The Political Writings

Edited, with Introduction, by Debra Morris and Ian Shapiro
Science and Free Culture

It is no longer possible to hold the simple faith of the Enlightenment that assured advance of science will produce free institutions by dispelling ignorance and superstition—the sources of human servitude and the pillars of oppressive government. The progress of natural science has been even more rapid and extensive than could have been anticipated. But its technological application in mass production and distribution of goods has required concentration of capital; it has resulted in business corporations possessed of extensive legal rights and immunities; and, as is a commonplace, has created a vast and intricate set of new problems. It has put at the disposal of dictators means of controlling opinion and sentiment of a potency which reduces to a mere shadow all previous agencies at the command of despotic rulers. For negative censorship it has substituted means of propaganda of ideas and alleged information on a scale that reaches every individual, reiterated day after day by every organ of publicity and communication, old and new. In consequence, for practically the first time in human history, totalitarian states exist claiming to rest upon the active consent of the governed. While despotic governments are as old as political history, this particular phenomenon is as startlingly unexpected as it is powerful.

One of the earlier arguments for democracy is countered in the most disturbing way. Before the industrial revolution had made much headway it was a commonplace that oppressive governments had the support of only a relatively small class. Republican government, it was assumed, would have the broad support of the masses, so that the “people” who, as Rousseau expressed it, had been nothing would become everything. We are now told the contrary. Democracy is said to be but a numerical contrivance, resting upon shifting combinations of individuals who happen at a given time to make up a majority of voters. We are told that the moral consensus which exists only when there is unity of beliefs and aims, is conspicuously lacking in democracies, and is of the very essence of totalitarian states. The claim stands side by side with that of Marxist communists who say that since their views are inherently scientific, false opinions have no legitimate standing as against the authority of The Truth. But in a way the Fascist claim goes deeper since it pretends to

extend below merely intellectual loyalties, to which science appeals, and lay hold of fundamental emotions and impulses.

There is an argument about science which so far has found comparatively little response in democratic countries, but which nevertheless puts a problem so basic that it will receive more and more attention as time goes by. It is said that the principles of laissez-faire individualism have governed the conduct of scientific inquiry; that the tastes and preferences of individual investigators have been allowed to regulate its course to such an extent that present intellectual confusion and moral chaos of the world exists because of tacit connivance of science with uncontrolled individualistic activity in industry.

The position is so extreme and goes so contrary to all we had come to believe that it is easily passed over as an aberration. But the view, because of its extreme character, may be taken to point to a genuine issue: just what are the social consequences of science? Are they not so important, because of technological applications, that the social interest is paramount over intellectual interest? Can the type of social control of industry urged by socialists be carried through without some kind of public regulation of the scientific investigations that are the source of the inventions determining the course of industry? And might not such regulation throttle the freedom of science? Those who say that the social effect of inventions (which exist only because of the findings of scientific inquiry) is so unsettling that the least which can be done is to declare a moratorium on science express the same problem with more moderation.

The claim is made in Russia that the direction taken by science has in the last hundred and fifty years been so determined by the interest of the dominant economic class, that science has been upon the whole an organ of bourgeois democracy—not so consciously perhaps as in the case of government, the police and the army, but yet in substantial effect. Since it is impossible to draw any fixed line between the physical and the social sciences, and since the latter—both with respect to investigation and teaching—must be regulated in the interest of the politics of the new social order, it is impossible to allow the physical sciences to go their way apart without political regulation. Nazi Germany decrees what is scientific truth in anthropology regarding race, and Moscow determines that Mendelism is scientifically false, and dictates the course to be pursued by Genetics. Both countries look askance at the theory of Relativity, although on different grounds. Quite aside, however, from special cases, a general atmosphere of control of opinion cannot exist without reacting in pretty fundamental ways upon every form of intellectual activity—art too as well as science.

Even if we hold that extreme views are so extreme as to be distorted

caricatures, there remains an actual problem. Can society, especially a democratic society, exist without a basic consensus and community of beliefs? If it cannot, can the required community be achieved without regulation of scientific pursuits exercised by a public authority in behalf of social unity?

In this connection the accusation of irresponsibility as to social consequences is brought against scientific men, and it is in this context that the underlying issue takes shape. It is argued (and some who take the position are themselves scientists) that the main directions of physical science during the past hundred years, increasingly so in the last half century, have been set, indirectly and directly, by the requirements of industry carried on for private profit. Consideration of the problems which have not received attention in comparison with those which have absorbed expenditure of intellectual energies will, it is said, prove the proposition.

