



The Philosophy of Francis Bacon

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In England the philosophical reform receives the impress of the Anglo-Saxon character, and takes quite a different turn from the Italian movement. The sober and positive English mind distrusts the traditions of Scholasticism as well as the hasty deductions of independent metaphysics. It prefers the slow and gradual ascent along the path of experience to Italian speculation, which quickly reaches the summit, and then, unable to maintain itself, becomes discouraged and falls back into scepticism. It is impressed with the fact that the School and its methods had no share in the recent progress of the sciences; that these intellectual conquests were made outside of the School, nay, in spite of it. The sciences owe their success neither to Aristotle nor to any other traditional authority, but to the direct contemplation of nature and the immediate influence of common-sense and reality. True, the bold investigators of science reasoned no less skillfully than the logicians of the School, but their reasonings were based on the observation of facts. Conversely, when they started from an a priori conception, or hypothesis, they verified it by, experience, as Columbus did, and refused to recognize its truth until it had received this indispensable sanction. Thus we have, on the one hand, an utterly powerless and barren official philosophy; on the other, a surprising advance in the positive sciences. The conclusion which forced itself upon English commonsense was the necessity of abandoning a priori speculation and the abused syllogism in favor of observation and induction.

This conviction, which had been expressed by Roger Bacon as early as the thirteenth century, is proclaimed in the writings of his namesake Francis Bacon, Baron of Verulam, Lord Chancellor of England (1561-1626): *De dignitate et augmentis scientiarum*;¹ *Novum organum scientiarum*,² etc.³

The problem is, to begin the whole labor of the mind again, to raise science upon an absolutely new basis (*instauratio magna*). If we would ascertain the hidden nature of things, we must not look for it in books, in the authorities of the School, in preconceived notions and a priori speculations. Above all, we must give up imitating the ancients, whose influence has retarded the progress of knowledge. With the exception of Democritus and a few positivists, the Greek philosophers observed but little and superficially. Scholasticism followed in the footsteps of antiquity. It seems as though the Schoolmen had lost their sense of the real. Our knowledge is full of prejudices. We have our whims, our preferences, our idols (*idola, tribus, fori, specus, theatri*), and we project them into nature. Because the circle is a regular line and affords us pleasure, we infer that the planetary orbits are perfect circles. We do not observe at all, or we observe but poorly. We infer that because persons have escaped a great misfortune five times, some supernatural agencies have been at work; and we fail to take account of the equally numerous cases when they did not escape. One may truly say with the philosopher who was shown, in a temple, the votive tablets suspended by such as had escaped the peril of shipwreck "But where are the portraits of those who have perished in spite of their vows?" We assume final causes, and apply them to science, thereby carrying into nature what exists only in our imagination. Instead of understanding things, we dispute about words, which each man interprets to suit himself. We continually confuse the objects of science with those of religion, — a procedure which results in a superstitious philosophy and a heretical theology. "Natural philosophy is not yet to be found unadulterated, but is impure and corrupted, — by logic in the

school of Aristotle; by natural theology in that of Plato; by mathematics in the second school of Plato (that of Proclus and others), which ought rather to terminate natural philosophy than to generate or create it.”

Philosophy’s only hope in this chaos of opinions and a priori systems is to break entirely with Greek and scholastic traditions, and to accept the inductive method. What traditional philosophy calls induction proceeds by simple enumeration, leads to uncertain conclusions, and is exposed to danger from one contradictory instance, deciding generally from too small a number of facts. Genuine induction, the method of modern science, does not hurry on rapidly from a few isolated and uncertain phenomena to the most general axioms, but patiently and carefully studies the facts, and ascends to the laws continually and gradually. In forming our general law “we must examine and try whether it be only fitted and calculated for the particular instances from which it is deduced or whether it be more extensive and general. If the latter, we must observe whether it confirm its own extent and generality by giving surety, as it were, in pointing out new particulars, so that we may neither stop at actual discoveries, nor with careless grasp catch at shadows and abstract forms.”⁴

It is an exaggeration of Bacon’s merit to regard him as the creator of the experimental method and of modern science.⁵ On the contrary, Bacon was the product of the scientific revival of the sixteenth century, and his manifesto is but the conclusion, or as we might say the moral, which English common-sense draws from the scientific movement. But though he cannot be said to have originated the experimental method, we must at least concede to him the honor of having raised it from the low condition to which scholastic prejudice had consigned it, and of having insured it a legal existence, so to say, by the most eloquent plea ever made in its favor. It is no small matter to speak out what many think and no one dares to confess even to himself.

