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THE IDEA OF SCIENCE

THIS discussion should begin with some definitions.

Albert Einstein, beyond doubt the most distinguished practitioner of science in the twentieth century, had this to say:

> The belief in an external world independent of the percipient subject is the foundation of all science. But since our sense perceptions inform us only indirectly of this external world, or Physical Reality, it is only by speculation that it can become comprehensible to us. From this it follows that our conceptions of Physical Reality can never be definitive; we must always be ready to alter them, to alter, that is, the axiomatic basis of physics, in order to take account of facts of perception with the greatest possible completeness. A glance at the development of Physics shows that this basis has in fact suffered profound modifications in the course of time. (In *James Clark Maxwell, a Commemoration,* Macmillan, 1931.)

This is a philosophical or epistemological account of science. Dr. Einstein proposes that science is what we can find out about the external world, regardless of what we know, or think we know, about ourselves. And because of the possibility of growth in scientific knowledge, and the need to correct past mistakes, its certainties must be regarded as always subject to change. A "practical," if less comprehensive definition, is supplied by Cornelius Benjamin (in *The Logical Structure of Science*):

> Science may be distinguished from ordinary common-sense knowledge by the rigour with which it subordinates all other considerations to the pursuit of the ideal of certainty, exactness, universality, and system.

Morris Cohen (in *Reason and Nature*) examines the meaning of "certainty" in relation to science:

> Science, it is generally recognized, is an effort to eliminate baseless opinions and to establish propositions that are supported by evidence or proof. This is commonly expressed by saying that science aims at knowledge that is certain.
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> The word certain in this connection is unfortunate because of the confusion between its logical and psychological senses. Psychologically it denotes a state of feeling, as when we say we are certain that none but those baptised by our church will go to heaven, that the country will go to ruin if there is no repression of the new-fangled heresies, or that civilization will break down unless our ancient, outworn institutions are forthwith abolished. Certainty in this sense is no guaranty of truth, for others feel equally certain of the direct contrary.
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> So often does our psychological certainty prevent us from even entering on the pursuit of truth, that it is well to reflect that the feeling of certainty is often nothing but our inability to conceive the opposite of what we happen to believe.

One further quotation should be helpful. In *The Scientific Monthly* for October, 1937, A. R. Pearse, professor of zoology at Duke University, made the following comparison of science and metaphysics:

> Perhaps the clearest discussion of the relations between science and metaphysics has been presented by Bergson. He points out clearly that science can never do anything but weigh and measure. All a scientist can ever hope to do is answer such questions as how long?, how fast?, how wide? and how much? In addition to knowledge gained by weighing and measuring man may know other things, and these Bergson groups under intuitive knowledge. The crux of the matter is, are there things that cannot be weighed and measured? Bergson, most theologues, and many scientists believe that there are.
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> Theoretically science can do no harm. Its sole purpose is to learn the truth about natural phenomena, and truth should hurt no one. Unfortunately scientists are human. They are sometimes just as bigoted and partisan as other men. Some scientists are capable of concealing truth or of telling half truths to help their cause. Some have used discoveries to injure their fellows. But there is nothing inherent in science its methods or its teachings, that should make men wicked. If a man

> has the scientific spirit, he is brave in the defense of truth, but humble before the mysteries of nature. A scientist will always respect evidence more than authority. . .
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> Science has not changed the nature of men or of their societies. It has given opportunities, and men have chosen these to make themselves better or worse. The false assumption on the part of critics is that a scientific discovery should mean progress for society. The radio gives man unusual ability to communicate over great distances. It may be used to give notice of storms and to keep ships on their courses through dense fogs, and thus benefit man; but it is also used to send out misinformation (Zion City informs listeners that the earth is flat) or to spread selfish propaganda. It is not the business of science to make men good.

The foregoing, it seems fair to say, constitutes an adequate summary of what science is thought to be, and what may be expected of scientific knowledge, according to the mature judgment of twentieth-century scientists—men who have given serious consideration to what they are about. No doubt dozens of additional definitions and qualifying statements could be assembled, but for our present purpose the account of science set out should be sufficient.

What we propose is a closer look at what has been done with the *idea* of science, in terms of claims made for scientific certainty, and at the societal effects of these claims, not only in relation to popular expectations and enthusiasm in behalf of "scientific progress," but also in terms of what might be called the *ideological* aspect of scientific influence on educational theory and practice.

Our contention will be that it is a major human folly to seek for closed systems of explanation which, once established, can be used to exact conformity of everyone; and that science, while identifying itself as the liberating and reforming agency which put an end to all closed systems, has been, none the less, in its institutional aspects, susceptible to precisely the abuses it claims to have conquered for all time.

