

Francis Bacon and the Socratic Turn

Adam Schulman

St. John's College, Annapolis
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All the world knows the story of the death of Socrates: how calmly and courageously he bore the condemnation of the Athenians; how, in the month he spent in jail before his execution, he lived much as he always had, spending his days in conversation about the good, the just, and the noble; how he occupied his final hours discussing with his friends the nature of the soul, its prospects for immortality, and the happiness of the philosophic life. As Nietzsche observed, Socrates "went to his death with the calm with which...he leaves the Symposium at dawn, the last of the revelers, to begin a new day." (*The Birth of Tragedy*, §13)

Socrates was not the only philosopher who may be said to have died much as he lived. On the 9th of April, 1626, Francis Bacon died at the age of sixty-six at Arundel House just north of London. (Incidentally, this was the home of our very own Anne Arundel, who was 21 at the time.) We owe most of the details of this story to Thomas Hobbes. (John Aubrey, *Brief Lives*, "Bacon") An unseasonable storm had covered the Middlesex countryside in snow. Bacon, taking the air in a coach, felt a sudden desire to try an experiment or two concerning, as he put it in his last letter, the "conservation and induration of bodies."* Stopping at a cottage, he purchased a chicken and, with his own hands, stuffed it with snow to test whether cold can preserve flesh from corruption. (According to Hobbes, the chicken was dead at the time.) As Bacon wrote to the Earl of Arundel, the experiment "succeeded excellently well," but Bacon himself caught a chill and died a week later of pneumonia. Hobbes seems to have thought that Bacon was hastened to his grave by the exceedingly damp bed the Arundel family provided for his convalescence. So there you have it, the first lesson of this lecture: Anne Arundel's family killed the founder of modern science.

*James Spedding, ed., *The Letters and the Life of Francis Bacon*, vol. 7, p. 550. Included as vol. 14 in Spedding, Ellis and Heath, eds., *The Works of Francis Bacon*, 14 vols., London, 1857-1874. Future citations by volume and page number separated by a colon refer to this edition of the *Works*.

Bacon's last experiment was of a piece with his lifelong interest in solving the problem of death by enabling the body to live forever. In his first truly successful book, *Of the Wisdom of the Ancients* (1609), he tells us that "by far the noblest work of natural philosophy is the restitution and instauration of things corruptible" or "the conservation of bodies in their state and the retarding of dissolution and putrefaction." ("Orpheus") He makes it clear that achieving this result could mean the indefinite postponement of death. Bacon's late work, the *History of Life and Death* (1623), is wholly concerned with delaying "that death which proceeds from bodily decay and the atrophy of old age." (V:217) Bacon indicates the scope of his program in the book's introduction: "Whatever can be repaired gradually without destroying the original whole is, like the vestal fire, potentially eternal." (V:218)

It is tempting to view the death of Socrates and the death of Bacon as emblematic of a larger conflict between Socratic and Baconian thought, and indeed between ancient and modern philosophy altogether. Let me indulge this temptation for a while, by sketching for you the "quarrel between the ancients and the moderns," first from the viewpoint of Bacon, then from that of Socrates. On one point, I believe, Bacon and Socrates are in complete agreement: that the decisive question we should put to philosophy, ancient or modern, is whether it is genuinely good for man. Let's hear what Bacon has to say.

Part I: Bacon's Critique of the Ancients

Provisionally, Bacon's critique of ancient philosophy may be summed up in a few words: too much talk, too little action. In his view, the ancients neglected the substantial good that philosophy can accomplish for mankind in favor of pointless abstractions, pious moralism, and endless sterile debate. For Bacon, the trouble begins with Socrates' decision "to call philosophy down from heaven to converse upon the earth;" that is, "to leave natural philosophy aside, and to apply knowledge only to manners and policy." (*The Advancement of Learning*, III:294) Plato he accuses of teaching men to "turn our mind's eye inward and grovel before our own blind and confused idols under the name of contemplative philosophy."* Plato also made the fatal error of mixing up philosophy with theology: as Bacon puts it, "you deified your folly and presumed

**The Masculine Birth of Time*, in Benjamin Farrington, trans. and ed., *The Philosophy of Francis Bacon*, Chicago, 1966, p. 64. Hereafter referred to as "Farrington."

to shore up your contemptible thoughts with the prop of religion."

(Farrington, p. 64) Aristotle returned to natural philosophy, only to corrupt it with logic, final causes, abstract categories, and rigid dogmatism.

(Farrington, p. 63; *Thoughts and Conclusions*, Farrington, p. 83) Bacon calls Aristotle the "dictator" of philosophy (*The Masculine Birth of Time*, Farrington, p. 63; *Thoughts and Conclusions*, Farrington, p. 83; *Advancement of Learning*, III:285) and compares him to a Turkish Sultan who on coming to power feels insecure until he has murdered all of his brothers. (*Thoughts and Conclusions*, Farrington, p. 84; *Refutation of Philosophies*, Farrington, p. 110; *De Augmentis*, IV:358)

On the other hand, Bacon ridicules classical philosophy as "the boyhood of knowledge": "it has the characteristic property of boys: it can talk, but it cannot generate; for it is fruitful of controversies but barren of works." (*The Great Instauration*, IV:14) The greatest error in philosophy, he wrote, has been "the mistaking or misplacing of the last or furthest end of knowledge." What the ancients looked for in knowledge was "a couch, whereupon to rest a searching and restless spirit; or a terrace, for a wandering and variable mind to walk up and down with a fair prospect; or a tower of state, for a proud mind to raise itself upon; or a fort or commanding ground, for strife and contention; or a shop for profit or sale." What Bacon seeks in knowledge is "a rich storehouse, for the glory of the Creator and the relief of man's estate." (*Advancement of Learning*, III:294)

