one might say that justice is fairness is the hypothesis that the principles which would be chosen in the original position are identical with those that match our considered judgments and so these principles describe our sense of justice. But this interpretation is clearly oversimplified. In describing our sense of justice an allowance must be made for the likelihood that considered judgments are no doubt subject to certain irregularities and distortions despite the fact that they are rendered under favorable circumstances. When a person is presented with an intuitively appealing account of his sense of justice (one, say, which embodies various reasonable and natural presumptions), he may well revise his judgments to conform to his principles even though the theory does not fit his existing judgments exactly. He is especially likely to do this if he can find an explanation for the deviations which undermines his confidence in his original judgments and if the conception presented yields a judgment which he finds he can now accept. From the standpoint of moral philosophy, the best account of a person’s sense of justice is not the one which fits his judgment prior to his examining any conception of justice, but rather the one which matches his judgments in *reflective equilibrium*.” Emphasis mine. Note also the importance of the concept of an ‘original position’ here. For more on this and the ‘veil of ignorance’ see pp. 118-136f.

³⁸ Ibid., p. 21

In light of this claim, Resnick goes on to suggest that since “a wide variety of moral theories yield similar results” the “most reasonable” approach to moral theorizing is “some kind of moral pluralism” wherein one proceeds by appeal to “a number of basic moral standards (or first principles),” each of which “have some *prima facie* justification from commonsense morality” and “are supported by different moral theories.” In so doing, we discover at long last what we already knew... that in the end we were all saying the same thing all along: “Thus, utilitarians, Kantians, and social contract theorists can all agree that we should not harm other people, that we should not lie, and so fort.” Having discovered that what we have common is what we all already knew we meant all along, the task is then simply to figure out how to adjudicate our common commitments and reason through our shared principles through the morass of ethical dilemmas that modern science and technology present.

This approach to ethical interrogation of science and technology – indeed, the very emergence of an enterprise called ‘bioethics’ – has a story. John H. Evans suggests that as questions about medical technologies increasingly came to the fore of public debate in the United States, it was theologians who were first on the scene to offer critical appraisals of their utilization. These early commentators were, however, victims of their own success:

They had started a movement that questioned the ends scientists were pursuing with their technologies, and the public began to pay attention. In fact, the public was paying so much attention that these issues soon caught the eye of elected officials, who began to suggest various legislative remedies to force scientists and physicians to adhere to the basic ethical insights that were being generated by theologians... Key to the institutionalization of principlism is that the government had become the ultimate consumer of ethical arguments about science. Reflecting on the birth of the bioethics profession, Warren Reich states that “there was a political urgency to many of the biomedical issues” at the time. “The media craved the biomedical controversies and federal and state policy makers wanted answers.” The medical research components of the government had already made principlism the central ethical system, enshrining it as ethics in every medical school and research university in the US. Less immediately applied parts of the government research apparatus also preferred thin forms of ethical argument like principlism.³⁹

Wishing to retain their newfound relevance, “the *religious* identity of the theologians involved with inventing and promoting principlism became more difficult to see as they were more likely to become *simply bioethicists*.”⁴⁰

³⁹ John H. Evans, “Science, Bioethics and Religion” in Peter Harrison, *The Cambridge Companion to Science and Religion* (Forthcoming, Cambridge: Cambridge University Press, 2010) To this, Evans adds: “In this the American and European cases diverge. In historian Ted Porter’s rendering, in other countries government officials are ‘trusted to exercise judgment wisely and fairly. In the United States, they are expected to follow rules.” This is because, put simply, it is part of the US political culture to not trust authority, especially government authority, and particularly the authority of bureaucrats. The thin ethics are therefore perfect for government agencies, because government bureaucrats are not using their judgment to determine what the ends or principles should be, but were rather engaged in rule-like following of the common morality, the ends or goals that thin bioethics theories claimed that all reasonable persons already held. Principlism was the perfect bioethical morality for government action in America, and it excluded those like the theologians who wanted to debate ends (principles) and means (technologies) as a piece.”

