THE SOLUBLE AND THE INSOLUBLE

OR

ARE TWO CULTURES BETTER THAN ONE?

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C. P. Snow, a sharp observer of society as well as of science, coined the expression "The Two Cultures" to suggest an intellectual segregation between the two moieties of the intellectual enterprise, the humanistic and the scientific. The theme of the present paper is that the two cultures do exist and are in fact separate, although they are not mutually exclusive or incomprehensible. On the contrary, a clear definition of the contents and methodology of each of the two cultures can make them mutually supportive and enhance our understanding and teaching of both. We shall also advance the proposition that conflict between the two cultures stems from their competition for Lebensraum in the middle area of the cultural enterprise, the so-called social sciences, and that only when each of the two cultures has accepted the limitations of its role and learned to respect the role of the other can they usefully cooperate in the social domain.

Let us examine a case history. At a prestigious technical university undergraduates, including engineers, have long had a requirement for eight one-semester courses in the humanities and related subjects, including a rigorous and demanding sequence of three literature courses. These requirements have been relaxed in recent years, mainly by allowing substitutions of some social science courses with humanistic implications, such as psychology. A new proposal is then presented and approved by the appropriate committees to substitute for the original requirement a new one for eight courses in a "distribution area" including humanities, philosophy, psychology, social sciences, art appreciation and so on. This is debated and approved, with the sole

provision that at least three out of eight courses must be from a list of subjects with "humanistic orientation," a list to be promulgated by committee. (What would one call a college course without humanistic orientation? anti-humanistic? or dehumanistic? or bestialistic?)

The significant aspect of this case history is not in the above facts but in the arguments presented in the debate. Specifically, each group attempted to present its case in the terms of the other group, the social scientists vaunting the humanistic contribution of social science teaching, the humanists making the strange claim that humanities are the key way to understand the functioning of man in society.

Only at one point did the debate touch -- so delicately that only the experts noticed -- upon the central issue. Strangely enough, this was when a philosopher and a humanist argued whether symbolic logic -- a mathematical course, a favorite for mathematicallly minded students -- would or would not be acceptable as a course with humanistic orientation. It was here, rather than in some conflict between physics and literature or between sociology and poetry, that the two cultures confronted themselves. This was significant because it highlighted the fact that the confrontation was not primarily between traditional disciplines but between methodologies, and it was such because of the intrinsic dichotomy in subject matters. Symbolic logic deals with mathematics: literature deals with the human predicament. And they use fundamentally different tools.

The sciences (among which mathematics and symbolic logic belong) as well as parts of the social sciences are problem-solving disciplines. They

assume that the problems they deal with have rational solutions. They aim at converting each problem into a set of propositions, whether mathematically formulated or not, whose solutions represent a more complete or more effectively usable picture of the subject matter. The classical model for the culture of science is physics and the classical model of the application of the methods of science to social problems is economics. Sociology, social anthropology, and political science also attempt to follow the same path by metricizing variables other than the strictly economic ones, such as opinion shifts, family patterns, and so on.

In the rush to quantification, however, something may go wrong. On the one hand, quantification may be applied where it has no business to be; on the other hand, emphasis on quantification may lead to discarding essential but nonquantifiable elements.

Take history, for example, traditionally the backbone of the humanities, without which all other branches of the humanities would make little sense. Can history be fully quantified? A group of scholars who call themselves cliometricians has recently emerged. In an important and widely publicized book[1] two cliometricians, Fogel and Engermann, have recently analyzed American slavery as an economic institution. With some surprise these authors have come to the conclusion that, contrary to traditional beliefs, slavery was a relatively benevolent institution, at least as compared to the most lurid descriptions of it, and a rather efficient economic structure, compared to the condition of free industrial workers of the same times. (The latter conclusion cannot have come as a great surprise to writers

acquainted with classical Marxist writings.[2]) No claim is made by the cliometricians, of course, that slavery was a humane institution as well as an economically adequate one. The important point, however, is that the category of humaneness has something intrinsically different from economic categories: it does not lend itself to numerical analysis. One may succeed, perhaps, in estimating the efficiency of the death penalty in inhibiting crime. But how can one measure what the death penalty does to the morality of a nation?