Bacon's indictment of ancient philosophy is spelled out most comprehensively in the first book of his *New Organon*, with which he intended to supplant the Old Organon of Aristotelian philosophy. Bacon criticizes ancient philosophy for "the end aimed at, the order of demonstration, and the starting point of the inquiry." (NO I.125) The end Bacon proposes is not pure contemplation but knowledge mixed with power, or knowledge understood as power over nature, fit to serve "the affairs and convenience of man." (NO II.31) The starting point of Bacon's inquiry into nature is rigorous experiment, in place of the ancients' naive trust in the intelligibility of ordinary experience. As to the order of demonstration, Bacon accuses the ancients of leaping from a few examples and particulars to the most general conclusions or principles—Plato's forms, for example, and Aristotle's final causes. (NO I.104, 125) In place of this vain and headlong flight to first and ultimate causes, Bacon recommends the more measured procedure of reducing apparently heterogeneous phenomena

to the simplest and most general laws of the action of material bodies. (NO II.2, 35)

All three elements of Bacon's critique of the ancients are at work in the experiment with which he inadvertently ended his life. Bacon was not interested in studying the nature of the chicken, its relation to other beings, or its place in the cosmos. He saw it merely as a resource for testing the general effects of cold on decaying flesh. He did not observe the chicken in its natural habitat ("Nature free and at large," in Bacon's phrase (*The Great Instauration*, IV:29) : on the contrary, the freak April snow storm enabled him to perform controlled experiments under extreme and unnatural conditions ("Nature constrained and vexed," as Bacon puts it.) And his ultimate purpose was not contemplation as such but the supremely useful knowledge of the "restitution and instauration of things corruptible," with its direct bearing on the problem of human mortality.

Bacon does not issue a blanket indictment of all the Greek philosophers. While dismissing Platonic forms and Aristotelian final causes, he praises those pre-Socratic physicists who tried to fathom the behavior of matter in motion. "Rather than turn nature into abstractions," he writes in the *New Organon*, "it is better to dissect her, as did the school of Democritus, which delved further into nature than the others." (NO I.51) In *The Wisdom of the Ancients* he even hazards the suggestion that the earliest Greeks, long before Socrates, gave serious thought to the Baconian project of conquering mortality: "I am induced to believe by many figures of the ancients that the conservation and restoration of natural bodies in some sort was not esteemed by them as a thing impossible to be attained, but as a thing abstruse and full of difficulties." ("Prometheus") Furthermore, "the ancients seemed not to despair of attaining the skill, by means and medicine, to put off old age, and to prolong life." ("Proserpina")

Bacon wants to restore the preeminence of natural philosophy, and to focus its energies on the bettering of the human condition. Some idea of the scope of Bacon's project can be gleaned from his wish-list of future discoveries entitled *Magnalia Naturae* and written sometime in the 1620s. At the top of the list of thirty-three desired improvements are "the prolongation of life, the restitution of youth in some degree, the retardation of age, and the curing of diseases counted incurable." The list also covers other desiderata which we would recognize today as analgesics, muscle-enhancers, stimulants, narcotics,

diet pills, growth hormones, plastic surgery, genetic engineering, weapons of mass destruction, anti-depressants, chemical fertilizers, artificial fabrics and polymers, psychedelic drugs, and superglue. For better or worse, most of the items on Bacon's list are now commonplace fruits of the science he bequeathed to us. There is no denying Bacon's oracular skill in foretelling the multitude of conveniences that man would one day harvest from the incessant progress of Baconian science.

Finally, it was Bacon's contention that all this scientific progress could be accomplished without any encroachment on the legitimate domain of religious belief. In contrast to Plato who freely mixes philosophic and theological reflection, Bacon insists that philosophy and theology can get along fine if each acknowledges—and avoids—the proper sphere of the other. The "rightful station" of science, he writes, is "as the accepted and loyal handmaid of religion, for religion reveals the will of God, Natural Philosophy His Power." (*Thoughts and Conclusions*, Farrington, p. 79, NO I.89) Bacon's purpose, he writes, is to unite mankind "with the things themselves in a chaste, holy, and legal wedlock; and from this association you will secure an increase beyond all the hopes and prayers of ordinary marriages, to wit, a blessed race of Heroes or Supermen who will overcome the immeasurable helplessness and poverty of the human race, which cause it more destruction than all giants, monsters, or tyrants, and will make you peaceful, happy, prosperous, and secure." (*The Masculine Birth of Time*, Farrington, p. 72)

In our trial of the ancients and the moderns, let this stand as Bacon's closing statement affirming the goodness of his science for man and the comparative uselessness of ancient philosophy.

How might the Socratics answer this critique? In particular, in the face of the countless tangible fruits of Baconian science, how could Socrates defend the superiority of ancient philosophy? That's obviously hard to say, since Socrates lived 2000 years before modern science was even dreamed of. Fortunately, however, we learn from Plato's *Phaedo* that Socrates himself, as a young man, was once deeply interested in what people call "the investigation of nature." (*Phaedo* 96A). In fact, the young Socrates seems to have been very much a typical "pre-Socratic philosopher," of the sort Bacon found most congenial. He wanted to become wise by learning the necessary and sufficient causes of everything, why each thing comes into being, why it perishes, and why it is. His first impulse was to seek underlying material causes for every-

thing in nature, including life, perception, thought and the phenomena of heaven and earth. But Socrates' efforts to find such causes ended in failure. Indeed, he found that the investigation of causes made him ignorant rather than wise. Eventually he concluded that he had no natural aptitude for this kind of inquiry, that he was "so utterly blinded by it that he unlearned even those things he thought he knew." (Phaedo 96C) For a while Socrates was captivated by the teachings of Anaxagoras, who promised to show how intelligence is the cause of everything and arranges all things for the best. (97C-98B) But Socrates was soon disappointed by Anaxagoras, who proved to be just another materialist, explaining everything in terms of air, water, ether, and the like. In the end Socrates abandoned the direct investigation of natural causes and embarked on a "second sailing" in search of wisdom, examining the truth about beings in human speeches or arguments. (99E) The second sailing appears to be a turning away from the cosmos to "the human things," specifically the opinions men entertain about the good, the just, and the noble. Admittedly, Socrates' first sailing is not an exact match for Baconian science, but his reasons for turning away from the pre-Socratic natural science of his youth may give some insight into how Socrates and his followers would have responded to the Baconian challenge. Afterwards I will return to Bacon and examine whether he is indeed vulnerable to the critique Socrates offers of pre-Socratic natural philosophy.