This is not a contention that can be summarily disposed of by arguing that *of course* there is a "true" science and a "false" science. Basic criticism is always evaded by such generalizing distinctions. Judgments of the historical influence of the Christian religion are not invalidated by the assertion that the "true" teachings of Christ cannot be faulted for the sins of his unfaithful followers. The point is that, wherever you can show the use of some authoritative system of "knowledge" for the purpose of social control and the modification of human behavior through overt coercion or heavy-handed suasion, you have material for historical judgment and criticism in terms of social psychology.

A question that needs to be settled at the outset is *why* the great scientific movement, with its high intentions of impartiality, its announced devotion to "facts," its frequent embodiment of the human love of freedom, and its sturdy reliance on the capacity of the human mind to discover the truth without supernatural aid, should end up by denying or rather disdaining its humanist beginnings. To answer this question, we need to look at the scientific revolution in its very genesis.

For an account of the birth of modern science, we borrow from Robert A. Millikan. First to be established is the philosophical origin of the earliest scientific assumptions. In *Electrons Plus and Minus* (Chicago University Press, 1935), Millikan points out that the primary scientific conception of the physical world "was almost as clearly developed in the minds of the Greek philosophers of the school of Democritus (420 B.C.), Epicurus (370 B.C.), and Lucretius (Roman, 50 B.C.) as it is in the mind of the modern physicist." He added: "The great advance which has been made in modern times is not so much in the conceptions themselves as in the kind of foundation upon which the conceptions rest." What brought the scientific revival of these ancient ideas? Dr. Millikan answers (in a paper published in the Phi *Beta Kappa Key* for January, 1931):

> It was especially after the capture of Constantinople in 1453 that Greek teachers, Greek

> manuscripts, and Greek ideas began to flood Northern Europe, and thus the language and spirit of ancient philosophy and science became familiar to Western scholars. It was because of this so-called humanistic movement that Copernicus, Leonardo da Vinci, and Galileo became thoroughly familiar with, indeed, very careful students of the work of Archimedes and his Alexandrian contemporaries and successors. So that modern science itself owes its very birth to humanism.

For an elaboration of the story of the origin of science in metaphysical and even mystical conceptions, we have the following historical note by Morris Cohen (*Reason and Nature*) concerning the sources which inspired Newton to formulate "the common mathematical relation which we call gravitation":

> To look for and see the latter, one had to have the following in mind: (1) Galileo's law of falling bodies and Kepler's laws of planetary motion, (2) the analysis of circular motion into centrifugal and centripetal components—according to the principle of the parallelogram, and (3) the daring and unorthodox speculative idea (which Newton derived from Boehme and Kepler) of a parallelism between the celestial and the terrestrial realm.

And where did Galileo and Kepler obtain their ideas? Again, as Morris Cohen relates:

> . . . we know that it was the Pythagorean conception of the book of nature as written in simple mathematical terms that led Galileo to look for and ultimately see the simple law connecting the increased velocity of a falling body with the time of the fall. Tycho Brahe's astronomical tables did not in themselves suggest Kepler's laws; indeed, they suggested quite different laws to Brahe himself. Kepler could see these laws only after he brought to his vision certain speculative ideas of Apollonius [of Perga] (on conic sections) and of Plotinus.

What is the point of these citations? Mainly to show the enormous difference in temper and attitude of mind between the first, creative phase of modern physical theory and the later, aggressively polemical spirit of science in the hands of men who regarded the wonderful progress in physical discovery as a handy blunt instrument they could use to bludgeon stubborn religious dogmatists into submission. Bertrand Russell remarks in his introduction to Lange's *History of Materialism:* "As a rule, the materialistic dogma has not been set up by men who loved dogma, but by men who felt that nothing less definite would enable them to fight the dogmas they disliked." "They were," he adds, "in the position of men who raise armies to enforce peace."

There is not the space here to attempt even an outline of the development of a scientific "party line" in what were supposed to be fields of impartial research. Suffice it to say that what Russell calls the "materialistic dogma" eventually pervaded nearly every branch of science and, very much in the style of dogmatic religion, established an orthodoxy to which practitioners in the sciences, and especially in scientific education and the area of theory, were expected to pay tribute. Anyone who dared to question openly the mechanistic hypothesis was regarded with suspicion, and it was occasionally pointed out by those who understood more of the humanistic origins of science than their conforming colleagues that a man who dared to confess a personal belief in immortality of the soul was likely to find himself unable to get a teaching job.