Nay, more. Though experimental science and its methods originated long before the time of the great chancellor, Bacon is none the less the founder of experimental philosophy, the father of modern positivistic philosophy, in so far as he was the first to affirm, in clear and eloquent words, that true philosophy and science have common interests, and that a separate metaphysics is futile. An outspoken adversary of the metaphysical spirit, he expressly begs his readers “not to suppose that we are ambitious of founding any philosophical sect, like the ancient Greeks or some moderns; for neither is this our intention, nor do we think that peculiar abstract opinions on nature and the principles of things are of much importance to men’s fortunes.”⁶ Hence he not only opposes Aristotle, but “every abstract opinion on nature,” i. e., all metaphysics not based on science.

He distinguishes, moreover, between primary philosophy and metaphysics. Primary philosophy treats of the notions and general propositions common to the special sciences, viz. (according to Bacon’s strange division, “that is derived from the three different faculties of the soul, “memory, imagination, and reason) — history, which includes civil history and natural history; poesy; and philosophy, which he divides into natural theology, natural philosophy, and human philosophy. Metaphysics is the speculative part of natural philosophy; it deals with forms (in the scholastic sense) and final causes, whereas the practical part of natural philosophy, or physics proper, deals only with efficient causes and substances. But Bacon does not value metaphysics very highly, and it sounds like irony when, after having called final causes barren virgins, he assigns them to this science. As regards natural theology, its sole aim is “the confutation of atheism.” Dogmas are objects of faith, and not of knowledge.⁷

This method of distinguishing between science and theology, philosophy and faith, reason and revelation, is diametrically opposed to the ways of the School. The old realistic Scholasticism identified philosophy with theology. Bacon, like the nominalists, cannot keep them far enough apart. He justifies himself for being a naturalist in science and a supernaturalist in theology on the ground of this absolute distinction, and a number of English thinkers follow his example. But the distance is not great between the exclusion of the invisible from the domain of science and its complete denial. Thomas Hobbes, a friend of Bacon, teaches a form of materialism which his political conservatism scarcely succeeds in disguising.

NOTES

1. Appeared in English, 1605.
2. First published under the title *Cogitata et visa* in 1612.
3. *Complete Works*, [ed. William Rawley, Amsterdam, 1663]; ed. Montague, London, 1825-34; H. G. Bohn, London, 1857-59, completed by J. Spedding; *The Letters and Life of Francis Bacon, including all his occasional works, newly collected, revised, and set out in chronological order, with a commentary biographical and historical*, London, 1862-72; [also a briefer *Account of the Life and Times of Francis Bacon*, by J. Spedding, 2 vols., London, 1879]; Bacon's works, tr. into French by Lasalle, 15 vols., 8vo, Paris, 1800-1803; and by Riaux (*Euvres philosophiques de f. Bacon*, in the Charpentier collection, 2 vols., 12mo, 1842). See Ch. de Remusat, *Bacon, sa vie, son temps, sa philosophie et son influence jusqu'a nos jours*, 2d ed., Paris, 1858; Kuno Fischer, *Francis Bacon und seine Nachfolger. Entwicklungsgeschichte der Erfahrungsphilosophie*, Leipsic, 1856; 2d ed., completely revised, 1875; [Engl. trans. by J. Oxenford, London, 1857]; Chaignet et Sedail, *De l'influence des travaux de Bacon et de Descartes sur la marche de l'esprit humain*, Bordeaux, 1865; [Th. Fowler, *Bacon (English Philosophers' Series)*, London, 1881; J. Nichol, *Bacon (Blackwood's Philosophical Classics)*, 2 vols., Edinburgh, 1888-89; Heussler, *Fancis Bacon und seine geschichtliche Stellung*, Breslau, 1889. Concerning Bacon's predecessors, Digby and Temple, see J. Freudenthal, *Beiträge zur Geschichte der engl. Philos.*, A. f. d. G. d. Ph., IV., pp. 450-477, 578-603, V., pp. 1-41. - TR.].
4. *Novum organum*, B. I., §§ 1, 2, 3, 14, 15, 19, 26, 31, 38-98, 71, 77, 79, 82, 89, 96, 100 ff. [Translations taken from Devey's ed. of Bacon's works in Bohn's Library. - TR.]
5. His scientific merit has given rise to an interesting controversy. See Ad. Lasson, *Ueber Bacon's wissenschaftliche Principien*, Berlin, 1860; Justus v. Liebig, *Ueber F. Bacon von Verulam und die Methode der Naturforschung*, Munich, 1863; tr. into French by Tchihatchef, Paris, 1866. Cf. the replies of Alb. Desjardins, *De jure apud Fr. Baconem*, Paris, 1862; of Sigwart, *Ein Philosoph und ein Naturforscher über Bacon (Preussische Jahrbucher, vol. XII., August, 1863; vol. XIII., January, 1864)*.
6. *Novum organum*, I., 116.
7. *De dignitate et augm. sc.*, III.

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