

INTRODUCTION

BY JERRY WEINBERGER 

As fortunes and reputations go, Francis Bacon's have had their ups and downs. Born into an influential family in 1561, upon the death of his father eight years later Bacon was left without the resources of wealth and influence. He eventually became a lawyer and entered Parliament but was frustrated in his search for a place in Queen Elizabeth's court, hampered by his lack of connections and the Queen's ill favor. When Elizabeth died in 1603, Bacon finally began the meteoric rise his talents promised, and by 1618 he had become Lord Chancellor, the highest legal office in England. Soon after, he was made a baron and then, three years later, a viscount. Not many months after reaching the pinnacle, however, Bacon was brought low in one of the most famous scandals in Western political and intellectual history: He was impeached and convicted for having taken bribes in cases that had come before his court. Although King James forgave most of the punishments heaped upon him, Bacon never again played a role in public life and spent his remaining years in relative seclusion, composing many of his most important writings. Not even his death in 1626 washed the stain of scandal from his reputation. More than a century later, Benjamin Franklin, in *Poor Richard Improved*, could still comment that Bacon's prodigious theoretical genius was matched by his moral weakness. Alexander Pope—to whom Franklin refers—called Bacon “the wisest, brightest, meanest of mankind,” and Lord Macauley reviled Bacon for his dishonesty and treachery against friends. Even today, accounts of Bacon's life inevitably include details of his fall and bad character.

Despite Bacon's checkered moral reputation, he was revered long after his death as the founder of the modern scientific and technological project. In praising his genius, Franklin commented that Bacon was “justly esteem'd the father of modern experimental philosophy.” According to this view, Bacon freed the human intellect from its enthrallment to

ancient thought and the sterile legacy of that thought, medieval scholasticism. Bacon redirected men from idle and fruitless speculation to the active and empirical investigation of nature, and he showed how real natural science, as opposed to airy metaphysical systems, would lead to the conquest of nature and the “relief of man’s estate” (Book One, V. 11). Many great thinkers of the Enlightenment—the likes of Leibnitz, Rousseau, Kant, and Thomas Jefferson—considered Bacon to be one of the greatest thinkers of all time and a crucial founder of the modern world, in which human life is guided and supported only by reason.

But even in this regard, Bacon’s once high reputation faded. As early as the mid-eighteenth century, David Hume argued that Bacon was no real founder of modern science, since he didn’t know geometry and was blind to the application of mathematics to the understanding of nature. By the mid-nineteenth century, Hume’s view was generally accepted. The epistemologist J. Liebig attacked Bacon’s inductive method as fallacious. In more recent times, Sir Karl Popper called Bacon’s inductive method a “myth,” and even Bacon’s admiring biographer Catherine Drinker Bowen admitted that he made no scientific discoveries and that his philosophy of science had been useless in the laboratory. Bacon came to be considered a fine stylist and a prescient futurologist but not an important contributor to the actual development of science, especially not to mathematics, physics, and astronomy. At best, Bacon was a cheerleader, or propagandist, of science. Likewise, his importance in the development of modern politics faded, and he was rarely considered among the great modern political theorists, such as Machiavelli, Hobbes, and Locke. His philosophical and historical writings came to be largely neglected. His *Essays* remained as the primary legacy of a man remembered more for his moral failings than for any contributions to modern science or technological progress.

By the middle of the twentieth century, however, serious questions arose about the contribution of modern science to genuine human progress. Rather than unambiguous forces for good, science and technology had served revolutionary and totalitarian madness such as the world had never seen. Critics questioned the place of technology in human life and argued that technology had become more master than servant. The philosophers Friedrich Nietzsche and Martin Heidegger

had pointed out that, while modern science might explain and control nature, it could not advise men how they should use that control or whether they should even pursue such control at all. Nor had science, they argued, really shown that it could explain the whole of experience or that life could be lived according to reason alone. This kind of rationalism was really an expression of faith in—not proof of—the autonomy of reason. At most, modern science could only deafen human beings to the call of the mysterious and the divine. But science had not seriously considered the possibility of such a call. Indeed, science, itself a form of faith, could not rule out the rise of some new religion, which might, one day, replace our faith in science altogether. As a result of this skeptical climate, particularly in recent decades, interest in Bacon as more than a literary and historical figure began to revive. After all, Bacon was the first to address the issues that had again become so pressing in our time: Why should we pursue scientific progress? What are the implications of modern science for religion, faith, and morality? Does technology enhance or disfigure the human soul? Bacon discussed precisely those matters, which have become humanity's most pressing concerns.