What is at issue, here? Not, certainly, a mere expose of the small-minded insistence of the great majority of the camp-followers of science upon what they supposed to be the "first principles" of their discipline. Such people are always in the majority, and they always get their sense of personal validity and righteousness from refusing to look critically at the foundations of their borrowed opinions. No; this is not the place to attempt such corrections. It is easy enough to draw up a bill of particulars against the petty fallibilities of human nature and to come off top man in an argument. The real trouble lies rather with the major theoreticians of the scientific theory of knowledge, who accepted the "easy way" of allowing their polemical stance in the controversy with the theologians to become the basis for scientific epistemology. Admission of

the possibility of independent, volitional intelligence as existing at any point in the entire cosmos was regarded as tantamount to surrender to "spiritistic fantasy." When, for example, the Vitalist school of biological thought brought forward evidence to show that more than merely mechanical principles of action were needed to account for the phenomena of organic life, they were mocked as believers in "little dwarfs" that sit in the center of the brain, issuing non-mechanistic commands to the life processes. The entire history of the Emergent Evolution movement, critically examined by William McDougall in *Modern Materialism and Emergent Evolution* (Methuen, 1929), is a fascinating account of the struggle of idealistic and intelligent men to develop a meaningful view of world life without *openly* relinquishing the assumptions of materialism. McDougall, incidentally, using the tools of logical analysis, makes mincemeat of very nearly all of them, but what he, as an impartial mind, was able to accomplish by critical methods is not half so important to recognize as the general indifference of the scientific fraternity at large to what he showed. The fact is that an ideological position founded on a righteous contest with the "enemies" of scientific truth makes those who take it emotionally immune to facts and arguments which undermine or negate that position. So McDougall was very largely ignored. Some day historians of ideas and intellectual change will provide us with detailed studies of the slow emancipation of the modern mind from the narrow confinements of the mechanistic assumption in science—a story that will no doubt bear interesting comparison with accounts of the similar awakening that began in the Middle Ages and came to an initial maturity during the Renaissance and the Reformation. The conclusion from this comparison will not be an aggrieved condemnation of the conformists of either religion or science, but a demonstration of the folly of partisan polemics in any human undertaking that seeks *truth.* It was just as reprehensible, for example, for T. H. Huxley to distort the anatomical drawings of ape and human skeletons in his embattled support of the Darwinian theory (see Franz Weidenreich, *Apes, Giants, and Men*) as it was for Bernard of Clairvaux to subject Peter Abelard to the harsh pressure of various un-Christian Activities investigating committees, in order to protect the general public from the disturbing questions Abelard was asking.

The problem of partisanship is seldom recognized at the outset of such struggles, for then we see only the efforts of men who heroically try to think independently despite the constraints of established authority. In time, however, the "independent thinkers," having won a few battles, begin to worry about ways of guaranteeing a future for what they have thought; so, having gained a little power, they begin building ideological fences and defining what they hope will become the "correct" point of view. They don't think of themselves as makers of a new orthodoxy, but simply as defenders of the public good. Why not? If you are one of those who are vastly impressed by the achievements of scientific discovery, and if you believe that these results are due in large part to rigorous adherence to the assumptions of scientific method, then how can you seriously worry about the maunderings of a handful of people who talk about "transcendental reality," or write poetic essays on the importance of the subjective side of life? These people may do no obvious harm, but, given their head, they would certainly subvert the foundations on which modern scientific civilization is built. Science, after all, constitutes the body of tested and verified truth which distinguishes our age from all others, making modern man uniquely qualified to pass judgment on the entirety of the past and to guide the course of future history without fear of falling into ancient error.

Now this, you could say, is a vulgarized and over-simplified account of the claims that are made for science. Science is not like that at all, you could say, and offer quotations embodying measure, wisdom, and humility, such as those we

reproduced at the outset, to support your objection. But the fact is that these temperate and qualifying statements about the role of science are totally irrelevant to the kind of judgment we are making here. You can *always* find expressions of high liberal intelligence within the ranks of any orthodoxy, especially during its declining stage. If you are seriously interested in the effects of a great historical movement upon human society, you have to look, not at its best representatives, but at the institutional arrangements and gross psychological conditionings which the movement has on the whole caused and largely justified, over a period of years.

For example, there has been, for at least fifty or more years, the systematic imposition of the analytical techniques of physics and chemistry upon the life sciences and the psychological and social disciplines. The endless, insecure borrowings of sciences with an obviously subjective content from the physical disciplines makes it plain that these people have not been examining *human beings* at all, but only certain isolated mechanistic processes in the material matrix of human life.

Look at the curious fetishes afflicting high school and even elementary school education—the requirement that children append a dozen or so of "footnotes" and a pretentious "bibliography" to their little essays, in imitation of scientific work. In many cases, not their thought, but how many people they have been able to copy—or pretend to copy—is taken as the measure of their educational rank.

Look at what has happened to the Doctor of Philosophy degree. You can get one, these days, if you carefully suppress any tendency you may have for original thinking and prove yourself a reasonably accurate echo of a sufficient number of men who have similarly avoided novel ideas. As Clyde Kluckhohn said some years ago in respect to the practice of anthropology, it is getting so that any theoretical explanations in this field are regarded as "slightly indecent."