Direct control has been exercised for the most part by governments. They have subsidized the kind of investigations that promise increased national power, either by promoting manufacturing and commerce as against some other national states, or by fostering research that strengthens military prowess. Indirect control has been exercised in subtler ways. The place of industry is so central in modern life that quite apart from questions handed directly over to scientific laboratories by industrial enterprises, it is psychologically impossible for men engaged in scientific research not to be most sensitive and most responsive to the type of problems presented in practical effort to control natural energies;—which in the concrete means manufacturing and distributing goods. Moreover, a kind of positive halo surrounds scientific endeavors. For it has been held, not without grounds, that general social—or at least national—welfare is thereby promoted. Germany led other countries in physical research; and it was in Germany that scientific advances could be shown to have contributed most directly to national strength and prestige. It was thus possible for some intellectual observers, not particularly naïve, to hold up German universities as models to follow in our own country.

I referred above to the role of nationalism in deciding the direction taken by science. The striking instance is of course the organization of scientific men for aid to a nation in time of war. The instance brings to a head tendencies that are going on in less overt and more unconscious ways pretty much all the time, even in times of nominal peace. Increase of the scope of governmental activities in all industrialized countries, going on for some years at an accelerated pace, has reinforced the alliance between national interest and scientific inquiry. It is certainly arguable that when the choice at hand in between regulation of science by private economic interests and by nationalist interest, the latter should have preference. It may be inferred that the open control of science exercised in totalitarian states is but a culmination of tendencies that have been going on in more or less covert ways for some time—from which it follows that the problem presented extends beyond the borders of those particular states.

Strangely enough, at first sight, the demand for direct social control of scientific inquiries and conclusion is unwittingly reinforced by an attitude quite commonly taken by scientific men themselves. For it is commonly said and commonly believed that science is completely neutral and indifferent as to the ends and values which move men to act: that at most it only provides more efficient means for realization of ends that are and must be due to wants and desires completely independent of science. It is at this point that the present climate of opinion differs so widely from that which marked the optimistic faith of the Enlightenment; the faith that human science and freedom would advance hand in hand to usher in an era of indefinite human perfectibility.

That the popular esteem of science is largely due to the aid it has given to men for attainment of things they wanted independently of what they had learned from science is doubtless true. Russell has stated in a vivid way the sort of thing that has enabled science to displace beliefs that had previously been held: “The world ceased to believe that Joshua caused the sun to stand still, because Copernican astronomy was useful in navigation; it abandoned Aristotle’s physics, because Galileo’s theory of falling bodies made it possible to calculate the trajectory of a cannonball. It rejected the theory of the flood because geology is useful in mining and so on.” That the quotation expresses the sort of thing that gave the conclusions of the new science prestige and following at a time when it badly needed some outside aid in getting a hearing can hardly be doubted. As illustrative material it is especially impressive because of the enormous authority enjoyed by the doctrines of Aristotle and of the Church. If even in the case where all the advantage was on the side of old doctrines, the demonstrated serviceability of science gave it the victory, we can easily judge the enhancement of the esteem in which science was held in matters where it had no such powerful foe to contend with.

Quite apart from the antagonism to science displayed by entrenched institutional interests that had previously obtained a monopoly over beliefs in, say, astronomy, geology and some fields of history, history proves the existence of so much indifference on the part of mankind to the quality of its beliefs and such lethargy towards methods that disturb old

action between them exists. When the view is as baldly stated it strikes one as highly improbable that there can be any such complete separation in the constitution of human nature. And while the idea must be accepted if the evidence points that way, no matter into what plight human affairs are forever plunged, the implications of the doctrine of complete separation of desire and knowledge must be noted. The assumption that desires are rigidly fixed is not one on its face consistent with the history of man's progress from savagery through barbarism to even the present defective state of civilization. If knowledge, even of the most authenticated kind, cannot influence desires and aims, if it cannot determine what is of value and what is not, the future outlook as to formation of desires is depressing. Denial that they can be influenced by knowledge points emphatically to the non-rational and anti-rational forces that will form them. One alternative to the power of ideas is habit or custom, and then when the rule of sheer habit breaks down—as it has done at the present time—all that is left is competition on the part of various bodies and interests to decide which shall come out ahead in a struggle, carried on by intimidation, coercion, bribery, and all sorts of propaganda, to shape the desires which shall predominantly control the ends of human action. The prospect is a black one. It leads one to consider the possibility that Bacon, Locke, and the leaders of the Enlightenment—typified by the act of Condorcet, writing, while imprisoned and waiting for death, about the role of science in the future liberation of mankind—were after all quite aware of the actual influence of appetite, habit, and blind desire upon action, but were engaged in holding up another and better way as the alternative to follow in the future.