Part II: The Socratic Turn

Now the precise meaning of the Socratic turn is not easy to state, but for our purposes it will be useful to consider a passage in Xenophon's *Memorabilia* (I.1.11-16) where he explains why Socrates "did not converse, in the way most of the others did, about the nature of all things, examining the state of what the sophists call the cosmos, and by what necessities each of the heavenly things comes into being." Xenophon says that Socrates even showed that those who pay attention to such things are foolish. He does not say how Socrates showed this, but he reports three questions that Socrates raised about such thinkers.

First, says Xenophon, Socrates examined whether they turned their attention to such things in the belief that they already had sufficient knowledge of the human things. Did they believe they were doing what was fitting by neglecting the human things and examining the divine things?

Second, he wondered whether it wasn't evident to them that it is impossible for human beings to find these things out. His evidence for this was the multitude of conflicting views held by those who are preoccupied with the nature of all things. In their disputes with each other the natural philosophers seemed to Socrates like madmen: "Some of them think that being is one alone, others that beings are unlimited in multitude; some that everything is always in motion, others that nothing is ever moved; some that everything comes into being and perishes, others that nothing ever comes into being or perishes."

Third, according to Xenophon, Socrates reasoned as follows: Those who are learning the human things do so with a view to obtaining some benefit, either for themselves or for someone else. What about those who seek the divine or natural things, attempting to discover by what necessities each thing comes into being? "Do they suppose that when they know those necessities, they will then be able to produce winds and waters and seasons and anything else they need whenever they wish? Or do they hope for nothing of the sort, and are they content merely to know how each such thing comes into being?"

In short, according to Xenophon, Socrates charged the pre-Socratics with inadequate attention to the human things; exaggerated confidence in the availability of a universal science of nature; and failure to think through their own motives in pursuing knowledge of nature. By examining them more closely we shall see that these three charges are interrelated.

To begin with, what are the human things which Socrates implies the other philosophers foolishly neglected to investigate? According to Xenophon (*Memorabilia* I.I.16), in his conversations Socrates was always examining, among other things,

what is pious, what is impious, what is noble, what is base, what is just, what is unjust, what is moderation, what is madness, what is courage, what is cowardice, what is a state, what is a statesman, what is rule of human beings, what is a fit ruler of human beings.

Now why did the pre-Socratics dismiss these questions? The comic portrait of Socrates as natural scientist in Aristophanes' *Clouds* gives us some guidance. The program of pre-Socratic natural philosophy was to explain everything in the cosmos, including man, in terms of simple underlying universal causes. There is no immaterial soul; man is a body like other bodies. Accordingly, the "human things" have no privileged status for the pre-Socratics. Above all, the distinction between justice and injustice is purely conventional and has no basis in nature. Likewise piety was of no concern to the pre-Socratics because

they were confident they could give an adequate account of the cosmos that would rule out the presence of providential gods. Simply put, "There is no Zeus," as Strepsiades learns in the *Clouds*. And if man's attachment to morality depends crucially on his belief in divine providence, the pre-Socratics felt free to turn away from the moral questions and get on with the really worthwhile task of explaining the nature of all things.

But Socrates seems to have thought that the pre-Socratics were too quick to dismiss the human things. For one thing, as Plato reports in the *Phaedo*, Socrates came to doubt the availability of a universal science of nature that would refer every phenomenon to its simple underlying causes. In the absence of such a science, the program to explain the human things in terms of the non-human is no longer assured of success and may prove to be merely wishful thinking. In the *Phaedo* Socrates indicates that he was especially disappointed by the failure of natural philosophy to explain the phenomena of life and intelligence. Perhaps, then, the pre-Socratics were wrong to assume that everything is body, that there is no soul. Finally, in their eagerness to dispense with conventional morality and religion, the pre-Socratics may have neglected to examine with sufficient care exactly what it was they hoped to achieve through natural philosophy. How thoughtful were the pre-Socratics about their own motives in seeking knowledge of nature?

Xenophon indicates that in studying the human things Socrates was always attentive to what benefit might be derived from them, for himself or for others. This implies that the Socratic turn was motivated by practical rather than theoretical concerns, but I don't think that is quite right. Xenophon says both that Socrates "never ceased examining with his companions what each of the beings is" (*Memorabilia* IV.6) and that he taught his companions to learn only what was beneficial for them to learn. (*Memorabilia* IV.7) In effect, Socrates too, though in an un-Baconian way, called into question the validity of the distinction between theory and practice. That is, he philosophized in such a way as always to keep in the foreground the fundamental practical question, what is the best way of life for man? From Socrates' perspective, the pre-Socratic philosophers gave insufficient attention to the question, is philosophy desirable?