It hardly needs proving that the scientific ideology has dominated modern education for many years. To be "scientific," or to conform to the *mores* of scientific undertakings, is the badge of educational respectability, and this is nowhere more evident than in recent criticisms of education in the sciences. For example, in a current paper titled "Graduate Education in Psychology: A Passionate Statement," Carl R. Rogers says in summary:

> When we examine what we *do* in our programs of graduate education in psychology, rather than what we say, the picture which emerges is a sorry one indeed. We operate on a set of fallacious and outmoded assumptions such as: "The student can't be trusted"; "Evaluation is education"; "Method is science"; "Creative scientists develop from passive learners"; "Weeding out 85% of our selective applicants is proof of high standards." . . . If psychology took a hard clear look at its graduate training it would, for the most part, throw it out and build on new and more adequate principles and hypotheses.

Dr. Rogers makes effective expansion of these points, offering plenty of evidence. Here we want only to note that these "fallacious and outmoded assumptions" can be traced directly to the polemical past of the scientific ideology. The claim that the student "can't be trusted" means mainly that the security of the practice of "scientific" psychology must be protected against forays of the imagination which might call into question the scientific credentials of psychology itself—of dubious value, anyhow, in the eyes of the tough-minded physicists who at least are working on assumptions which fit the phenomena they are dealing with. Psychologists are far more status-minded, as a body, than men working in other fields, mainly because they feel obliged to "objectify" what they study, which means that they have to kill it, dead. They gravely fear opening up the practice of their discipline to young people who are unwilling to discard humanistic common sense. "Evaluation is education" reflects another phase of the worship of Objectivity. This is Dr. Rogers' way of saying that the examination system

and program of "testing" the student's knowledge gives no accurate measure of what the student really knows. Exams, of course, are an attempt to turn scientific education into a "sure thing," but this can't work for a number of reasons. First, it assumes that what the professor thinks he knows and has taught is "knowledge." A discouraged student is quoted by Dr. Rogers:

> One leaves the course knowing gobs of jargon, and most of "the" answers. He has filled all the pages of his notebook with the professor's speeches and on the final exam he has hopefully given back to the professor most of the important facts and basic ideas. The professor looks for and expects blind acceptance; he wants back what he gave you, not giving you the opportunity for digestion and reaction. There is little chance for synthesis. The student is requested to conform to the instructor's view, and no reward is given for creative thought and individual reaction to the material. The subject is presented as black and white and one-dimensional. . . .

Perhaps the most important comment on all this is that Psychology happens to be the area which is of the greatest importance, today, since it is or ought to be concerned with why we keep on doing stupid and destructive things in our relations with other peoples. Yet psychology, in terms of its higher education (as seen by Dr. Rogers), is failing ridiculously. What is the trouble? One thing is completely clear: Instead of authentic objectivity, what you get in psychology courses is the professor's subjective judgments about the "facts" of psychology, dressed up with some pseudo-objective certainty and transmitted with a pretentious air of "science." As one graduate student said: "I see . . . instructors hiding behind a mask of impersonal, 'scientific' objectivity in order to avoid the risk involved in *personal* interpersonal relationships, and perhaps out of distaste for the evaluative task they have imposed on themselves." Dr. Rogers comments: "It is as if the faculty member said: 'I welcome you to a warm and close interpersonal relationship—and when you come too close I will clobber you with my evaluation'."

Obviously, the anti-religious and anti-metaphysical polemic of the sciences long ago outlived its usefulness and has now gone so far as to be the worst possible enemy of a scientific education, in the liberal meaning of this term. The practice of education in psychology, according to the old assumptions of what is "science" and "real" and what is not, has really reached a dead end. The attitudes Dr. Rogers describes are data for the casebooks of abnormal psychology. There is only one thing to do: Remove the ideological assumptions and the polemical posturings from traditional Psychology. It will be interesting to see, after this has been done, if there is anything left.

REVIEW
GOODMAN ON "GROWING UP"

READERS of Paul Goodman have come to appreciate this "radical" lecturer, writer, teacher, as a man of unusual balance. As an anarchist and utopian, his critique of contemporary attitudes and conditions is sharp indeed, but the irony of his best-known book, *Growing Up Absurd,* serves as a background for the affirmative proposals of *The Society I Live in Is Mine.*

We have at hand a Vintage anthology of Goodman's writings, titled *Utopian Essays and Practical Proposals.* In the preface, Mr. Goodman gives meaning to his title:

> Frequently in the following essays I return to the characteristic moral dilemma of the Americans today: "It is only by the usual technological and organizational procedures that anything can be accomplished." But with these procedures, and the motives and personalities that belong to them, fresh initiative is discouraged and fundamental change is prevented. A psychologist would say that our people suffer from a compulsion neurosis; they are warding off panic by repeating themselves; inevitably, they are very busy and very conformist. There is no effort radically to remedy the causes and improve the center, and there is little effort to think up new directions that would offer opportunities for more normal growth, and to educate to more prudent motives and methods. Indeed given our usual agencies and offices, and the kind of technicians and even the kind of social scientists that we have, it is hard to see who *could* make the effort. Therefore the logical conclusion of the American moral dilemma is the conclusion that dilemmas generally have: "Really, we cannot do anything. We are trapped by modern times."
>
> I cannot accept the unsatisfactory syllogism, although, like everybody else, I have had occasion to experience its validity. I do not grant the premises. By analyzing the usual procedures and motivations, it can be shown, I think, that they are *not* always necessary and that they are rarely the best. And indeed, one can make bold to suggest better things that can be done by better means. So this is a book of Utopian Essays and Practical Proposals. Partly I have a spiteful motive in writing such a book in the present climate of our society. It is to establish that if you do not do better, it is not because there are no alternatives, but because you do not choose to.

Another passage explains what Goodman is seeking—and above all why he cannot become a specialist:

> As my books and essays have appeared, I have been severely criticized as an ignorant man who spreads himself thin on a wide variety of subjects, on sociology and psychology, urbanism and technology, education, literature, esthetics, and ethics. It is true that I don't know much, but it is false that I write about many subjects. I have only one, the human beings I know in their man-made scene. I do not observe that people are in fact subdivided in ways to be conveniently treated by the "wide variety" of separate disciplines. If you talk separately about their group behavior or their individual behavior, their environment or their characters, their practicality or their sensibility, you lose what you are talking about. We are often forced, for analytic purposes, to study a problem under various departments—since everybody can't discuss everything at once, but woe if one then plans for people in these various departments! One will never create a community, and will destroy such community as exists.
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> I prefer to preserve the wholeness of my subject, the people I know, at the cost of being everywhere ignorant or amateurish. I make the choice of what used to be called a Man of Letters, one who relies on the peculiar activity of authorship—a blending of memory, observation, criticism, reasoning, imagination, and reconstruction—in order to treat the objects in the world concretely and centrally. And may I say this?—if to many people my thinking seems always to have a kind of surprising optimism, a foolish optimism, my hunch is that it is because I keep trying to see people whole and beginning—still growing—and then they seem less limited than they do to sociologists or psychologists, politicians or journalists.

It is this attitude and approach which Goodman carries from philosophy to "practical proposals" for educational communities. In the ideal sense, a community is not a structured, status-governed group of people but an association of men and women who are trying to fulfill the humanizing process in a way that makes them regard specialization and temporary authority as wholly incidental to the purposes of

living. When Goodman identifies Black Mountain College as a genuine "community," it is because teachers and students did away with as much structure and status as they could. This was an authentic expression of Jeffersonian democracy, for it was Jefferson's belief that an elected government sought no status, intending "to educate its people to govern by giving them initiative to run things, by multiplying sources of responsibility, by encouraging dissent"—an approach which "has the beautiful moral advantage that a man can be excellent in his own way without feeling special, can rule without ambition and follow without inferiority." It is impossible not to note, in contrast, what Goodman calls the "general slavishness" by which authority and status presently govern, from educational institutions to the President's press conferences: "So we drift into fascism. But people do not recognize it as such, because it is the fascism of the majority."

It is in this context that we turn to a concluding essay bearing Goodman's sympathy for the hipsters and beatniks, among whom many may be trying to find what the existentialists call "authentic individuality." In "Crisis and New Spirit," Goodman concludes:

> The classical, Biblical, chivalric, and humanistic ideals that used to nourish us well are not in fact comprehensible to these young. Modern history has been too catastrophic. Our society is at present too base. We must not hope to inculcate complete and universal principles of action, these arouse only suspicion. Also, let us be frank, most teachers do not know them with enough confidence, do not *live* them with enough confidence, to be able to prove them.
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> In this context, among the academic philosophies, it is European and Oriental existentialism and American pragmatism that, in my opinion, prove to be relevant and are actually influential. And this is a good thing. The students grasp them because they are believable to them; and the lesson they teach is that in the absurd situation of a dehumanized society, it is possible to act and cope. This is what Camus was saying. That is, far from being demoralizing, causing anxiety and making life problematic, these philosophies, especially in combination, begin to recover morality for those who *are* anxious and baffled. By their existentialism they learn words to affirm themselves as and where they are, to be authentic and not have to play roles or satisfy standards that are empty to them, and to dissipate corporate "images" and political ideologies. In the version of Martin Buber, existentialism gives them a firm relation to their fellows in a face-to-face community. And in the existentialist aspects that influence them, they learn to notice the possibilities in the present moment, so they no longer feel trapped.

COMMENTARY
THE IDEA OF MAN

CONCEIVABLY, there will be readers of his week's lead article who feel that the argument goes beyond the bounds of sober-minded evaluation. This may be so. Our justification, if justification be needed, is that the issues involved are not casual or academic, but have to do with the existential meaning of being human. Is Psychology a serious science of man, or is it an elaborate device for avoiding the human values in the life of the mind?