That the course they anticipated has not come to fruition is obvious without argument. Bacon's action in using his own knowledge as a servant of the Crown in strengthening Great Britain in a military way against other nations now seems more prophetic of what has happened than what he put down in words. The power over Nature which he expected to follow the advance of science has come to pass. But in contradiction to his expectations, it has been largely used to increase, instead of reduce, the power of Man over Man. Shall we conclude that the early prophets were totally and intrinsically wrong? Or shall we conclude that they immensely underestimated the obduracy of institutions and customs antedating the appearance of science on the scene in shaping desires in their image? Have events after all but accentuated the problem of discovering the means by which authenticated beliefs shall influence desires, the formation of ends, and thereby the course of events? Is it possible to admit the power of propaganda to shape ends and deny that of science?
Looked at from one angle, the question brings us back to our fundamental issue: the relation of culture and human nature. For the fact which is decisive in answering the question whether verified knowledge is or is not capable of shaping desires and ends (as well as means) is whether the desires that are effective in settling the course of action are innate and fixed, or are themselves the product of a certain culture. If the latter is the case, the practical issue reduces itself to this: Is it possible for the scientific attitude to become such a weighty and widespread constituent of culture that, through the medium of culture, it may shape human desires and purposes?

To state the question is a long way from ability to answer it. But it is something to have the issue before us in its actual instead of in its factitious form. The issue ceases to be the indeterminate one of the relation of knowledge and desires in the native psychological constitution of man—indeterminate, among other reasons, because it is disputable whether there is any such thing as the latter apart from native biological constitution. It becomes the determinate one of the institution of the kind of culture in which scientific method and scientific conclusions are integrally incorporated.

The problem stated in this way puts in a different light the esteem gained by science because of its serviceability. That there are individuals here and there who have been influenced to esteem science because of some obvious contribution to satisfaction of their merely personal desires may well be a fact. That there are groups similarly influenced must be admitted. But the reasons why men have been willing to accept conclusions derived from science in lieu of older ideas are not exclusively or even mainly those of direct personal and class benefit. Improvements in navigation and mining have become part of the state of culture. It is in this capacity they have tended to displace beliefs that were congenial to an earlier state of culture. By and large the same thing is true of the application of physics and chemistry in more effective satisfaction of wants and in creation of new wants. While their application to produce increased efficiency in carrying on war has doubtlessly recommended those sciences to persons like rulers and generals, who otherwise would have been indifferent, the mass of persons has been moved to an attitude of favorable esteem by what has happened in the arts of peace. The decisive factor would seem to be whether the arts of war or of peace are to be in the future the ones that will control culture, a question that involves the need of discovering why war is such an important constituent of present culture.

I should be on controversial ground if I held up as evidence the belief that the technologies, which are the practical correlates of scientific theories, have now reached a point in which they can be used to create an era of abundance instead of the deficit-economics that existed before natural science developed, and that with an era of abundance and security the causes of conflict would be reduced. It may be mentioned as a hypothetical illustration. The kind of serviceability which is capable of generating high esteem for science may possibly be serviceability for general and shared, or "social," welfare. If the economic regime were so changed that the resources of science were employed to maintain security for all, the present view about the limitation of science might fade away. I imagine there are not many who will deny that esteem for science, even when placed upon the ground of serviceability alone, is produced at least in part by an admixture of general with private serviceability. If there is a skeptic let him consider the contribution made by science both actually and still more potentially to agriculture, and the social consequences of the change in production of foods and raw materials, thereby effected.