While busy with his legal and parliamentary career and hoping for high office, Bacon published *The Advancement of Learning*, in English, in 1605. He dedicated the book to the new King James, who, Bacon knew, was much more disposed to his political advancement than Elizabeth had been, and whom Bacon addressed as the most learned and philosophical ruler since the time of Christ. In calling the King a philosopher, Bacon was engaging in more than flattery. He was boldly inviting the King to join him in heralding a complete revolution in the definition of what knowledge is, what knowledge is for, and how knowledge is to be pursued.

That these are not simply academic matters, Bacon makes clear at the very outset of the treatise, since in Book One he addresses those with the most at stake in any transformation of learning: the “Divines,” the “Politiques,” and the “learned men themselves.” What religious, political, and academic authorities think to be true certainly bears on the power they wield. They have an interest, then, in any difference between what they think is true and what someone else claims is really true. Given their power and authority, they are well placed to resist

and punish any reformer of learning who might threaten their positions.

When he directs himself to these three groups, Bacon proceeds as if to defend learning from the cavils of the theologians and the politicians and from the excesses and stupidities of certain of the learned themselves. It seems at first as if Bacon sees the politicians and theologians, on one side, with true learning on another, and bad learning off to the sideline, but the situation he confronts is more complicated. The theologians were obviously involved with learning. In fact, the retardation and the degenerate state of learning was manifested in the scholasticism that Bacon himself had studied at Cambridge and that had repelled him. It sprang from a mixing of philosophy and theology and was hatched, in Bacon's words, by men "shut up in the cells of monasteries and colleges" (Book One, IV. 5). In his dedication to King James, Bacon says that the king is the most learned and philosophical of rulers, but he makes it clear that many rulers have been interested in and influenced by learning. The real condition of the world of his time, Bacon thought, was that a degenerate form of learning—one that stifled genuine science and retarded human progress—bound political power to theological power.

Bacon thus asks the King to support some pretty dangerous, indeed revolutionary, business. No wonder he calls his treatise "The Advancement of Learning," as if it consisted of recommendations for advancing what had already been accomplished, rather than some more accurate title, such as "Why What is Most Important in Existing Learning Must Be Junked and Replaced by an Entirely New Understanding of Physical and Human Nature." In 1620, just before his disgrace and fall from power, and the same year in which he published his other major theoretical treatise, *Novum Organum* ("New Reasoning Instrument"), Bacon wrote *Great Instauration*, a brief introduction to the several theoretical works comprising his plan for human learning. The title, which means "great renewal," again seems to promise an invigoration of what had come before. But in his preliminary remarks, Bacon makes it clear that he is bent on a "total reconstruction of sciences, arts, and all human knowledge, raised upon the proper foundations." *The Advancement of Learning*—and its later expanded version in Latin—presents the basic arguments for this radical departure for all human knowledge.

In a nutshell, Bacon argues that all important learning prior to his complete reconstruction was false because it failed to respect the difference between philosophy, which studies nature, and theology, which studies the divine. This mistake was understandable in the case of the ancient Greek philosophers who, being pagans, believed the entire natural world to be a divine image of God. The mistake should have disappeared with the advent of Christianity, however, which teaches that only humanity exists as the image of God, that the world is merely created, and that nothing created is divine. But the inherent weakness of the human mind permitted the confusion of philosophy and theology to infect Christian thought as well, as evidenced by its tendency to think that nature points to and actually discloses divine providence.

This confusion of philosophy and theology, says Bacon, leads the human mind to a false conception of nature. The world is taken as a conglomeration of things—human beings, trees, mountains, lions, water, etc.—all held together in a coherent and ranked order. Such an order is “teleological,” which means that every thing has its specific purpose and thus its own special excellence and that the various things in nature are connected in harmonious motion toward some final end. It makes no difference, according to Bacon, if such a teleological order is described as natural (as with Aristotle) or as divine (as with Plato and corrupted Christian thought). The former falsely conceives of nature as if it were God; the latter falsely conceives of nature as a god-like extension of God.

