

16 A FRANCIS BACON, SCIENCE, AND TECHNICISM

Background

Francis Bacon (1561- 1626) is considered one of the leading figures in the Scientific Revolution, even though he was never a practicing scientist. Bacon was a complex figure who both advanced science and religion and created new problems.

Francis Bacon was born in London on January 21, 1561. He became a court lawyer (barrister) and by age 23 was a Member of Parliament. At age 42 he was knighted. By age 60 he was charged with bribery and removed from public office. He was later forgiven by the King and devoted his remaining years to writing (*Essays*, *Novum Organum*, *The Advancement of Learning*, *The New Atlantis*). Bacon was a nominal Anglican who valued both reason and revelation. He believed that religion could prove the existence of God. [1]

Two Books

Like Augustine of Hippo, Hugh of St. Victor, Thomas Browne, Raymond of Sabunde, Galileo Galilei, and Richard Baxter, Bacon proposed that God had revealed Himself in “two books”: “God has, in fact, written two books, not just one. Of course, we are all familiar with the first book he wrote, namely Scripture. But he has written a second book called creation.”

The scriptures reveal to us the will of God; and the book of the creatures expresses the divine power; whereof the latter is a key unto the former: not only opening our understanding to conceive the true sense of the scriptures, by the general notions of reason and rules of speech; but chiefly opening our belief, in drawing us into a due meditation of the omnipotency of God, which is chiefly signed and engraven upon his works. [2]

“Bacon set the tone for the seventeenth-century scientific enterprise in his redirection of the “two books” metaphor toward the improvement of the human estate.” [3]

Learning

The medieval university valued learning about God’s Creation as an act of worship. Bacon presented an alternative position.

In the other view, represented by Francis Bacon, learning has just instrumental worth: knowledge is power to remedy in part the human condition caused by the fall. Bacon criticizes learning for self-aggrandizement and learning devoted to expanding the dominion of a nation; he advocates rather its use to ameliorate the human condition, in working for economic improvement and for peace. [4]

True learning, suggests Holmes, does both: it glorifies God and benefits mankind.

Religion

While Bacon believed in God, he was wary of all forms of superstition and fanaticism. In the *Novum Organum*, Bacon wrote:

Some moderns have indulged this folly, with such consummate inconsiderateness, that they have endeavored to build a system of natural Philosophy on the first chapter of Genesis, the book of Job, and other parts of Scripture; seeking thus the dead amongst the living. And this folly is the more to be prevented and restrained, because not only fantastical Philosophy but heretical Religion spring from the absurd mixing of matters-Divine and Human. It is therefore most wise soberly to render unto faith the things that are faith's. [5]

Culpepper adds:

Bacon feared the destabilizing influence of religious fanaticism for good reason in an age when wars were breaking out across Europe framed by the religious affiliations of the contending parties. Spain loomed as the great threat against England during the latter years of Elizabeth's reign. In addition to their naval forays against England in the late 1580s and 90s, the Spanish crown was engaged in acts of espionage against the English. English Catholics, most of whom were entirely innocent of conspiring against their government, were caught in the crossfire and endured being stigmatized as traitors as well as heretics. In "On Unity in Religion," Bacon quoted the Greek poet Lucretius who reportedly wrote when Agamemnon sacrificed his own daughter, "So many evils could religion prompt." He went on to recount the violence and social disorder prompted by religious fanaticism in his own time. [6]

Science

Bacon was not a scientist, but rather an early philosopher of science. Bacon promoted a move from science based on classical (Greek-Roman theory) to science based on physical tests. He emphasized experimental science, but did not actually understand the mathematics or instruments involved. "Bacon's primary contribution was his emphasis on a systematic collection of facts. In this connection he recommended observational checks." [7] Bacon did believe that God made science possible.

Bacon's scientific methodology can be summarized as follows:

- 1. The scientist must start with a set of unprejudiced observations;*
- 2. these observations lead infallibly to correct generalizations or axioms; and*
- 3. the test of a correct axiom is that it leads to new discoveries...*

The thing that keeps this whole bulky, complicated machine on its tracks is the absolute unswerving belief by every practitioner that there are laws to be discovered. Now any philosopher can prove to you that there is no way of distinguishing between laws as constructs of the human intellect and laws that exist objectively in nature. Nevertheless, every scientist must believe in the depths of his soul that those laws exist and that the results of his experiment arise from those laws by direct causal chains that can't be broken. [8]

Bacon's primary approach to science involved inductive reasoning.