The other side of the ledger is marked by such a debit entry as the following from the English chemist Soddy: "So far the pearls of science have been cast before swine, who have given us in return millionaires and slums, armaments and the desolation of war." The contrast is real. If its existence seems to support the doctrine that science only supplies means for more efficient execution of already existing desires and purposes, it is because it points to the division which exists in our culture. The war that mobilizes science for wholesale destruction mobilizes it, also, for support of life and for healing the wounded. The desires and ends involved proceed not from native and naked human nature but from modifications it has undergone in interaction with a complex of cultural factors of which science is indeed one, but one which produces social consequences only as it is affected by economic and political traditions and customs formed before its rise. . . .

We have been considering science as a body of conclusions. We have ignored science in its quality of an attitude embodied in habitual will to employ certain methods of observation, reflection, and test rather than others. When we look at science from this point of view, the significance of science as a constituent of culture takes on a new color. The great body of scientific inquirers would deny with indignation that they are actuated in their esteem for science by its material serviceability. If they use words sanctioned by long tradition, they say they are moved by love of the truth. If they use contemporary phraseology, less grandiloquent in sound but of equivalent meaning, they say they are moved by a controlling interest in inquiry, in discovery, in following where the evidence of discovered facts points. Above all they say that this kind of interest excludes interest in reaching any conclusion not warranted by evidence, no matter how personally congenial it may be.

In short, it is a fact that a certain group of men, perhaps relatively not
very numerous, have a “disinterested” interest in scientific inquiry. This interest has developed a morale having its own distinctive features. Some of its obvious elements are willingness to hold belief in suspense, ability to doubt until evidence is obtained; willingness to go where evidence points instead of putting first a personally preferred conclusion; ability to hold ideas in solution and use them as hypotheses to be tested instead of as dogmas to be asserted; and (possibly the most distinctive of all) enjoyment of new fields for inquiry and of new problems.

Every one of these traits goes contrary to some human impulse that is naturally strong. Uncertainty is disagreeable to most persons; suspense is so hard to endure that assured expectation of an unfortunate outcome is usually preferred to a long-continued state of doubt. “Wishful thinking” is a comparatively modern phrase; but men upon the whole have usually believed what they wanted to believe, except as very convincing evidence made it impossible. Apart from a scientific attitude, guesses, with persons left to themselves, tend to become opinions and opinions dogmas. To hold theories and principles in solution, awaiting confirmation, goes contrary to the grain. Even today questioning a statement made by a person is often taken by him as a reflection upon his integrity, and is resented. For many millennia opposition to views widely held in a community was intolerable. It called down the wrath of the deities who are in charge of the group. Fear of the unknown, fear of change and novelty, tended, at all times before the rise of scientific attitude, to drive men into rigidity of beliefs and habits; they entered upon unaccustomed lines of behavior—even in matters of minor moment—with qualms which exacted rites of expiation. Exceptions to accepted rules have either been ignored or systematically explained away when they were too conspicuous to ignore. Baconian idols of the tribe, the cave, the theater, and den have caused men to rush to conclusions, and then to use all their powers to defend from criticism and change the conclusions arrived at. The connection of common law with custom and its resistance to change are familiar facts. Even religious beliefs and rites which were at first more or less heretical deviations harden into modes of action it is impious to question, after once they have become part of the habits of a group.

If I mention such familiar considerations it is in part to suggest that we may well be grateful that science has had undeniable social serviceability, and that to some extent and in some places strong obstructions to adoption of changed beliefs have been overcome. But the chief reason for calling attention to them is the proof they furnish that in some persons and to some degree science has already created a new morale—which is equivalent to the creation of new desires and new ends. The existence of the scientific attitude and spirit, even upon a limited scale, is proof that science is capable of developing a distinctive type of disposition and purpose: a type that goes far beyond provision of more effective means for realizing desires which exist independently of any effect of science.

It is not becoming, to put it moderately, for those who are themselves animated by the scientific morale to assert that other persons are incapable of coming into possession of it and being moved by it.

Such an attitude is saved from being professional snobbery only when it is the result of sheer thoughtlessness. When one and the same representative of the intellectual class denounces any view that attaches inherent importance to the consequences of science, claiming the view is false to the spirit of science—and also holds that it is impossible for science to do anything to affect desires and ends, the inconsistency demands explanation.