To describe the effects of such thinking, Bacon uses the example of an eyelash (Book Two, VII. 7). When one thinks teleologically, says Bacon, one is satisfied simply to point out that eyelashes conduce to sight by keeping dirt out of the eyes. Eyelashes are for sight and sight serves many human purposes, the most important and highest of which is to behold the beauty of God’s creation. Knowing these facts, we can supposedly distinguish between good and bad eyelashes. Moreover, since the natural order is divine, it cannot be transient, as one might conclude when one observes that individual eyelashes and human beings and trees and lions die and pass out of existence. Therefore, the “true” world—the world that does not change—consists of the immaterial *forms* of the particular things that, being material, come and

go. There is thus a pure form of eyelash and lion and human being, and these pure forms and their relations to one another are the highest objects of knowledge and the ultimate reality of nature.

Bacon completely rejects the teleological vision of nature, which he thought had not only persisted despite the advent of Christianity, but had in fact been absorbed into Christian thought and learning. For Bacon, the teleological approach to nature was mere circular reasoning and led absolutely nowhere, except to the convoluted gibberish of scholastic metaphysics. Since it focuses on spurious forms and non-existent relations among things, it ignores what really occurs in nature: the many and complex material motions that cause what happens around us, but that most often we cannot see by our unaided eyes and minds. To say that eyelashes are for sight is merely to state the obvious. Genuine science inquires into the material causes: for example, damp organs, such as eyes, are protected by surrounding, and different tissues, such as lashes. The patterns of these material causes are the real forms of nature and can be revealed by using the right experimental method. This method puts nature on an experimental rack. It pulls and pushes and hammers at nature, in order to force nature to reveal its often hidden material causes. When we know these causes, we can change nature, whether visible or not to the human eye, and this power to change nature can be put to human use for the relief of man's estate. Moreover, by changing nature in this way we reveal what nature really is. Thus, there is in Bacon's view a perfect harmony between making new things and discovering what is true about nature.

Today, we live in a world transformed by science and technology, just as Bacon envisioned it could be. True, we would not learn from Bacon's writings much about the actual sciences and experimental methods that have fashioned our world. But by confronting as he did the authorities, who stood to lose a great deal with the advent of an entirely new knowledge, Bacon was forced to address questions that for centuries, at least until recently, were mostly taken for granted. Suppose it is true that the old, teleological conception of nature is false and that things have no special purposes or ends. If so, then does it follow that there is no special, natural virtue or end for human beings? Is reason powerless to discover what the best human life is, or what

moral rules should govern the human will? If such questions cannot be answered by science, then one might argue that mankind confronts two fundamental choices: either faith guides it along its way or mankind must posit, arbitrarily, its own path. Indeed, Bacon suggests that, as Christianity frees the mind from the pagan superstition that nature is divine, and thus makes natural science possible, so natural science clears the air for considering the true laws of God. But suppose the comforts afforded by natural science cause faith to weaken or disappear? How then will we live with the powers that science and technology place in our hands? Bacon could not propose his revolution in learning without considering, as delicately as he could, these and many similar questions.

And consider them he did, in the array of writings on philosophy, science, politics, history, and morality that he bequeathed to the world he heralded. *The Advancement of Learning* was the first of these writings. In it, Bacon shows us the forces arrayed against modern science and then surveys the entire landscape of existing human knowledge. He intends to show what is bad and good in existing knowledge, to show what is missing altogether, and to suggest remedies. In presenting this comprehensive picture, Bacon describes the arts and sciences as an organic unity. They “are not like several lines that meet in one angle, and so touch but in a point: but are like branches of a tree, that meet in a stem, which hath a dimension and quantity of entireness and continuance, before it come to discontinue and break itself into arms and boughs” (Book Two, V. 2). The various forms of knowledge—from physics and medicine to politics, history, and morality—are all related. It is impossible for a change in one important branch of knowledge not to bear on all the others. Bacon knew two things about his rejection of teleology. First, this change represented a radical challenge to existing academic, political, and ecclesiastical establishments. Second, it would have a significant effect on our commonsensical assumptions about what is good and bad, noble and base, just and unjust.

Bacon’s appreciation of the unity of knowledge—now often forgotten in the fragmented world of modern specialization—enabled him to question, in a profound and eloquent way, the ultimate value of science and technological progress. He invites the reader to consider the relations

among modern science and technology, on the one hand, and politics, religion, and morality, on the other. It is hard to imagine a book more attuned to our times. In his personal life, Bacon may have been a scoundrel, and perhaps deserving of the scorn of later generations. However, in the spirit of the science he did so much to promote, we can relish what his brilliant mind and pen offer us, especially since we need it so much now. In this spirit, *The Advancement of Learning*—as edited by G. W. Kitchin in 1861—is again offered to the reading public.