

Science and Human Wisdom

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The key words of modern times are 'revolution' and 'crisis'. 'Revolution' signifies transformation; 'crisis' an acute situation requiring choice and resolution. Revolutions are usually the preludes to crisis. Whether we deplore it or welcome it, we are living in the greatest era of revolutionary transformation in human history. This revolutionary transformation is the effect of a convergent series of related revolutions—political, national, economic, and technological.

The political and national revolutions are the most dramatic but not the most fundamental. The political revolution expresses the principle that all adults, who are affected by the decisions of government, should have some voice in influencing those decisions. The national revolution is expressed in the principle of national self-determination. It repudiates the view that any nation has the moral or political authority to be the arbiter of the destinies of another.

The economic revolution of modern times is based upon the conception that the welfare of the entire community is a charge upon the government. It must be planned along certain strategic lines with reference to the available and potential resources. Such planning would be inadequate, and sometimes impossible, without the technological revolution. The technological revolution confronts us at every turn. Yesterday's miracle is today's commonplace. Benjamin Franklin and Karl Marx defined man as a tool-making animal,

but the difference between the technology of primitive man and the modern man is that modern technology is based on science and therefore invention is accelerative and cumulative. Invention itself, as Whitehead puts it, becomes institutionalized. Napoleon the Great, in all his pomp and glory, could not travel from Rome to Paris faster than Julius Caesar did almost two thousand years before him. Since Napoleon's day the time has been reduced to an hour.

Growth of scientific knowledge

At the basis of all these revolutionary changes is the scientific revolution, by which I mean the reliance upon the pattern of experimental inquiry to discover truths about the nature of Nature, the nature of society, and the nature of the human body and mind. By saying that the scientific revolution is at the basis of all these changes either directly or indirectly, I do not mean to deny reciprocal influences among them. However, an analytical and statistical study of the complex of changes will, I am convinced, establish the fact that the scientific revolution, whose beginnings are found in the 17th century, is by far the strongest component in the complicated pattern of modern life.

This scientific revolution has changed man's picture of himself and the conception of his role in the universe. He no longer sees himself as a creature who necessarily must suffer in a world of divine decree. He is no longer a passive, contemplative spirit, whose

vocation is to make a survey of all time and all existence. The conception of man, which emerges from modern science, is one of a creator, a maker, and a doer. No longer a pawn of fate, he is a focus of genuine novelty in the world. By virtue of the fact that scientific knowledge is experimental, the universe, in the most literal sense, is changed whenever the frontiers of knowledge are widened. Scientific knowledge is therefore transformative. The increase of knowledge entails increase of power and therefore of objective responsibility. Man acquires the role of a kind of minor deity, capable of changing parts of the physical and social world, by commanding and transforming the natural elements at will. The late Dr John von Neumann predicted that in the near future man, like the Homeric deities on Mt. Olympus, would be able to control even the weather—a power, which in the long run, may turn out to be of greater fearfulness than any nuclear weapon. A ‘cold war’ would take on a new meaning if one could design a local ‘ice age’ in which to cool off a restless enemy.

But for all their power, will men be any wiser than the Homeric gods who acted like Greek children? It is obvious that since the 17th century, growth in human power and scientific knowledge has not been commensurate with growth in human wisdom. Will it be any different in the future? Indeed, there are voices like those of Aldous Huxley, who prophesy that it will be worse. They assert that all knowledge does is to add to human power and that scientific knowledge of man’s body and mind, combined with our knowledge of the physical world, will merely extend the power of man over man.

They predict that the scientific revolution will result in a most terrible

tyranny over man, because it puts into unwise hands the power to condition, recondition, and ‘brain-wash’ the human mind. By the use of chemicals, of subconscious and subliminal persuaders, as well as by overt propaganda, mankind can be manipulated like sheep. It is argued by some critics of science, whose eloquence borders on hysteria, that a civilization based upon science and which views scientific knowledge as the most reliable kind of knowledge, must be one of ruthless exploitation, in which all humane values are doomed to disappear.