Accordingly, Socrates wondered about the motives of the pre-Socratics. Did they practice natural philosophy with a view to attaining power over the weather, the seasons, and other phenomena, or were they satisfied merely to

know the necessary laws governing the behavior of all things? In reporting this question, Xenophon indicates that Socrates had in fact given some thought to the possibility of a more or less Baconian science devoted to the mastery of nature for the convenience of man. It is interesting to note that Socrates does not dismiss such a science out of hand, though he implies that it would be difficult or impossible to achieve. But if the pre-Socratics cared only to know how the world works, not to control it, the question remains whether they sought this knowledge for its own sake, or for some other reason. Did they perhaps seek it in order to dispose of the possibility of gods? Later in the *Memorabilia*, Xenophon reports that in general Socrates "turned his companions away from becoming worriers about how the god contrives each of the heavenly things." (*Memorabilia* IV.7.6) Socrates used to say, according to Xenophon, that "those who are anxious about these things run the risk of going out of their minds the way Anaxagoras did, who took the greatest pride in explaining the contrivances of the gods." What could be the source of the pre-Socratics' anxiety and pride, and why did Socrates call it madness?

Let it be noted that Anaxagoras, the teacher of Pericles and Euripides, was banished from Athens on charges of impiety; an ostentatious critic of traditional belief, he taught, among other heterodox notions, that the sun and the moon were merely bodies (*Diogenes Laertius*, II.12-14) and that the moon shines by reflecting light from the sun. In this way he explained lunar eclipses as due to the periodic interposition of the earth, not as portents sent by the gods. (see also Plutarch, *Life of Nicias*). Thus, "to explain the contrivances of the gods" means in practice to explain away those mysterious heavenly phenomena like eclipses that might seem to be *prima facie* evidence that there are gods who rule the cosmos, take an interest in human affairs and communicate their wishes to us through signs and portents. Socrates was suggesting, I think, that what Anaxagoras was anxious to do and proud to have accomplished, was to find plausible physical explanations for phenomena that appeared miraculous or indicative of divine intervention. Anaxagoras also wrote a treatise on dreams, now lost, which may have had a similar purpose. Indeed, the desire to banish divine providence from nature and hence from human affairs may well have been the driving spirit of pre-Socratic materialism in general. It was evidently a guiding motive of the later Epicurean materialism, as presented by Lucretius in *De Rerum Natura*. Like Lucretius, the pre-Socratics seem to have been anxious to liberate some portion of the human race from

the oppression of superstitious fear, and proud to be in the vanguard of the struggle for human autonomy. When Socrates says Anaxagoras was "out of his mind," I doubt that he was criticizing him for his eclipse theory, which was after all rather clever. Presumably, Socrates would acknowledge that his explanation of eclipses casts some doubt on the traditional belief that eclipses are divine portents. What he objected to, I suspect, was Anaxagoras' boastfulness, which revealed his desire to feel superior, to admire himself as nobler and grander than other men. The Greek phrase Xenophon uses for taking pride [*mega phronein*, *megiston phronein*] means literally "thinking big," i.e., feeling grand or, in this case, superior to the poor unenlightened citizens still under the sway of conventional morality. The character of Thrasymachus in Plato's *Republic* is an important illustration of this problem with pre-Socratic conventionalism: Thrasymachus claims to know that all morality is conventional, while the pride he takes in this knowledge reveals him to be a man convinced of his own nobility. During the conversation Thrasymachus blushes with shame when he senses that his refutation of morality is about to be reduced to absurdity by Socrates. Socrates' conversation with Thrasymachus serves the important purpose of revealing the secret attachment to morality of some of the most outspoken debunkers of morality. For the desire to be noble, to look down on others from a lofty height, to be worthy of honor, fame, and glory, is essentially a *moral* impulse inconsistent with the pre-Socratics' contention that moral distinctions have no basis in nature.

In summary, Socrates accuses the pre-Socratics of rushing headlong into the study of nature without adequately examining the human things; of an exaggerated confidence in the ultimate intelligibility of nature; and of a lack of clarity and consistency about what good they hoped to achieve from their inquiry. It is worth noting that, at least on the basis of what Xenophon reports, Socrates would have had no objection to an inquiry into nature provided that it gave due attention to the human things, did not assume in advance the full intelligibility of nature, and tried to be thoughtful about its own motives and presuppositions.

What I have presented as the Socratic rebuttal to Bacon's charges against ancient philosophy thus amounts to a counter-accusation against natural science itself. It now remains to consider whether Bacon himself is guilty as charged.

Part III: Bacon and the Socratic Turn

For the remainder of this lecture, I would like to offer some evidence that Bacon was indeed more thoughtful about the human things than he might seem, that he was reasonably cautious about the availability and scope of a science of nature, and that he meditated deeply and critically on his own motives and on the supposed good that could be derived from his scientific project.

Let me briefly address the question Socrates raised as to whether a science of nature is even possible, in view of the bewildering variety of conflicting theories of nature. Today, as the worldwide enterprise of science presses onward with near unanimity regarding methods, principles, and established results, one might be inclined to fault Socrates for excessive skepticism on this score. On the other hand, the methodological unanimity of modern science is possible only on the basis of a collective willingness, more or less explicit, to set aside fundamental questions about the ultimate causes of natural phenomena. And this is a development largely fostered, if not initiated, by Bacon himself. Bacon's doctrine of the idols in the *New Organon* includes a critique of the mind's proclivity to "suppose a greater order and uniformity in things than it finds." (NO I.45) In particular, Bacon warned that the human mind's restless desire for causes is pernicious, and that "the most general things in nature ought to be considered positive, just as they are discovered, and cannot in truth be referred to causes." (NO I.48) In short, Bacon seems to agree with Socrates that not all of our questions can be answered, and that the knowledge of nature we can reasonably expect to attain will fall far short of the ideal to which the human mind naturally aspires.