Now the fact is that the life of the mind continuously involves the moral emotions. This being the case, an authentic science of psychology must have or eventually get some ethical principles as part of its foundation. And it needs to accept the necessity of being subjective and introspective in areas where human experience is subjective, and turn to a posture of objective investigation only when the primary data are themselves objective.

If it is bad manners to insist on these things, then our article has bad manners. We take the view that avoidance in the psychological sciences of looking at the human being as a subject—or first as subject, then as object—is still so pervasive as to represent a general cultural delusion, and you do not overcome a cultural delusion by being especially polite. Dr. Rogers called his paper "A Passionate Statement." He is disgusted with the bad habits of higher education within his profession. Our paper has a neutral title, but is concerned with the anti-human implications of the traditional assumptions of scientific method, under which the subject, Man, is adapted to the tools of research, instead of the tools being adapted to the study of human beings. Psychology is the science of the soul and such ruthless mutilation of its subject has no more place in the Humanities than the bed of Procrustes has in a civilized community. Saying this unequivocally is a task calling for at least a little strong language.

The present is a time of both very bad practices and much complacency. It is a time, therefore, for radical and far-reaching reforms.

What is the common element in these bad practices? It is the failure to put first things first in matters affecting the common welfare of mankind. We say we want peace, for example, but we put war first. We do not do even those simple things that could be done without any material risk. We do not choose the good or join ourselves with the good, wherever it appears, but make our alliances in terms of the conveniences of military power.

The failure of psychology to treat man as man is of a piece with the larger inconsistency of letting the institutional requirements of "military security" over-rule the moral appeal of a humane policy. The same may be said of the justifications of technological necessity. Our investment in all those machines is too large to allow the sentiment of basic human good to intrude upon economic calculations.

Sooner or later, we are going to have to change all this. One place to begin is in the scientific conception of the human being.

CHILDREN
. . . and Ourselves
PARENTAL RESPONSIBILITY

THE natural parental desire to protect one's children used to be referred to a traditional religious formula: conflict and disturbances were the result of allowing the desires of the child to follow a "natural" inclination to wrongdoing. The parent's task was to oppose this predisposition to "sin" ingrained in human nature since the Fall. However, after the Freudian revolution in thought, the greatest danger for the child began to be conceived in entirely new terms; frustration of desire, it was feared, would produce neurotic or even psychotic behavior. To a large extent, those who advocated extreme permissiveness thus reversed the field on the puritan approach.

We have previously quoted here from Dr. William Glasser, whose experience in dealing with adolescent delinquency revealed the fact that many young people had been *taught* that they need not encounter moral conflict. After all, most guardians of juvenile offenders encouraged their charges to believe that their deviant behavior resulted from unfortunate parent relationships, to environmental conditioning, etc. But Dr. Glasser discovered he made no progress until he disavowed this whole philosophy and conveyed the idea that each human being is responsible for himself, regardless of what had happened *to* him in the past. Unlike the Puritans, however, Dr. Glasser has no desire to implant a sense of sin or guilt. Guilt, by itself, paralyzes the very perceptiveness out of which a sense of responsibility can grow. It is the future course of thought and action which cannot be "blamed" on anyone else.

This is a brief preface to some quotations from Selma Fraiberg's *The Magic Years* (Charles Scribner's Sons, 1959)—a book which discusses neurosis and conflict in childhood, suggesting that the experience of conflict, of doubt and confusion, is necessary to growth. Mrs. Fraiberg concludes a chapter, "Can We Insure against Neurosis?", by saying:

> A neurosis is not necessarily an indictment of the parent-child relationship; a neurotic child is not necessarily an unloved child, or a rejected child. A neurosis involves moral conflicts and conflicts of love which could not exist in a child who had never known significant human attachments. The merit of a neurosis—if there is anything good to be said about it at all—is that it is a civilized disease. The child who suffers a disturbance in his love relationships or anxieties of conscience offers proof of his humanity even in illness.
>
> The triumph of man over his instinctual nature, his willingness to restrict, inhibit, even to oppose his own urges when they conflict with higher goals for himself, is the product of learning, an achievement through love in the early years of development.