This raises the crucial question: Can the logic and ethics of scientific method itself develop an attitude of reasonableness, which will enable men to solve the human and social problems created by the impact of scientific knowledge on the world? Can the same generic *pattern* of solving problems, that has proved so successful in the solution of technical scientific questions, be applied to human affairs? I propose to answer these questions affirmatively. In passing, however, I wish to point out that until now we have not made a unified effort to approach these problems scientifically and that the methods which have been used—revelation, intuition, authority, metaphysical speculation—have not been conspicuously successful. Indeed, we face the problem because all of these alternative methods have failed.

Let us begin by examining the claim that science can give only knowledge of fact and that some other discipline—custom, religion and metaphysics—is the source of wisdom.

The nature of human wisdom

There is a difference between knowledge and wisdom which we all recognize. We know that a man can be a learned fool, and we sometimes meet a sage who is by no means a scholar. It is not so

easy to state the precise difference between knowledge and wisdom, however. Wisdom, we are tempted to say, is found in the *use* of knowledge. Yes, but there is a wise use of knowledge and an unwise use. We must be knowledgeable about *something* in order to tell when use is wise or not. I conclude, therefore, that wisdom is a kind of knowledge, after all. It is knowledge about the nature of human values. A man is wise who knows what is of most worth in human experience, who knows the ways of the human heart—what gives it enduring satisfactions, the costs and consequences of its choice in happiness for himself and others. A man is wise who knows what we are likely to regret, what is better overlooked and what should never be overlooked. A man is wise who knows when to fight, when to avoid fighting, and, above all, how to remove the conditions which provoke conflict and to create those which give human beings a vested interest in preserving peace.

If this is what we understand by wisdom, then the basic questions are whether value is an affair of knowledge, and if it is, whether that knowledge can be achieved by methods comparable with the methods pursued so successfully in other fields. The technological developments of recent times make these questions more momentous. They do not raise new questions of principle.

For obvious reasons, we cannot hand the gift of technology back to anyone or stem its further advance. Yet its further advance is Janus-faced—one face encourages hope of greater survival, quantitatively and qualitatively—the other face threatens human survival absolutely. No matter how ingenious the mechanism of any invention, it will never have a built-in governor or regulator guaranteeing its use rather than

abuse. Indeed, both ‘use’ and ‘abuse’ in this context are, strictly speaking, not terms applicable to technology at all. They are moral terms.

No intelligent moral judgement about the use or abuse of technology today can be made without the relevant knowledge, which only the technologist or natural scientist can supply. However, it would be a gross mistake to believe that this necessary condition is a sufficient one. To be knowledgeable about the ways of matter—about the ways of things—is not the same thing as being wise about the ways of men, their emotions and fears, their behaviour in crowds and as creatures with historical memories.

How scientific knowledge may influence human judgement

There are some who go from the true proposition that wise statesmanship in the modern world is impossible without informed awareness of the discoveries of modern science, to the false proposition that scientists must be considered the chief ‘advisers to humanity’, invested with authority and responsibility in judging the human affairs affected by their discoveries. This is a dangerous error and based on a false conception of scientific method. The *pattern* of scientific thinking is the same in every field, but we know that there is no automatic transfer of training or power from one field to another, that not only are subject matters and techniques different in different fields but specific criteria of evidence. Scientists, who have no preparation in politics and history, are hardly more qualified to discuss what Churchill once called the secret of Soviet policy (or the secret of Middle Eastern or Far Eastern policy) than historians and lawyers as such to discuss the secrets of the atom.