Here we hit the nub of the problem and the focus of our thesis. There are categories -- freedom, dignity, guilt, joy, sorrow -- that are not quantifiable and which we call humane because they are uniquely human: expressions of consciousness turning inwardly upon itself. The profit of the slaveowner or the income of the slave tell us little about what slavery does to the humanity of slave and slaveowner. Cliometrics may be excellent economics; but is that all there is to history?

Where the usefulness of quantification ends, where problem-solving meets its boundary, there the domain of the humanities begins. If science is the art of the soluble (the felicitous title of a book by Medawar[3]) the humanities might well be called the art of the insoluble. Take, for example, dignity. Can we speak of an animal's dignity? Certainly: as we see a proud giraffe towering in a landscape; or a Siamese cat resting statuesque on a door stoop; or an Afghan dog undulating in its gait, we think of dignity. But dignity is in <u>our</u> thoughts because <u>we</u> are human, unique in our power of abstraction, conscious of the distinction between dignity and abjection. More

important, we sense that dignity, and freedom, and justice, are not absolutes whose comprehension demands more precise measurement, like the diameter of the Earth or Planck's constant. From the time we emerge from childhood, we are aware that these are areas of personal judgment, areas for choice and not for final solutions, for search and not for final explanation. We seek clarity, lucidity, but no ultimate answers. Even philosophy searches, not for final answers but for insights into those mental processes that pose for the human mind its schematic framework and its boundary conditions. Essentially, the study of the humanities is the bolstering of our own inner search for meaning using the illuminations that poets, philosophers, writers, historians have projected upon the problems of the human condition.

No matter how accurate their measurements, econometricians or cliometricians cannot throw any light upon the torments and ambivalences of jealousy, or guilt, or vengefulness; but Shakespeare can. When a young man is torn between love of country and love of humanity, between accepting service in Vietnam and becoming a deserter, no one can give him a slide-rule answer. He may derive some insight into the essence of his quandaries by reading Sophocles' Antigone, but hardly any from the writings of political scientists like the distinguished professor who viewed the American bombing of South Vietnam simply as a "force-draft urbanization and modernization."[4] Reliable as the analytical predictions of such scholars might ever turn out to be, they obviously left out some variables, such as the value of human life and the question of who makes decisions for whom.

At some point in his own life, every individual faces the emotional abyss that existentialist philosophers have called the "absurd" of the human condition: the absence of intrinsic purpose in human life coupled with need to make moral choices. Even the most convinced

believer in a revealed religion that makes human life a test for future salvation realizes that what gives meaning to his or her inner life is an emotional revelation rather than an analytically demonstrable proposition. Pascal's best efforts led him to a bet that would hardly be taken seriously by an econometrician, let alone a smart bookmaker. The senior author of this paper, brought up in the religious tradition, remembers from his early teens the shattering yet liberating experience of asking himself: Why should the Jewish religion be the right one just because I happened to be born a Jew?

Growing up means facing the absurd aspect of life: accepting the relative arbitrariness of one's choices in the area of values as distinct from the choices we make at the forks of a road when we know where we are going. The real adult, especially the adult intellectual, is the person who can act purposefully in society and yet realize that his or her purpose is only a choice, an act of the will, utterly different from the purpose of a scientist in exploring and interpreting natural phenomena. The difference, of course, is not just in the degree of determinism. Many natural phenomena have stochastic features as well as deterministic ones. But in science, even at the least deterministic level, indetermination does not mean free choice, only uncertainty. Choice is the product of consciousness, and morals are but the impact of consciousness on relations between human beings.

This view of morals is not equivalent to the view of the cynical rationalist who dissects every value into motives and reduces every choice into impotent frustrations. Nor is it a justification for a random, psychic, or solipsistic pattern of action. This is where the humanistic tradition comes in, offering not only the alternatives proposed by others in the past, but the arguments that were offered in their support, the comforts that these arguments provided, and the stimulus to further search. The humanities are a methodology appropriate to dealing with the insoluble and to the need of those who face the absurd.

Because of what they deal with, the humanities may be as insusceptible of useful quantification as the natural sciences and some areas of the social sciences are unsuitable for emotionalization. We believe that there is no way of rationalizing out of existence the problems of growing up and facing the existential uncertainty and yet acting and choosing as if one's choices were well grounded, all the time maintaining the integrity of one's inner questioning. Yet, attempts are always made, in a variety of ways, to deal with the insoluble as if it were soluble.