Francis Bacon perceived that these methods of reasoning {based on the ancient Greeks} led to nonsense and while there were many wise statements in the writings of the Greeks, it is now

admitted that Aristotle and Galen particularly retarded real science by almost two thousand years. Bacon brilliantly proposed to turn the former method of reasoning on its head and use his method of inductive reasoning. By this he argued that learning could be advanced for the betterment of man. He seems to have been inspired in 1619 then in 1620 published his famous Novum Organum (New Instrument) in Latin. In 1623 this was expanded and in English became Advancement of Learning. It is here that he spelled out his method of induction intended to replace the deductive logic of Aristotle...Bacon's Method is as follows:

A. Clear the mind of all preconceptions or "idols of the mind." {"The understanding must be completely freed and cleared of them [the idols of the mind] so that access to the kingdom of man which is founded on the sciences, may resemble that to the Kingdom of Heaven, where no admission is conceded except to children." }

B. Observe as many facts as possible.

C. Tabulate the data according to those things that affect the property, those that do not and those that only partially affect. This process completes the "first vintage."

D. The next step is the "indulgence of understanding" or hypothesis.

E. Experiments are then set up to try to disprove the hypothesis; this is called falsification or refutation, more will be said of this later. If the hypothesis does not fail it becomes a theory and when still not disproven, it becomes a Law. [9]

Engineering

Wayne Helmer notes-

[Francis] Schaeffer quotes Francis Bacon by saying "Man by the Fall fell at the same time from his state of innocency and from his dominion over nature. Both of these losses, however, even in this life, can in some part be repaired: the former by religion and faith, the latter by the arts and sciences." This is a very significant and extensive statement. He is saying that people can bring about a certain healing to our world from its fallen, cursed state. This is a marvelous thought. Not only can the engineer do something "efficient" or "cost effective," he or she can truly do some restoration of the world. (Schaeffer goes on to state sadly however that the church has too often forgotten this.) [10]

Knowledge

One of Bacon's well-known quotes is that "Knowledge is power." Bacon believed that applied science in itself could undo most of the effects of the fall. Bacon emphasized the discovery of new knowledge rather than the preservation of old knowledge.

Bacon writes: "Another error hath proceeded from too great a reverence, and a kind of adoration of the mind and understanding of man, by means whereof, men have withdrawn themselves too much from the contemplation of nature and the observations of experience, and have trembled up and down in their own reason and conceits. Upon these intellectualists, which

are not withstanding commonly taken for the most sublime and divine philosophers, Heraclitus gave a just censure, saying "Men sought truth in their own little worlds and not in the great and common world"; for they disdain to spell, and so by degrees to read in the volume of God's works: and contrariwise by continual meditation and agitation of wit do urge and as it were invoke their own spirits to divine and give oracles unto them, whereby they are deservedly deluded."...

In affirming "the great and common world" in contrast to the innumerable speculative worlds of the philosophers and schoolmen, Bacon argued for the empirical method and practical arts. This was a sphere, he felt, open to people of the common sort. [11]

Scientism

One of the writers largely responsible for the early spread of scientism was, unfortunately, one of the clearest thinkers who tied experimental science to the wisdom of God. Sir Francis Bacon, like Isaac Newton, was a brilliant student of multiple traditions and popularizer of science whose conclusions were often contradictory. Like Newton, Bacon dabbled in alchemy yet was an adherent of the Church of England. He held a mechanistic view of the universe and valued only science that produced physical results, like devices and tools.

The origins of scientism started with Francis Bacon's Novum Organum, where the method outlined can be applied to all human knowledge. Suggesting that society could advance through science, Bacon called for the fusion of political power and science in his New Atlantis, with humans being able to subdue nature, but only after they had first studied and understood it. Although previous thinkers have sought a synthesis of science and power, Bacon stands out as one of first modern thinkers because of his refusal to name a teleological end for human beings. For Bacon, scientific progress would enable humans to imagine what they would be capable of accomplishing in the future. Any predetermined end postulated for humans would only impede the progress of science and therefore cannot be stated. The notion of limit and constancy in human nature is absent in Bacon's thought, making him not only one of the first modern thinkers but also a founder of scientism. [12]

...The empiricist doctrine, (we might call it sola natura), that all knowledge arises from obedient receptivity to sense data, was presented by Bacon as an extension of the Protestant notion of sola scriptura. The morality of science, in other words, was in essence the morality of true Christianity. It is "no less true in this human kingdom of knowledge than in God's kingdom of heaven," Bacon declared in his Valerius Terminus (1603), "that no man shall enter into it except he become first as a little child." 21 Science manifested the same providential grace that enabled sinners to receive God's sacred revelation, and in this regard it expressed the identity visualized in our imaginary "science fish." Empirical science was part of Christ's redemptive work. It had purged science of idols, of "that venom which the serpent infused into it, and which makes the mind of man to swell," so that from this point on it would be possible to "cultivate truth in charity. [13]

Technicism

Schuurman [14] suggests that the true father of technicism was actually the same Francis Bacon who made such great contributions to our understanding of modern science. The results of our experimentation must produce practical results, which will always improve the human condition. Bacon's primary work was *The New Atlantis*, a utopian book detailing "an ideal society in which all power is in the hands of natural scientists and engineers who will make sure that 'progress' happens."