There is sometimes a hidden premise behind this assumption that the thinking of the natural scientist gives us the paradigm of rationality in human affairs. This is made explicit in an article by the gentle Max Born, a Nobel Prize-winning physicist. Natural scientists, he claims, should be used in politics and administration because they are 'less dogmatic and more open to argument than people trained in law or classics'. The evidence he offers, as well as the evidence he ignores, betrays the unscientific character of his generalizations. Not only is it true that, as a rule, scientists in the past have rarely been in more agreement with each other about questions of foreign policy than others; the record shows that with respect to *some* questions on which they were pretty much agreed—for example, their expectation of Soviet behaviour after the war—they have been demonstrably wrong. With respect to the nature of Communism and developments in foreign affairs involving Communism, the record shows that the leaders of American labour have been far wiser, by and large, than the leaders of American science, of whom (with some notable exceptions) Einstein was representative. The leaders of labour had a double advantage. They knew something about the subject and they also had some first-hand experience in dealing with Communist duplicity. Workers' freedom is freedom to strike—workers realize that they are subjected to forced labour or slavery under Communism.

Again, with some exceptions, scientists tend to exhibit the defects of their virtues when they go from the field of scientific research to the field of politics, which requires decisions and rarely permits the luxury of suspended judgement, until the decisive evidence is at hand. The initial assumption which the scientist makes of

integrity and good faith in accepting a report in order to check it, he cannot always make in politics. It is true that lawyers professionally are not interested in establishing the truth but in winning a case, and they care little which side of the case it is. However, as judges and jurists, lawyers have shown great wisdom in reconciling the inescapable conflict of legitimate claims. The nature of the juridical concern—its sensitiveness to history, to intent and motive, to individualization whether of judgement or punishment, to the dual values of justice in the individual case and certainly in the community—brings law closer to politics than physical science. Law as a system of thought and decision is open to argument and change, as its history shows, but for obvious reasons it cannot abandon a principle as readily as a scientist can discard a theory. Whether scholars trained in the classics or humanities are less open to argument and less tolerant of intellectual difference than scientists would be hard to establish, unless we specified more carefully in what fields and on what questions.

In the quest of wisdom, it seems to me absurd to fall victim to vocational or professional imperialism and to make invidious distinctions between the different disciplines. In every field of knowledge, we can distinguish between good and bad thinking, between scientific and unscientific thinking. Wisdom is found in the recognition and solution of life's problems. It is the bearing it has on these problems which determines whether the knowledge of a field is relevant to its solution or not. Our best hope of gaining wisdom is to bring the clearest thinking from every relevant field of knowledge to bear on the problem at hand. If this is true, it is just as mistaken to believe that statesmen by themselves can solve the great questions of war, peace, and human

welfare in this age of explosive technology, without consulting technologists, scientists, jurists and psychologists, as it is to believe that scientists can go off by themselves in a special huddle and return with Jove-like pronouncements about what mankind must believe or practise in order to be saved.

Systematic inquiry in the solution of human problems

It is a commonplace of formal logic that we cannot deduce what should be from premises which describe only what is. However, it is a fact of experience that our value commitments are embedded in the problems which we are called upon to solve; part of the solution consists in discovering what those commitments really are, whether we can induce others to share them, and whether they are worth sustaining in particular situations. Wisdom consists not in being wise only about means, or only about ends, but about ends-and-means in their togetherness, whenever we are asked or ask ourselves, 'What should we do?' When we ask such a question in a concrete historical context, then the only way we can answer it is by inquiry into the probable consequences of alternative modes of action. Facts alone do not determine policy because value commitments are involved in every policy. Once this is recognized, what else can or should 'determine' policy if not the facts in the case? Can a reasonable man uphold a policy including the consequences of holding the policy, no matter what the facts are? ('Determine' here of course, does not mean 'logically entail'.)

The basic challenge to this view comes from those who deny that we can be wise or intelligent or even rational about our ends. 'There is no such thing', says Bertrand Russell, 'as an irrational end except in the sense of one that is impossible of realization.'