Mrs. Fraiberg indicates that the completely unloved or unattached child exists in a sort of vacuum, unaware of the need to make choices, establish values, and to suffer disturbances when these values come into conflict. This child's character disorders are of a serious sort:

> He might develop bizarre features in his personality, he might be subject to primitive fears and pathological distortions of reality, he might have uncontrollable urges that lead to delinquency or violence.
>
> The sickness of the unattached child is more terrible because it is less human; there is only a primitive ego engaged in a lonely and violent struggle for its own existence. Indeed, it can be argued that the real threat to humanity does not lie in neurosis but in the diseases of the ego, the diseases of isolation, detachment and emotional sterility. These are the diseases that are produced in the early years by the absence of human ties or the destruction of human ties. In the absence of human ties those mental qualities that we call human will fail to develop or will be grafted upon a personality that cannot nourish them, so that at best they will be imitations of virtues, personality façades.
>
> We have more reason to fear the hollow man than the poor neurotic who is tormented by his own conscience. As long as man is capable of moral conflicts,—even if they lead to neurosis—there is hope for him. But what shall we do with a man who

has no attachments? Who can breathe humanity into his emptiness?

Mrs. Fraiberg, then, is pointing out that there is no scientific way to determine exactly how neurosis in childhood can be prevented. Parents are *not* altogether responsible for the nature and behavior of their children, and if they continually strive to "build the character" of the child according to some hopefully-embraced theory, they may fail in spontaneity—which is one of the most important contributors to the humanizing process in the home.

An earlier work of Dr. Glasser's, *Mental Health or Mental Illness* (Harper, 1960), gives a preview of his present formulation of Reality Therapy, illuminating Mrs. Fraiberg's analysis. Dr. Glasser first explains: "The child raised in an atmosphere of permissiveness where transgressions are overlooked goes to desperate ends to provoke an emotional response from his parents. When it does come, often so much tension has been built up that the child is frightened and overwhelmed at the outburst from his usually controlled parents. He then fears his parents and wonders what they may do next. Under these circumstances he is not prepared by the beneficial effect of continuous spontaneous emotions and his responses may be stunted."

What guideline, then, is a contemporary parent to follow in his responsibility for the child and its growing character? Dr. Glasser writes:

> Almost anything the parent does is right if he is willing to take responsibility for his actions relating to the child. This statement can be explained by continuing the example of the temper tantrum. Here the child has exploded emotionally because of some frustration. He has exploded to his parent because his parent, responsible for everything in the child's eyes, must be responsible for this frustration. This responsibility is always clear in the eyes of the child; he endows his parent with it whether or not the parent wants to take it. The parent can follow any of several courses depending upon how willing he is to acquiesce in the child's thinking. Suppose that the child is having a tantrum because he has carelessly broken a beloved toy. Whose responsibility is this? The parent can take it all by running to buy a new toy, or he can take none of it by ignoring the tantrum. Although in either case the tantrum stops, we must ask: How is the child affected? In one case he succeeds in placing complete responsibility for his frustration on his parent, thus avoiding it himself. In the other case, he begins to learn that his parent, omnipotent as he may seem, will not take responsibility for something which is rightfully the child's responsibility. Obviously in this case the latter course is preferable.
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> However, it is still necessary to clarify the statement that any course the parent follows is correct providing he takes responsibility for his actions. That is, he takes responsibility for his own actions completely, but for only that part of the *child's* responsibility which is logical in the situation. Thus a parent who ignores a tantrum in his three-year-old-child precipitated by his ripping his play panda is acting correctly because the parent is *not* taking responsibility for the accident. The same parent who ignores a three-year-old crying because he has broken a fragile, complicated toy would be acting wrongly toward the child, because he would be avoiding responsibility rightfully his, namely, allowing the child to play with a toy requiring maturity beyond his age level.

FRONTIERS

Cultural Lag—a Special Case

IN an address given before a conference of the California Junior College Association, on May 1 in Santa Barbara, California, W. H. Ferry, vice president of the Center for the Study of Democratic Institutions, focused the burden of his remarks in a brief summation:

> The task of twentieth-century education is to bring social and political imagination into workable parity with scientific and technological imagination.

If we take Mr. Ferry seriously, and we certainly ought to, there is only one basic decision: where to begin. An attempt to define this project in all its parts and implications would soon become futile, since it involves nothing less than the total reform of twentieth-century civilization. How, then, *can* we begin?

Fortunately, we have an answer to this question in a program already in operation at Franconia College in New Hampshire. Franconia's "core" curriculum concentrates study on areas of crucial human decision in the past and spreads out from these foci to whatever material is needed to understand the decision or event selected. As the Franconia catalog says:

> Over the two years we study in depth twelve samples—we bore down into twelve "cores"—of crucial human experience. We choose twelve moments rich in meaning—from the distant past to the present. We search for the heart of these moments by not restricting our tools to those of any single discipline. . . . For example last fall we started with the moment when Socrates drank the hemlock: an exact moment which is clear and exciting. But this moment, we soon saw, is only the focus of a most complex pattern of forces, ideas, and personalities which existed before and after the event. These needed to be studied. . . . To take an example from the end of the course, we plan to consider Truman's decision to drop the atomic bomb on Hiroshima. What were the advances in modern physics leading to the development of the bomb? How much was known about the influence of radiation on living cells? What were the historical events leading to Japan's social and political attitudes at that time? What do we know of the personality and character of Truman, the Commander-in-Chief who was responsible for the final decisions? What are the ethical and religious issues?
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> We value this integrated General Education course as the central manifestation of our commitment to a liberal arts education: the study befitting free men. We still argue whether the goal of a free man's studies is *doing* or *knowing.* Do we seek learning to apply immediately to our own decision-making, or do we seek knowledge and understanding for its own sake?