⁴⁰ Ibid. Emphasis mine. Evans suggests further: “The principles were argued to not only be universally held by all the citizens of the US, and to be the ends to pursue for human experimentation, but that they were the ends for all issues in science and medicine.... The form of argument preferred by theologians had been to examine each technology in its particularity, and discuss how it was or was not consistent with the myriad ends found in their traditions. They were interested in the technologies and the ends as a package, not only in the technologies themselves. Once [however] means and ends are split by not allowing debate about the ends because they had been set, debate becomes thin because the only remaining question is whether the technology maximizes these predetermined ends. If we cannot debate ends, what

Whatever the factors that gave rise to the standard account of bioethics *qua* principlism, particularly germane to the present inquiry is the role that ‘values’ play in this schema. They are, in the first instance, part of the metaphysical furniture of ‘commonsense morality’ – subjective proclivities or predispositions towards particular moral judgements. Upon further reflection, they become grist for the mill of moral theory, the starting point for reflection as we attempt to justify our own *prima facie* commitments in light of other (perhaps conflicting) *prima facie* commitments that we (or others we encounter) hold. These theories, in turn, evaluate our ‘values’ in light of a myriad of possible justificatory *modus operandi*. While the results of these evaluations differ in some respects, in the light of ‘reflective equilibrium’ we find that there is sufficient shared ground such that our ‘values’ – complex as they are and derived as they are by variant justificatory grounds – are in the end more similar than they are different. This, then, permits us to distil a coherent consensus of ‘values’ or ‘principals’ now stripped of their particularity, allowing us to overcome our differences and get on with our ethical and political deliberations. We all agree on the universals (i.e., ‘values’), it’s just a matter of discussing the particular moral dilemmas.

What was once a more general claim about values here takes on a subtly but significantly different meaning. ‘Values’ within the remit of bioethics means ‘that which everyone everywhere always believes’. Suddenly it is presumed that when we speak of ‘values’, we speak of judgments of worth and worthiness that – despite superficial dissimilarities amidst the cacophony of value-generating systems and cognitive commitments to which a person, community, or society may be committed – converge with fundamental commensurability. Differentiation, divergence, and discrepancy are overcome by asserting an underlying similarity, perhaps even an ontological unanimity, which in turn allows for our common procession towards adjudicating applications.⁴¹

use were the theologians? It turns out there would be no use for them, which was the beginning of the end of their influence.”

⁴¹ A further issue with this approach is seldom (if ever) are the larger and over-arching aims and ends (and accompanying ‘value’-commitments) of science robustly interrogated. The standard casuistry approach significantly limits the role of ‘values’ questions to a post-hoc analysis. The aims and ends of science and technology are generally taken to be an unquestioned and unquestionable ‘given’, an outworking of neutral facts dealing with matters of objective reality. Questions relating to ‘values’ (moral or otherwise) are only relevant *after* science and technology have accomplished their aims and ends unabated. Any attempt to interrogate the scientific or technological enterprise at the outset or on the basis of fundamental, operative commitments is seen as alarmingly, unduly obstructionist... especially when such attempts are made from the perspective of (subjective) ethico-religious ‘values’.

However, there may be reasons for not immediately acquiescing to this relegation of ethics and/or ethico-religious ‘values’ to all and only *post hoc* analysis. Gerald McKenny claims that modern technology “is surrounded and infused by a certain kind of moral purpose.” (Gerald P. McKenny, *To Relieve the Human Condition*, Albany: State University of New York Press, 1997, p. 22) This ‘certain kind of moral purpose’ is far from a neutral and normatively noncommittal view of science and technology, instead “the reign or technology expresses, and is perhaps in part produced by, the deepest moral commitments of modernity: the commitments to eliminate suffering and expand the realm of human choice.” (Ibid.) If McKenny is correct in this assessment, then the relegation of values-assessment to *post hoc* analysis is arbitrary and erroneous. Scientific and technological enterprises operate on presumptive moral purpose that urges interrogation from the outset.