On the one hand there is the pretense that the science of the human spirit is not yet quantifiable only because it is still backward, like physics 500 years ago. But this is a self-delusion. There is little reason to believe that future knowledge of the human brain and of language and of the physiology of emotions will ever bring to man a scientific solution of the conflicts between the self and the non-self, between consciousness and impermanence, between life and death.

Another way to explain away the human predicament is to look backward into our ancestry and to attribute human emotions to humankind's animal past. Ethologists have looked at human drives and aggressions as biologically determined inheritance from our wild ancestors. No doubt we have inherited modes of emotional response and behavioral attitudes, just as we have inherited skin, teeth, and eyes. But on top of all that, in the last few million years we have developed language and consciousness and abstract reasoning. These are the developments that produced the unique quandaries of the human spirit. A much greater part in our emotions and drives must be played by this uniquely human heritage than by the remnants of our wild ancestors.

A more sophisticated attempt to do away with the insoluble conflicts of the human condition would be to assume, along the lines championed by Skinner[5], that the variety of choices and questionings that human beings face are not a manifestation of insoluble inner conflicts but are generated by a learned avoidance of punishment. These problems are soluble, according to Skinner, if only one learns to program the environment so that contingencies between choices or acts and their outcomes are not punishing. The weakness of this reasoning, however, stands revealed as we consider the assumptions: that there

is only one possible act, one preferred choice, and that one selected by the programmer. What about when there are two or three or n programmers? One who says to our young man of draft age: serve in Vietnam; or another: escape to Canada; a third: go to jail for your convictions?

The essence of the insoluble is just that: we live, and would choose to live, in a world full of freedom and dignity, not beyond it -- even if it were possible to do so. Despite the suffering that questioning generates, we choose to live with it because we sense that anything different would in one way or another -- by focusing on animal instincts or on our programmability -- make us into automata or into tools instead of free agents. It is precisely the willingness to face the categorical imperative -- to deal with men as goals and not as tools -- that generates the insoluble knots of the moral life. And that is where the humanities -- nonprescriptive, nonprogramming, but infinitely reassuring -- offer to us a strong line of support.

Yet from within the humanities themselves there comes a weakening of the humanistic spirit. The acceptance of pseudoscientific scholarship, and even one-sided analysis of human phenomena, as in cliometric history, undermine the status of the humanities as the source of inner enlightenment. Unfortunately this kind of distortion is fostered by the academic tradition, which requires of humanists as of chemists or civil engineers the production of "original research publications." This forces inane pursuits on people -- the great majority of humanists -- whose real scholarship is reading, interpreting, and, fortunately for their students, teaching.

We must make a distinction, however, lest our thesis be misinterpreted as a defense of the irrational against the rational, of the counterculture against culture, of mystical intuition against scientific knowledge. In attempting to define the proper purview of the humanities we do not wish to claim that factual problems can be solved by irrational means or by an intuitive, uneducated approach. We question the belief that the humanistic approach can apply usefully to the field of the solvable, even though in the progress of science one recognizes the important role of insights whose origins have a quasi-artistic quality. What we maintain is simply that the humanities provide a guiding light in the search for constructive approaches towards satisfying mankind's yearnings. Only in the nightmare of a psychologically conditioned humanity, as in Huxley's Brave New World, could these yearnings disappear and, with them, humanity itself as distinct from the primate Homo sapiens.

It was not the purpose of this paper to place science and the humanities in opposition. In fact, the sciences may have a major role to play in helping rescue the humanities from the danger of submersion into an irrelevant aping of the scientific enterprise. In the first place, scientists more than other intellectuals are aware of the power and of the limitations of their disciplines. Most of the great advances of science have consisted in the clarification of the knowable and the unknowable, of the limits of specific approaches, and of the methodological implication of these limits: Gödel's theorem, relativity, quantum mechanics,

information transfers in living cells. Serious scientists have never claimed that the methods of science are appropriate to the ethical and emotional problems deriving from human consciousness, even though they may hope that a science of the human mind may ultimately throw some light also on the dilemmas of the human condition. Yet, for the time being science and the humanities can best remain separate and mutually respecting intellectual activities, the one providing the instrument to deal with the soluble, the other offering some hope for coping with the insoluble. The two cultures together are still better than either one alone.

REFERENCES

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