The example of Franconia puts us in the position of having no difficulty in finding starting-points for Mr. Ferry's program. You could take, for instance, the Free Speech Movement last fall on the campus at Berkeley, and start the research with readings of available accounts of what happened, then going to initial background materials such as Lewis Feuer's *New Leader* (Dec. 21, 1964) article, Clark Kerr's book, *The Uses of the University,* and the Byrne Report, which appeared in full in the Los Angeles *Times* of May 12 of this year. If anyone objects that this is too tough an assignment for students of tender, junior-college age, we can only say that it is apparently too tough, also, for the California Board of Regents, and that *somebody* ought to make a stab at such questions. Why not the students on the way to involvement, ready or not, in similar crises?

Far tougher projects remain. For example, instead of using President Truman's decision to drop the atom bomb, you could easily develop a "core" curriculum out of President Johnson's decision to bomb North Viet Nam. Here, getting the best research materials will be a problem of selection, since so much is being printed on the subject. Basic, however, to understanding of the larger context of policy decisions of this order would be reading of Hans J. Morgenthau's paper, "Modern Science and Political Power," which appeared in the *Columbia Law Review* for December, 1964. This paper seems written to order for Mr. Ferry's purposes. It ought to be made into a pamphlet and circulated among all the

people—both students and adults—who claim to have a concern for the future of democratic societies. Prof. Morgenthau starts out by quoting from Adolf A. Berle a text that could be borrowed by Mr. Ferry to underline the urgency of his proposal. In *Tides of Crisis*, Prof. Berle wrote (1957):

> [W]e seemed to be moving into a new high pressure area. Mishandled, any of these crises may result in wars, little or big; at worst, they could provide an atomic convulsion capable (literally) of tearing the planet to pieces. A terrifying fact is that the men who grapple with these crises are dealing with forces of which most other people are unaware. Often they must seek solutions for which the prevailing politics and public opinion of the United States are unprepared; and the only way politics and public opinion will ever be prepared is when enough people have general awareness of the underlying considerations and facts.

Prof. Morgenthau's paper is a 23-page analysis of the gradual transfer of power from the people to the executive branch of government, in the United States, and a careful study of the increasing role of the paramilitary elite in far-reaching policy decisions. It is impossible in a few words to convey the impact of Morgenthau's sober historical analysis. A central problem of the preservation of self-government in the technological age is defined by the following summary:

> The layman [who includes politicians and military men, along with common citizens] does not have the competence to retrace in his own mind the arguments that underlie the scientist's conclusions and to check them against his own knowledge; he must take the scientist's word for it. When President Roosevelt had to decide in 1939 whether or not to commit large human and material resources for the development of an atomic bomb, he had to take on faith Einstein's famous letter assuring him that the scientific knowledge necessary for the development of an atomic bomb was available to both American and German scientists. The decision of 1949 to proceed with development of the H-bomb hinged upon the scientific estimate of its feasibility. So does the decision, pending at the moment of this writing, to develop an anti-missile defense system. Similarly, the decision of 1963 to conclude a partial test-ban treaty was based upon the scientific evaluation that the development of nuclear weapons would be dependent upon above-ground tests.

Developing the consequences of this situation, Prof. Morgenthau points to the "tendency of scientific advice to become identical with the decision itself," with the further result that, having been "drawn into the vortex of political struggle," the scientific élites "become themselves protagonists of political and military policies which are in accord with their scientific judgment." Finally: "In the eyes both of the political authorities and the public at large, the scientific élites appear as the guardians of the *arcana imperii*, the secret remedies for public ills."

The closing part of Prof. Morgenthau's paper takes note of "the political apathy that has become a common characteristic of Western democracies"—a development he explains as resulting from both the decline in the participation of the people in policy decisions and the general incomprehensibility to the ordinary man in the street of the arguments by which the decisions are supported. "The common man is no longer convinced that political issues will, or even ought to, yield to concerted public action. They have become remote, unintelligible, and intractable."

However, after illustrating the grave differences among distinguished scientists concerning questions of national policy, Prof. Morgenthau shows that the fundamental decisions really involve moral and philosophical questions on which the scientists are no better informed than anyone else. Accordingly, he concludes: "The scientist's monopoly of the answers to the questions of the future is a myth." But the problem of restoring to function the processes of individual decision on the part of the people, as the only guarantee of a free society in the future, remains unsolved. Mr. Ferry's program for college education has a great deal to accomplish.