Next let us consider the question of Bacon's personal motives. From the ferocity of his attack on ancient speculative philosophy it might seem obvious that Bacon himself was more interested in power or dominion than in wisdom as such. Evidence for this conclusion is not hard to find in his works. In a widely quoted passage in the *Advancement of Learning*, Bacon writes that "immortality or continuance" is "that whereunto man's nature doth most aspire." (III:318) He adds that the longing to endure is the source of the desire for "memory, fame, and celebration." Then, in *New Organon* 129, Bacon says that "the introduction of noble discoveries appears to hold by far the first place among human actions." Bacon speaks of the "divine honors" accorded to inventors, noting that the benefits from scientific discoveries can extend to

the whole human race and last for all time. It follows that the founder of a world-wide scientific project to conquer nature could anticipate honors more universal and enduring than any benefactor of mankind had yet obtained. This would suggest that the public project to conquer nature for the relief of man's estate was also Bacon's personal campaign to win immortal glory for himself and to acquire a kind of personal dominion over the future of the human race.

But the question of Bacon's ultimate aim is not as easy to answer as it seems. In a number of places, surprisingly enough, he emphatically asserts the superiority of theory to practice and praises contemplation for the serene tranquillity which it affords. In the same 129th aphorism of the *New Organon*, he writes that "the very contemplation of things as they are, without superstition or imposture, error or confusion, is in itself more worthy than all the fruits of invention." Then there is the essay "Of Truth," where Bacon says that "the inquiry of truth, which is the love-making or wooing it, the knowledge of truth, which is the presence of it, and the belief of truth, which is the enjoying of it, is the sovereign good of human nature." Such passages at least make us wonder how wide a gulf there really was between Bacon and those ancient philosophers for whom the life devoted to the pursuit of wisdom was the best life simply.

Besides these texts, there is a more powerful objection to the view that Bacon's chief aim in life was dominion or immortal glory. Even if Bacon thought that all human beings by nature aspire to "immortality or continuance" he didn't necessarily believe that that aspiration could be satisfied. According to Bacon, the very strength of the aspiration to immortality inclines most men irresistibly to believe that it is somehow attainable. In Bacon's doctrine of the idols, the human mind is beset by deep-rooted false notions. Among these are the idols of the tribe, errors common to human nature in general. As Bacon puts it (*New Organon* 49), echoing Heraclitus, "the human intellect is no dry light, but receives an infusion from the will and affections, which generates 'sciences as one would.' For what a man wishes were true he readily believes." In particular, a man will "reject sober things because they constrict hope." Elsewhere Bacon asks who would doubt that, "if there were taken out of men's minds vain opinions, flattering hopes, false valuations, imaginations as one would, and the like, but it would leave the minds of a number of men poor shrunken things, full of melancholy and indisposition,

and unpleasing to themselves." (*Essays*, "Of Truth") One source of that melancholy could be the reflection that famous men do not, after all, get to enjoy their posthumous fame.

Bacon does not set himself the task of curing men of their false hopes—or at any rate, not all of them. Indeed, he has high praise (*Essays*, "Of Seditions and Troubles") for what he calls "the politic and artificial nourishing and entertaining of hopes, and carrying men from hopes to hopes." According to Bacon, to "hold men's hearts by hopes" when you cannot do so by satisfaction is a sign of wise government. Thus Bacon is equally forthright in warning that false hopes are the chief impediment to human understanding and in recommending the manipulation of false hopes as the chief means of influencing other men. For this reason, we cannot read too much into Bacon's failure to caution his readers about the possibly unsound basis of the aspiration to immortality.

Next let us consider the benefits which Bacon claimed would flow to mankind in general from his science, and above all his oft-stated goal of conquering death by achieving bodily immortality. Bacon wrote that the true end of knowledge is "the discovery of all operations and possibilities of operations from immortality (if it were possible) to the meanest mechanical practice." (*Valerius Terminus*, III:222) But it is hard to say whether Bacon believed bodily immortality to be a distant but attainable goal, or merely a dream useful for inspiring devotion to his project. Bacon does not seem to have devoted much attention to what a society would look like, and what problems it would face, if men were to live for ever. Scholars have noted that in the scientific utopia depicted in Bacon's *New Atlantis*, despite 1900 years of scientific research, little progress has been made toward even the more modest goals of retarding aging and increasing the human life span.* In *The Wisdom of the Ancients* Bacon retells the myth of Tithonus, who won from the gods the gift of immortality but forgot to ask them to relieve him of the burden of old age. Tithonus grew so old, feeble, and miserable that, in his satiety and loathing, he longed for death. Eventually Jupiter took pity on him and turned him into a

* Timothy H. Paterson, "Bacon's Myth of Orpheus: Power as a Goal of Science in *Of the Wisdom of the Ancients*," *Interpretation*, Spring 1989, vol. 16, no. 3, p. 434; Robert K. Faulkner, *Francis Bacon and the Project of Progress*, Lanham, 1993, p. 137. Both of these studies have been of great value in preparing this lecture.

grasshopper. In the *New Organon* (I.85) Bacon recounts the following fable from Æsop:

An old man bequeathed to his sons some gold buried in his vineyard, pretending he did not know the exact spot. They then fell to work with might and main to dig up the vineyard and found no gold, but the vintage was made more plentiful by that working of the ground.

Perhaps Bacon's promise of bodily immortality is meant to serve the same purpose as the old man's imaginary gold: a false but pleasing hope that fosters industry and optimism.

What about the other goods Bacon believed mankind could derive from a science devoted to the mastery of nature? Did he think of technological progress as an unqualified boon for mankind? Socrates, we recall, had warned the scientists of his day not to rush headlong into the study of nature without thoroughly considering what good they would thereby obtain. If anything, this warning seems even more pertinent today, when natural science arms man with a host of new powers unaccompanied by clear guidance as to how those powers can be used well. Surveying Bacon's wish-list of scientific achievements, most of which we now enjoy, can anyone doubt that the technological prowess of Baconian science runs the risk of outstripping our ability to apply that science with wisdom and moderation?