McKenny’s claim here accords with the foregoing analysis offered in the first section which is, in part, that the very emergence of the enterprises comprising modern science and technology are collectively predicated on deeply normative conceptions, such as those articulated by Francis Bacon. Bacon’s ‘ought’ shaped the ‘is’ of modern science and technology, infusing it with a certain kind of moral purpose. While the values that animate such enterprises are presumed to be neutral when it comes to questions of morality, they are not. At best, they reify Bacon’s (unfortunate) tautological imperative, rendering their

Whose values? Which rationality?

Ian Barbour, in his *Ethics in an Age of Technology*, exemplifies this approach to ethics vis-à-vis science and technology when he asserts “values are often shared by others and can be discussed in the arena of public debate... I submit that in a world of technological power, scarce resources, and increasing gaps between rich and poor, *social justice* is the crucial value in most policy decisions today.”⁴² Who could possibly wish to oppose the ‘value’ of ‘social justice,’ risking the exacerbation of the threats encountered by ‘a world of technological power, scarce resources, and increasing gaps between rich and poor?’

Here, Barbour’s sentiments are the exemplar *par excellence*⁴³ of what Alasdair MacIntyre critically dubbed “the rhetoric of consensus.”⁴⁴ MacIntyre suggests that a turn of phrase like ‘social justice’ – in so far as it assumes that what one means by it is what everyone everywhere always means by it – risks masking an “intimidating range of questions about what justice requires and permits... conceptions which are strikingly at odds with one another in a number of ways.”⁴⁵ In other words, precisely what one means by justice is determined by the way such a (concept-laden) word is used within particular moral traditions. Liberalism is certainly one such tradition, but there is no necessary reason for privileging this particular account of the moral life.

In view of this claim, Gerald McKenny offers an account of standard bioethics in particular which helps to locate it squarely within the purview MacIntyre’s more general critique. Says McKenny: “Standard bioethics, by which I mean a family of secular approaches rooted in the theories and principles of analytical moral philosophy... is a product of modernity, and the moral task of modernity is to resolve conflicts between competing interests in order to secure social cooperation without appeal to robust views of the good.”⁴⁶ He notes especially how “commonality is sought in secularity (or at least a limited consensus or convergence of various religious and secular beliefs), a nonsectarian posture, and standards of rationality or reasonableness that allegedly either transcend or may be shared by particular communities.”⁴⁷ If McKenny is correct in this claim, MacIntyre’s analysis exposes fundamental difficulties to the foundational moral framework of bioethics. And if MacIntyre is correct in his analysis, the difficulties could be damning.

In an appraisal that poses a particular problem for the principlist approach of Childress, Beauchamp, *et al.*, MacIntyre calls attention to how the “requirement of disinterestedness... covertly presupposes one particular partisan type of account of justice, that of liberal individualism, which it is later used to justify, so that its apparent neutrality is no more than an appearance, while its conception of an ideal rationality, as consisting in the principles which a socially disembodied being would arrive at illegitimately ignores the inescapably historical and socially context-bound character

operative norms literally meaningless unless contextualized within a larger moral framework capable of overcoming the circularity of “it’s good if it works and if it works it’s good.”

⁴² Ian Barbour, *Ethics*, p. 55. Emphasis in original.

⁴³ ...and Beauchamp, Childress, Resnick, *et al.* with him!

⁴⁴ Alasdair MacIntyre, *Whose Justice? Which Rationality?* (Notre Dame, IN: University of Notre Dame Press, 1988), p. 2

⁴⁵ *Ibid.*, p. 1

⁴⁶ Gerald McKenny, *To Relieve the Human Consition*, p. 8

⁴⁷ *Ibid.*, p. 14

which any substantive set of principles of rationality, whether theoretical or practical, is bound to have.”⁴⁸ This assessment dovetails with Stanley Hauerwas’s more general critique of the role ‘values’ play in university ethics curricula:

Quite simply, the university underwrites the assumption that morality is something we create through individual choice rather than the shaping of our lives lived through disciplined discovery of the good. No better example of this view can be found than those who want the contemporary university to teach values. Used cars have some value but I suspect that values have very little to do with any substantive account of morality. For universities to teach values – or help students clarify values – only reinforces the idea that the moral life is but another form of consumer choice.⁴⁹

As Hauerwas likewise suggests elsewhere, drawing on James Edwards’s *The Plain Sense of Things: The Fate of Religion in An Age of Values*, “nothing characterizes the nihilism that grips our lives better than the language of ‘values.’ Nihilism is not a philosophical conspiracy designed by Nietzsche and some French intellectuals to undermine the good sense of liberal Americans – indeed Nietzsche was the great enemy of nihilism. Rather, nihilism is now the normal condition of our lives to the extent that we all believe that our lives are constituted by what Edwards calls ‘self-devaluating values.’ All our values are self-devaluating because we recognize their contingency as values. As Edwards puts it, ‘normal nihilism is just the Western intellectual’s recognition and tolerance of her own historical and conceptual contingency. To be a normal nihilist is just to acknowledge that, however fervent and essential one’s commitment to a particular set of values, *that’s all one has*: a commitment to a particular set of values.”⁵⁰

Hauerwas here exacerbates the deficiency of ‘values’. Not only do they mask real divergence by suggesting we all believe what everyone everywhere always believed, they also tempt us to think we had no story except the story we chose when we had no story.⁵¹ The story of ‘values’ leads us to believe there is a position more original than our tradition-determined position.⁵² This story thus leads us to believe that if we can just step behind the veil – to a position blissfully ignorant of all our particularities – we can discover what everyone always everywhere believed. Yet, even if we were to assume there was such a veil *and* that we could possibly step behind it, what reason is there to believe that the position we would then find ourselves in is more original and than that position we inhabited before we took our first step (literally and figuratively)? Hauerwas here again offers his pithy quip: “Used cars have values, people don’t.” People don’t have ‘values’, they have beliefs and practices... ‘practices’ in Alasdair MacIntyre’s robust sense of a “coherent and complex socially established cooperative human activity through which goods internal to that form of human activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve

⁴⁸ Alasdair MacIntyre, *Whose Justice? Which Rationality?*, p. 2-3

⁴⁹ Stanley Hauerwas, “How Christian Universities Contribute to the Corruption of Youth: Church and University in a Confused Age” as quoted in Mark Walhout, “Textual Virtue: A Review Essay”, *The Journal of the Midwest Modern Language Association*, Vol. 21, No. 1 (Spring, 1988), p. 65-74

⁵⁰ Stanley Hauerwas, “Preaching as Though We Had Enemies,” *First Things* 53 (May 1995): 47; quoting James C. Edwards, *The Plain Sense of Things: The Fate of Religion in an Age of Values* (University Park, PA: The Pennsylvania State University Press, 1997). Emphasis mine.

⁵¹ Hauerwas is to blame for the wording of this sentence.

⁵² I am here attempting to implicitly engage the Rawlsian liberalism represented above, see especially footnote 38 for more on the connection between values and ‘the original position’.

excellence, and human conceptions of the ends and goods involved, are systematically extended.”⁵³

This kind of robustly tradition-based ethical analysis, exhaustive in the definitions of ultimate ends and overarching conceptions of the good, stubbornly resists a conception of ‘values’ where (1) we have no story except the story we chose when we had no story and (2) any story we choose, no matter how arbitrarily we chose it, ends up leading us back to where we started from: the discovery that all along we believed what everyone always everywhere believed. It is precisely the embrace of (1) and (2) that constitutes standard attempts to relate science and ‘values’ on the plane of (bio)ethics. To quote McKenny once more:

The deeper roots of the crisis of moral authority involve the loss of tradition in the West. The loss of tradition means the loss of a certain moral discourse – one that places the pursuit of health in the context of the pursuit of a good life within the limits set by fate or necessity – and its replacement by a new moral discourse – one that is dedicated to overcoming the human subjection to natural necessity.⁵⁴

When it comes to bioethics, be it through the architectonics of shifting and emergent moral theories or a complex of quirky societal developments, a vacuum of meaning is left where tradition-determined ethical conceptions once reigned. The void is not, however, ultimately left empty. Into the emptiness steps a new meaning with no meaning at all: ‘values’ as what everyone everywhere always believed, a story we chose when we had no story except the story we chose when we had no story.