It cannot be denied that Bacon was driven by godless pride. In his utopia New Atlantis, Bacon describes an ideal society in which all power is in the hands of natural scientists and engineers who will make sure that "Progress: happens." He contends that the development of science and technology should be applauded as imitating the divine works of creation. So, too, biblical-eschatological perspectives are reinterpreted into the prospect of progress. Bacon was even of the opinion that science and technology could help humankind rise above the results of the fall into sin. He regarded his plans for the progress of science and technology as a restoration of the power that human beings possessed before the fall. His concern was not to ameliorate or prevent suffering with the help of technology--no, science and technology would be able to repair what the fall into sin had damaged. [15]

The "Baconian project"

The other contribution of Francis Bacon to the culture of modernity involves what ethicist-theologian Gerald McKenny (in *To Relieve the Human Condition*) [16] has termed "the Baconian project." Bacon's emphasis on improving the human condition through science, when taken to the limit, suggests that all pain and suffering should/will be eliminated.

Sir Francis Bacon (16th century scientist and philosopher) was the first to explicitly champion the relief of suffering of humankind as both an explicit goal and a moral imperative. Bacon advocated for a "technological utopianism," a philosophy which viewed no ailment or disease (at least in principle) as incurable. While suffering and death were accepted as "given" elements of the human condition prior to Bacon, the new "Baconian Project" espoused a view of the human that rejected these anthropological contingencies and viewed humankind as agents harnessing their ingenuity and resources to overcome or "relieve" their condition.

*Importantly, Bacon's vision was initially embedded within a tradition that placed limits on it—namely Christianity. Christians in Bacon's day bound the goal of relieving human suffering within the larger understanding of life and death found in the creeds and in Christian tradition. A concern for the sufferer and the sick was backlit by *et in pulverem reverteris*—"To dust you shall return." But in the centuries after Bacon, Western society maintained the moral imperative to relieve suffering even as it lost any common moral tradition or language that would qualify or urge moderation in that goal. [17]*

Kristy Tarrant adds-

According to McKenny, Francis Bacon and Rene Descartes began with the commitment to subject nature toward the service of one's neighbor, to make use of it for good. They saw in the

natural sciences the engine which might, if rightly harnessed, deliver mankind from its limitations—particularly sickness, weakness, dependency, and death.

*Bacon and Descartes' generic Protestant commitment to helping one's neighbor was transformed, via Bentham, Mill, and other enlightenment figures, into a more critical stance toward received tradition altogether. In the place of tradition, these thinkers advanced the ideal of commitment to the ostensibly universal morality—those obligations (and only those obligations) which can be known by reason and empirical science. Predictably, the result is a move away from particular and traditional received notions of the givenness of our stations and our obligations, and toward what Charles Taylor, in his book *Sources of the Self*, describes as the moral project of our day, which is to decrease pain and increase pleasure. [18]*

The goal of modern society, and medicine in particular becomes: to decrease pain and increase pleasure, whatever that entails. We tend to forget that we are finite mortals living in a fallen world. The push to eliminate all suffering results in: [19]

- The opioid crisis
- Physician assisted suicide
- Abortion of children with disabilities

In addition,

- Offering an increased number of choices
- Use a technological fix wherever available
- Promoting hormones and surgery for struggling children
- Focusing on eliminating pain rather than promoting health
- A move towards transhumanism.

[D]eny it though we might, our finitude, sickness, and the death we all will ultimately face forces contact with bodily realities. It should be little surprise that the Baconian Project has not fulfilled its promises to fully "relieve and benefit the condition of man," given the fact that suffering is a fundamental and ineradicable component of our physical reality. The unmitigated relief of suffering is not only harmful in its pursuit, but practically impossible—inevitably fostering disillusionment when suffering or death arrives for ourselves or for others. [20]

Take a step or two back from science fiction plots, and you will see that ending the suffering by eliminating the sufferer is already part of standard medical practice. It goes right along with the fictional narratives where human beings are tinkered with toward some end — smarter, faster, better-looking, or just less prone to suffer. We don't even have to genetically modify human beings to raise the average (although many people would like to do that, too) when the weakest among us are being snuffed out. [21]

In the end, the solution often chosen is to end suffering by eliminating the sufferer. We need to acknowledge that life on earth will never be completely free of pain or suffering. Christian responses might include: [22]

- Acceptance and thankfulness- for human bodies and for medicine

- Repentance - for idolizing medicine
- Worship
- Being truly present with those suffering
- Lament –with honest grief, grounded in faith.

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