But here too Bacon himself seems to have anticipated that scientific progress would prove at best a mixed blessing. In his retelling of the myth of Dædalus in *The Wisdom of the Ancients*, Bacon ruminates on the possibility of "unlawful artifices perverted to depraved uses." Dædalus was "the raiser and builder of many extraordinary works," but it is for "unlawful things that his name is most celebrated." Dædalus built the machine that enabled Pasiphæ to have intercourse with a bull, the fruit of which union was the Minotaur.

Bacon comments:

Human life owes much to the mechanical arts...but from the same fountain spring instruments of lust and even of death...The most sought-after poisons and torments of war and similar evils we owe to mechanical invention, and well we know how far they surpass the Minotaur himself in cruelty and destruction.

It is hard to accuse the author of these words of callow optimism about the benign effects of progress.

Earlier we noted Bacon's sanguine assurance that science and religion could flourish side by side without mutual interference. All we need to do is to make sure that neither encroaches on the other's proper domain. As Bacon writes in the *New Organon* (I.65), "an unhealthy mixture of the divine and the

human leads not only to fantastic philosophy but also to heretical religion. The salutary course therefore is, with a sober mind, to render unto faith only what belongs to faith." But in some places Bacon indicates a darker view of the likely effects of his science on religious faith. Bacon's early unpublished work, *The Masculine Birth of Time*, also contains the words, "render unto faith what belongs to faith," but in that work they occur in an urgent prayer to God. While announcing his new goal as "the dominion of man over the universe," Bacon prays "that our human interests may not stand in the way of the divine, nor from the unlocking of the paths of sense and the enkindling of a greater light in nature may any unbelief or darkness arise in our minds to shut out the knowledge of the divine mysteries." (Farrington, p. 60) This seems to be a more frank acknowledgment that the progress of Baconian science toward its goal of "the kingdom of man" will naturally weaken men's allegiance to the kingdom of god.

There is in fact much evidence that the Baconian project in the largest sense included a plan to weaken the influence of religion, to focus the human mind on the goods of this world, and to give free rein to worldly ambition and acquisitiveness. He knew that modern science, with its endless material rewards and its promise of a golden future on earth, would gradually overshadow the appeal of Christianity, with its sterner demands in this life and its less tangible promises for the next. Moreover, he was not unaware of the darkest implications of the coming eclipse of religion. In his essay "Of Atheism" he says that learned times, especially amid peace and prosperity, incline men to atheism. He continues:

They that deny a God destroy man's nobility, for certainly man is of kin to the beasts by his body, and if he be not of kin to God by his spirit, he is a base and ignoble creature. It destroys likewise magnanimity, and the raising of human nature. For take an example of a dog, and mark what a generosity and courage he will put on when he finds himself maintained by a man, who to him is in place of a god...So man, when he resteth and assureth himself upon divine protection and favor, gathereth a force and faith which human nature in itself could not obtain. Therefore, as atheism is in all respects hateful, so in this, that it depriveth human nature of the means to exalt itself above human frailty.

By this point I imagine you are somewhat bewildered. If Bacon was inclined to think that the contemplative life is the best life for man; if he did not believe the life devoted to honor and glory would be ultimately satisfying; if he was dubious about the prospects—and perhaps even the desirability—of bodily immortality; if he saw modern science as the source of great evils as well as great benefits for man; if he expected science to undermine religion and

therewith human dignity—then what makes him a modern? What remains of his quarrel with Socrates and his followers? Why did he launch the modern project at all?

I can't answer these question with any certainty, but I'll tell you how it looks to me. I suspect that in some ways Bacon was a contemplative philosopher not unlike the ancients whom he criticizes. He was not uninterested in what Socrates called the human things. Indeed, he thought that the serious inquiry into nature was impossible without careful examination of the opinions, prejudices, hopes, and fears that human beings bring to any inquiry. To be sure, he disagreed with the ancients on certain key theoretical points. He thought they were too inclined to accept as their starting point the superficial appearances in nature; that they didn't appreciate how much could be learned from rigorous experimentation; that in general they exaggerated the importance of specific forms and gave too little weight to the universal and homogeneous principles of things; and that they failed to see that some important truths about nature could be learned only after many generations of scientists building on the work of their predecessors.

As for the Baconian project to give man dominion over nature, I think it can be explained not as the heart of Bacon's activity but rather as his effort to change the position of philosophy in society, to show mankind at large that philosophy can be extraordinarily useful, and above all, to establish the independence and prestige of philosophy in a world dominated by Christianity.

To give some evidence for this claim, and to bring this lecture to a timely close, I will end by introducing you to a remarkable little Baconian text, viz., his interpretation of the myth of Orpheus in his book, *Of the Wisdom of the Ancients*.

Bacon interprets the myth of Orpheus as an image of philosophy. More precisely, he presents the main events of Orpheus' life as corresponding to the principal stages of the history of philosophy. In this fanciful correspondence, the turning point in Orpheus' life is taken as a metaphor for the Socratic turn, from natural philosophy to "the human things." This becomes the occasion for what is, I think, one of the most interesting meditations on the Socratic turn ever penned by a modern writer.

Briefly, the story of Orpheus Bacon tells is as follows: When Orpheus' wife had died prematurely, he journeyed to the underworld and, by playing his lyre, persuaded the infernal deities to let him bring her back to life, on condition

that he not look back as he led her up to the light. But in his impatience he did look back and so lost her again. Saddened by his failure, Orpheus began to play a different kind of music, by which he charmed the wild animals in the forest and made them into an orderly and harmonious community. But along came a troop of Bacchanalian women who drowned out his music, returned the animals to their wild natures, and tore Orpheus to pieces. Mourning Orpheus' death, the river Helicon went underground, only to resurface much later in a different land.