A situation in which the fundamental dispositions and ends of a few are influenced by science while that of most persons and most groups is not so influenced proves that the issue is cultural. The difference sets a social problem: what are the causes for the existence of this great gap, especially since it has such serious consequences? If it is possible for persons to have their beliefs formed on the ground of evidence, procured by systematic and competent inquiry, nothing can be more disastrous socially than that the great majority of persons should have them formed by habit, accidents of circumstance, propaganda, personal and class bias. The existence, even on a relatively narrow scale, of a morale of fai rmindedness, intellectual integrity, of will to subordinate personal preference to ascertained facts and to share with others what is found out, instead of using it for personal gain, is a challenge of the most searching kind. Why don’t a great many more persons have this attitude?

The answer given to this challenge is bound up with the fate of democracy. The spread of literacy, the immense extension of the influence of the press in books, newspapers, periodicals, make the issue peculiarly urgent for a democracy. The very agencies that a century and a half ago were looked upon as those that were sure to advance the cause of democratic freedom, are those which now make it possible to create pseudo-public opinion and to undermine democracy from within. Cal lousness due to continuous reiteration may produce a certain immunity to the grosser kinds of propaganda. But in the long run negative measures afford no assurance. While it would be absurd to believe it desirable or possible for every one to become a scientist when science is defined from the side of subject matter, the future of democracy is allied with spread of the scientific attitude. It is the sole guarantee against wholesale misleading by propaganda. More important still, it is the only assurance of the possibility of a public opinion intelligent enough to meet present social problems.

To become aware of the problem is a condition of taking steps toward
its solution. The problem is in part economic. The nature of control of the means of publicity enters directly; sheer financial control is not a favorable sign. The democratic belief in free speech, free press and free assembly is one of the things that exposes democratic institutions to attack. For representatives of totalitarian states, who are the first to deny such freedom when they are in power, shrewdly employ it in a democratic country to destroy the foundations of democracy. Backed with the necessary financial means, they are capable of carrying on a work of continuous sapping and mining. More dangerous, perhaps, in the end is the fact that all economic conditions tending toward centralization and concentration of the means of production and distribution affect the public press, whether individuals so desire or not. The causes which require large corporate capital to carry on modern business, naturally influence the publishing business.

The problem is also an educative one. A book instead of a paragraph could be given to this aspect of the topic. That the schools have mostly been given to imparting information ready-made, along with teaching the tools of literacy, cannot be denied. The methods used in acquiring such information are not those which develop skill in inquiry and in test of opinions. On the contrary, they are positively hostile to it. They tend to dull native curiosity, and to load powers of observation and experimentation with such a mass of unrelated material that they do not operate as effectively as they do in many an illiterate person. The problem of the common schools in a democracy has reached only its first stage when they are provided for everybody. Until what shall be taught and how it is taught is settled upon the basis of formation of the scientific attitude, the so-called educational work of schools is a dangerously hit-or-miss affair as far as democracy is concerned. . . .

ART, SCIENCE, AND MORAL PROGRESS

Democracy, like any other polity, has been finely termed the memory of an historic past, the consciousness of a living present, the ideal of the coming future. Democracy, in a word, is a social, that is to say, an ethical conception, and upon its ethical significance is based its significance as governmental. Democracy is a form of government only because it is a form of moral and spiritual association.

But so is aristocracy. What is the difference? What distinguishes the ethical basis and ideal of one from that of the other? It may appear a roundabout way to reach a simple end, to refer to Plato and to Greek to get data for an answer; but I know of no way in which I can so easily bring out what seems to me the truth. The Platonic Republic is a splendid and imperishable formulation of the aristocratic ideal. If it had no value for philosophical reasons, if its theory of morals, of reality and of knowledge had disappeared as utterly as the breezes which swept the grasses under the plane tree by which Plato and his disciples sat and talked, the Republic would be immortal as the summary of all that was best and most permanent in Greek life, of its ways of thinking and feeling, and of its ideals. But the Republic is more; it seizes upon the heart of the ethical problem, the relation of the individual to the universal, and states a solution. The question of the Republic is as to the ideal of men's conduct; the answer is such a development of man's nature as brings him into complete harmony with the universe of spiritual relations, or, in Platonic language, the state. This universe, in turn, is man writ large; it is the manifestation, the realization of the capacities of the individual. Such a development of the individual that he shall be in harmony with all others in the state, that is, that he shall possess as his own the unified will of the community; that is the end both of politics and of ethics. Nothing could be more aside from the mark than to say that the Platonic ideal subordinates and sacrifices the individual to the