Surely not all ends that are possible of realization are therefore rational! Is there no wise or foolish choice among ends all of which are possible of realization? Why is it necessarily irrational to pursue an end that is impossible of realization? This assumes that in normal circumstances, once we understand that we cannot get what we want, it is not worth pursuing. This is not a strictly logical proposition. It is not self-contradictory to pursue an impossible end, but we may discover that the pursuit of an unrealizable end is not worthwhile, because it is too time-consuming and frustrating. We then abandon our aim. Let us suppose our end *is* possible of achievement and we discover that the effort necessary to achieve it costs us too much, hurts us too much, bores us too much, in short, gets in the way of our other ends whose desirability we had taken for granted. Would it not then become as irrational to pursue as the end which is impossible of realization? Is it not a perfectly natural way of speaking to assert sometimes that a man's ideal is an illusion, his goal mistaken, his desire undesirable? Russell mistakes a purely logical point for one of ethics. However, where there is no *summum bonum*, where there is no *one* all-sanctifying and final end, the logic does not apply. If we recognize that we are committed to plural ends, that we take our problems one at a time, that the situations in which we make decisions are located within a historical process, we can be rational or intelligent about ends as well as about means.

If we cannot be intelligent about our ends, there is neither wisdom nor foolishness. If we are unwise about our ends, then more often than not we will regret our choices and make those we love regret them, too.

One thing seems to be unquestionable. There are no total solutions. A great piece of foolishness may end life in this world once and for all, but there can be no

corresponding great piece of wisdom which will save us the trouble of further thinking. So long as vision outstrips reach, ambition capacity, desires resources, so long as men find greater satisfactions in commanding and controlling men, than in cooperating to create and discover new occasions for shared joys, men will have troubles and problems. They will need to be solved daily not so much by inherited or revealed wisdom as by earned wisdom, which is won only by scientific inquiry.

What does it mean to be scientific or rational about the subject matter of wisdom? It means that we must first locate our moral problems in relation to specific and concrete situations of moral choice. It means that we

must relate our ends to the consequences of the means used. We must in turn test these consequences by their relevance to human interests. We must approach the problems which call for wisdom one at a time. There is no guarantee that universal agreement will be reached in every case. However, a solution may be objective and relative even if it is not universal. Because human beings are alike, or want to be alike, or have compatible differences within a common human nature, shared experiences may lead to commonly accepted conclusions. Whether such conclusions are universal or not they are justifiably considered scientific, if they are won by following the underlying pattern of inquiry described above. ■

* Professor Sidney Hook was a leading American philosopher of range and an able interpreter of experimental empiricism developed by John Dewey. He was an active campaigner on behalf of international democratic movements. This is the text of the lecture he delivered at the Institute in December 1958.

The *raison d'être* of life

‘It is good and great to be scientific. . . . But when a man says that is all, he is talking foolishly, not caring to know the *raison d'être* of life, never studying existence itself. I may argue that all your knowledge is nonsense, without a basis. You are studying the manifestations of life, and when I ask you what life is, you say you do not know ...

I do not say your view is wrong, you are welcome to it. Great good and blessing come out of it, but do not therefore condemn my view. Mine also is practical in its own way. Let us all work on our own plans. Would to God all of us were equally practical on both sides! I have seen some scientists who were equally practical, both as scientists and as spiritual men, and it is my great hope that in course of time the

whole of humanity will be efficient in the same manner. When a kettle of water is coming to the boil, if you watch the phenomenon, you find first one bubble rising and then another, and so on, until at last they all join, and a tremendous commotion takes place. This world is very similar. Each individual is like a bubble, and the nations resemble many bubbles. Gradually these nations are joining, and I am sure the day will come when separation will vanish and that Oneness to which we are all going, will become manifest. A time must come when every man will be as intensely practical in the scientific world as in the spiritual, and then that Oneness, the harmony of Oneness, will pervade the whole world.’ ■

—Swami Vivekananda