Bacon says Orpheus' two kinds of music correspond to natural philosophy on the one hand, and to moral and civil philosophy on the other. Orpheus' trip to the underworld to recover his wife reflects the original project of natural philosophy, whose "noblest work is the restitution and instauration of things corruptible" or "the conservation of bodies in their state and the retarding of dissolution and putrefaction." In other words, the task natural philosophy set itself was to overcome death itself by achieving bodily immortality. But as this task is very difficult, philosophy gave up on it and turned instead to "human things."

The turn to moral and civil philosophy, reflected in Orpheus' taming of the wild beasts, is thus represented as a "second sailing" after the failure of natural philosophy's efforts to achieve bodily immortality. Philosophy now attempts "by persuasion and eloquence to insinuate into the souls of men the love of virtue, equity, and peace." In this it is successful, leading to the formation of enduring kingdoms and republics. Bacon explains the sequence of the first and second sailings in this way:

This care for civil things is, by rite and order, placed after the experiment for the restitution of the mortal body, diligently attempted but finally frustrated: because, once the inevitable necessity of death is evidently proposed, men are moved to seek eternity by way of fame of merit and name.

Unfortunately, the kingdoms and republics founded on the basis of the new moral and civil philosophy do not last forever. The destruction of Orpheus and his sylvan community by the Bacchanalian women reflects, according to Bacon, the rise of perturbations, seditions, and wars, which silence the laws, return men to their depraved natures, and wreck civilizations. As for the river Helicon, her sojourn underground means that philosophy itself is submerged for a time in the ensuing age of barbarism, only to reappear much later in a foreign land.

On Bacon's interpretation, the key to understanding the Socratic turn is to recognize in it a new approach to *the* fundamental human problem—the problem of death. To find a response to the problem of death is philosophy's "noblest work," the most important good it can accomplish for mankind as a whole. Bacon seems to suggest that the first philosophers sought to raise themselves in the esteem of the people by promising an end to disease and death. When that failed, and men were clearly confronted with the inevitable necessity of death, philosophy turned to ethics and politics in order to lay the foundations of kingdoms and republics that would survive perpetually even while the individual body perishes. The love of virtue, equity, and peace would not only permit such states to flourish, it would also enable men to find solace in the face of their own mortality in devotion to a community that celebrates forever the names of its outstanding citizens.

Why, according to Bacon, is it wiser for philosophy to hold out the promise of bodily immortality than to try to inculcate the love of virtue, equity, and peace in men's souls? To answer this question we have to consider the meaning of the Bacchanalian women, whom Bacon in this context identifies with "perturbations, seditions, and wars." In his interpretation of the Dionysus story in the *Wisdom of the Ancients*, Bacon notes that Pentheus as well as Orpheus was torn to pieces by frenzied women. In his treatment of the Pentheus story, just before the Orpheus chapter, Bacon makes it clear that the Bacchic rites that Pentheus was trying to get a look at are an image of "the divine mysteries" or "the light of Grace," i.e., the Christian faith. In fact, Bacon makes use of the Pentheus story chiefly to warn of the dangers run by natural philosophy when its inquiries encroach on the domain of religion. We can surmise that the destruction of Orpheus and his political project by the Bacchic revelers is, for Bacon, an image of the fall of classical civilization and the rise of Christianity. The submerging of the river Helicon corresponds to the decay of philosophy during the Middle Ages, and the reemergence of the Helicon represents Bacon's restoration of philosophy to its original greatness.

What was the weakness of ancient virtue that enabled it be overwhelmed by the appeal of Christianity? Taking Bacon's Orpheus tale as our guide, it seems that classical moral and political philosophy fails to dispose of the problem of death. Even if the ambitious few are satisfied to seek eternity by way of the fame of merit and name, that does little to comfort most people, who are left with the mere exhortation to love virtue, equity, and peace, and who are there-

fore powerfully susceptible to Christ's promise of eternal salvation for all believers. But Bacon found that Christianity, for its part, did not really dispose of the problem of death, and in fact it raised the stakes much higher. In his essay "Of Death" Bacon blames "religious meditations" and "friars' books of mortification" for vastly inflaming the natural fear of death by presenting it as "the wages of sin and passage to another world." And as a worldly religion intolerant of heresy, Christianity lent itself to bloody persecution and sectarian strife, so cruel in Bacon's own time that, as he put it, "if [Lucretius] had known of [it]...he would have been seven times more Epicure and atheist than he was." (*Essays*, "Of Unity in Religion") Bacon holds Christianity responsible not only for the religious strife of his time but also for "the corruption of philosophy by a combination of superstition and theology." (*New Organon* I.65). He laments that "once the Christian faith had been established and received, the majority of men of wit applied themselves to theology," and he adds that "In superstition and in blind immoderate religious zeal Natural Philosophy has found a troublesome and intractable enemy." (*Thoughts and Conclusions*, Farrington, p. 77)

Bacon proposes, in effect, to revive philosophy in a form that will be less vulnerable to Christianity because it will satisfy the fear of annihilation to which Christianity responded so effectively. Thus equipped, civilization will be on the whole more tranquil, more durable, and more hospitable to philosophic inquiry. Religious strife will gradually subside as worldly progress drives the thought of mortality from men's minds. Bacon's project to master nature has room both for the ambitious few and the comfort-loving many. He encourages those who love glory to devote themselves to scientific discovery and technological invention, for which they will be rewarded by posterity with the highest and most lasting honors. To others he offers the promise, if not of bodily immortality itself, at least of ceaseless progress in easing the human condition, curing diseases, and extending human longevity—to what limits no one can say for certain. But at the same time, as we have seen, Bacon was not unaware that his science would unleash dangerous and uncontrollable powers, nor was he blind to the demoralizing consequences of the gradual decline of religion which he helped set in motion. In embarking on his project, he recognized the price that would be paid, and he thought we ought to pay it.