Concluding (un)scientific (value-laden) postscript

So what then of science and values?

As with any good answer, we must begin by defining the terms of the question. Leaving aside a robust analysis of ‘science’ for another day, two definitions of ‘values’ were considered here. The first was rather broad, being essentially the ascription or recognition of worth or worthiness (beauty, goodness, truth... that which is beneficial, desirable, worthy, laudable, right) in an activity or object. On this definition, it was argued that the values inherent to scientific endeavors find their genesis in earlier value-laden conceptions. Forgoing the genealogical detail, it was taken as a relatively unproblematic assumption that Francis Bacon was one of those key figures that helped to shape the enterprise of science as we now know it. Functioning on this assumption, our aim was to explore the nature of the values that Bacon articulated – the content of the ‘ought’ that shaped the ‘is’ of science today. In turn, we found that those values which Bacon employed traded on highly normative, ethico-theological conceptions related to an anthropology of the Fall. If this assessment is correct, it may suggest a new trajectory for exploration and conversation between science and theology. If an ‘ought’ framed in theological terms is, at least in part, responsible for the emergence of science

⁵³ Alasdair MacIntyre, *After Virtue*, Notre Dame, IN: University of Notre Dame Press, 1984, 2nd Ed., p. 194. MacIntyre notes that “a practice, in the sense intended, is never just a set of technical skills.... What is distinctive of a practice is in part the way in which conceptions of the relevant goods and ends which the technical skills serve... are transformed and enriched by these extensions of human powers and by that regard for its own internal goods which are partially definitive of each particular practice or type of practice.” (Ibid.)

⁵⁴ Gerald McKenny, *To Relieve the Human Condition*, p. 15

‘as is’ (and the operative values it now employs), then these two disparate forms of human knowledge may inhabit branches of a common family tree. If so, this ancestry bears tracing. On the other hand, perhaps the theology is mere scaffolding, but this is still a supposition worth investigating.

Nonetheless, this is not the only functional definition of ‘values’. In the second part of this essay, it was suggested that a more prevalent approach to the subject of ‘science and values’ is that of moral philosophy or, more specifically, bioethics. The notion of values here takes on a more particular and specific meaning, one that is perhaps more narrowly defined but – this essay contends – as such is also more problematic. The notion of values in this later definition is derived from a particular account in moral philosophy, one that has faced some serious points of contention from various quarters. That it has been so questioned does not mean it is wrong, but it does suggest that there are some conceptual issues that need to be contended with if such a position were to be adopted. However, much of the enterprise of bioethics operates under the assumption that there are no serious questions about its fundamental tenants. The questions here raised suggest that, at the very least, these questions deserve some attention.

In sum, these observations suggest there is plenty more good work to be done on this subject. Negatively, standard accounts of bioethics face serious but largely unheeded questions about the principlist approach. If the conception of ‘values’ operative here is not to be rejected outright, this essay calls for an account of its viability in light of the criticisms raised. More positively, the broader definition of values – while it also needs work – potentially opens up new avenues for conversation between science and theology. First, a more clear articulation of what values are, in fact, constitutive of the scientific enterprise (or at least of various scientific enterprises) is in order. Second, an explication of these values would in turn lend itself to tracing their conceptual lineage, from whence such values came. Third, to the extent that ethico-theological conceptions figured into the genesis of the now-operative values in science, questions then arise regarding the extent to which such values constitute mere antiquated scaffolding or something more. Whatever the answers to such questions, new avenues may be emerging for work at the nexus of science, values, and ethics.

Word Count: 9,565