Magnalia Naturae, praecipue quoad usus humanos

(Great things of nature, chiefly with regard to human uses)

Francis Bacon, ca. 1624

The prolongation of life.
The restitution of youth in some degree.
The retardation of age.
The curing of diseases counted incurable.
The mitigation of pain.
More easy and less loathsome purgings.
The increasing of strength and activity.
The increasing of ability to suffer torture and pain.
The altering of complexions, and fatness and leanness.
The altering of statures.
The altering of features.
The increasing and exalting of the intellectual parts.
Versions of bodies into other bodies.
Making of new species.
Transplanting of one species into another.
Instruments of destruction, as of war and poison.
Exhilarations of the spirits, and putting them in good disposition.
Force of the imagination, either upon another body, or upon the body itself.
Acceleration of time in maturation.
Acceleration of time in clarifications.
Acceleration of putrefaction.
Acceleration of decoction.
Acceleration of germination.
Making rich composts for the earth.
Impressions of the air, and raising of tempests.
Great alteration; as in induration, emollition, &c.
Turning crude and watry substances into oily and unctuous substances.
Drawing of new foods out of substances not now in use.
Making new threads for apparel; and new stuffs; such as paper, glass, &c.
Natural divinations.
Deceptions of the senses.
Greater pleasures of the senses.
Artificial minerals and cements.

Francis Bacon's *Of the Wisdom of the Ancients*

XI. ORPHEUS, OR PHILOSOPHY

The fable of Orpheus which, though common, has not in all points found a faithful interpreter, seems to represent an image of universal Philosophy. For the person of Orpheus, a man admirable and plainly divine who was skilled in all harmony and who by sweet modes conquered and drew all things to him, can by an easy passage be taken for a description of Philosophy. For as the works of wisdom surpass in dignity and power the works of fortitude, so the labors of Orpheus surpass the labors of Hercules.

Orpheus, out of love for his wife who had been snatched away by an untimely death, relying on his lyre, resolved to go down to the underworld to beseech the Manes [gods of the underworld]; nor did he fail of his hope. For so pleased and soothed were the Manes by the sweetness of his singing and playing that they gave him leave to take his wife away with him, but with this law, that she was to follow behind him and he was not to look back till he had reached the regions of light. Which, when he was almost in safety, he nonetheless did, in the impatience of love and care, so that the covenant was broken, and she fell back headlong into the underworld.

From that time Orpheus, mournful and a hater of women, betook himself to places of solitude where, by the same sweetness of song and lyre, he first drew to himself beasts of all kinds, so far that they, forsaking their nature, remembering neither angers nor ferocity, no longer driven headlong by the stings and furies of lust, no longer caring to satisfy their gluttony nor to gape at prey, stood about him as in a theater, kindly and tame toward one another, lending their ears only to the harmonies of his lyre. Nor was this all, but the force and power of his music were so great as to move even the woods and the very stones to shift themselves and take their seats around him in an orderly and decent manner.

These things succeeding happily and with great admiration for a time, at last some Thracian women, excited by the stings of Bacchus, blew such a hoarse and horrible noise with a horn that, because of the din, from then on the sound of his music could no longer be heard, and then at last, when the virtue was dissolved which had been the band of that order and society, trouble began, and the beasts returned each to its own nature and preyed upon one another as before; nor did the stones or the woods stay in their places: while Orpheus himself was at last torn to pieces by the furious women and scattered about the fields: at whose death Helicon (a river sacred to the Muses) grieving, in his indignation buried his waters beneath the earth, and brought forth their source again in other places.

The meaning of the fable seems to be this. The singing is of two kinds: one for placating the Manes, the other for drawing the world.

The former may most aptly be applied to natural philosophy, the latter to civil. For by far the noblest work of natural philosophy is the restitution and instauration of things corruptible, and (what is the same thing in a lesser degree) the conservation of bodies in their state and the retarding of dissolution and putrefaction. And if this can be done at all, it certainly cannot be effected otherwise than by the due and exquisite tempering of nature, as by the harmony of a lyre and by accurate modes.

Yet since this is the most arduous of all things, its accomplishment is for the most part frustrated; and that (as is very like the truth) for no other reason more than from curious and untimely diligence and impatience. And thus Philosophy, almost unequal to such a great thing, and therefore deservedly sad, turns itself toward human things and, by persuasion and eloquence insinuating into the souls of men the love of virtue, equity, and peace, makes a community of people come together into one, accept the yoke of laws, submit themselves to commanders, and forget their unbridled affections, while they listen to and comply with precepts and discipline: whence, shortly afterwards, buildings are constructed, towns are founded, fields and gardens are planted with trees; so that it would not be amiss to say that the stones and woods are called together and transported.

And this care for civil things is, by rite and order, placed after the experiment for the restitution of the mortal body, diligently attempted but at last frustrated: because, once the inevitable necessity of death is evidently proposed, men are moved to seek eternity by way of fame of merit and name. It is also prudently added in the fable that Orpheus was estranged from women and marriage, for by the delights of marriage and the love of children men are for the most part turned away from great and excellent deeds worthy of republics, holding that by propagation, not deeds, they have gained immortality enough.

Truly even the works of wisdom themselves, although among human things they excel, yet also they close their periods. For it comes about that, after kingdoms and republics have flourished for a time, presently perturbations and seditions and wars arise; amid the clamor of which first laws fall silent, and men return to their depraved natures, and even in the fields and towns devastation is seen. And not much afterwards (if such furors continue) even letters and Philosophy are certainly torn to pieces: to the point that only fragments are found in a few places, like planks from shipwrecks, and barbarous times set in; the waters of Helicon are buried under the earth until, owing to the vicissitude of things, not perhaps in the same places but in other nations, they burst forth and spring up.

(translated from the Latin by Adam Schulman)