

## A MAJOR PROJECT

THOSE who attempt to understand and evaluate the processes of history make their investigations and form their judgments at various altitudes, so that uniform conclusions are unlikely. Yet in any age there are undercurrents of common assumption about the world, as for example the belief by the nineteenth-century champions of very nearly every social philosophy that the foundation of human welfare lies in vastly increased production of material things. The disagreements were not about what is "real" and good, but what to do with it—how to use it, and to whose benefit. Scientific knowledge was held to be the key to human achievement. "When we have enough of such knowledge, we'll be able to do *anything*." Ethics or moral judgments were concerned only with issues of distribution—how the practical fruits of knowledge should be apportioned. While all declared that there was much to do, the socio-political issue was not what to do, but who should be in control.

This is the general outlook now subject to insistent questioning. The self-satisfied complacency of the age is dying out. Scores of intelligent observers are beginning to say that the kind of knowledge we have been accumulating is not the knowledge we need. The belief that more of this knowledge will enable us to do exactly what needs to be done is fraudulent. This is the conclusion of both social moralists and the best of the technicians. Certain philosophers have been saying the same thing for generations, and now confirmation is coming from the facts of everyday experience; and it is also coming in explicit terms from analysts who take both psychological and social welfare into account. Our vast stores of particular information about how things work lead to applications which, while notably "efficient" at one level, result in extreme disorder at another. We are continually becoming captive of such

mistakes—mistakes whose correction seems politically almost impossible. Consider only the blind momentum which is moving the world toward nuclear war. This composite tendency grew out of "knowledge" of a sort, and yet no deep thinking is required to point out that preparation for nuclear war is symptomatic of insanity. The knowledge we have been using and relying on simply does not touch the human realities now becoming evident. A similar verdict is clear in relation to other undertakings.

Why, then, are we so impotent? Why don't we make the necessary changes? Various explanations have been offered to answer this question, but they are usually unpalatable. Our habits of thinking—eventually we'll be able to do anything we want—are a barrier to considering the required action. Moreover, the structures of social organization through which changes are supposed to be brought about are enormously complicated, under the governance of narrow bureaucratic rule, and largely controlled by the powerful manipulations of self-interest.

We may know all that, but the knowing does little to reduce the "insanity" of our collective behavior. Recognizing this produces a stark awareness, leading to far-reaching questions, such as, "Well, if I cannot do much of anything to change the course of the world, what remains for me to do that is really worth doing?" One comes back, of course, to thinking about the world and the misery and hopelessness of so many of its inhabitants because, as human beings, we are not immune to feelings of compassion; and then another question arises: Is our impotence the result of trying, in the past, to change the world by means that do not and cannot work? Where do the beginnings of real change take place? What is the hierarchical scheme of social evolution?

Asking this question is actually a confession of ignorance. It may also be the beginning of a new kind of knowledge, but if it is indeed knowledge then its initial effect is the disclosure of ignorance—in this case a blinding sort of ignorance, since it was made invincible by the supposition that it was knowledge. What does one do when this realization dawns? What remains reliable in the shambles of collapsed assumptions?

All that remains is human intelligence—the intelligence that *discovered* the mistakes after having made them. In the *American Scholar* for the Spring of 1966, Jacob Bronowski provided the rationale for understanding both our mistakes and the means to their comparative correction. Writing on "The Logic of the Mind," he cited the theorems of Kurt Gödel, A. M. Turing, and Alfred Tarski to show that there is and can be no "logical system," whether mathematical or scientific, that will not eventually break down, for the reason that no such system can be "free from hidden contradictions." In short, the dream of developing a perfect system to make a perfect world is false and delusive. As Bronowski put it:

Every scientific system as we understand that phrase now is incomplete: simply as a logical machine, it cannot cover all the phenomena of nature. It therefore follows, not merely in practice but in principle, that the system must be enlarged from time to time by the addition of new axioms, which cannot however be foreseen or proved to be free from contradictions. How does the outstanding scientist come to propose such a decisive axiom, while less imaginative minds go on tinkering with the old system? How did Gregor Mendel leap to conceive the statistical axioms of genetics? What moved Albert Einstein to make the constancy of the speed of light not a consequence but an axiom in the construction of relativity?

An obvious answer is that the great mind, like the small, experiments with different alternatives, works out their consequences for some distance, and thereupon guesses (much like a chessplayer) that one move will generate richer possibilities than the rest. But this answer only shifts the question from one foot to the other. It still remains to ask how the great mind comes to guess better than another, and to make

leaps that turn out to lead further and deeper than yours or mine.

We do not know, and there is no logical way in which we can know, or can formalize the pregnant decision. The step by which a new axiom is added cannot itself be mechanized. It is a free play of the mind outside the logical processes. This is the central act of imagination in science, and it is in all respects like any similar act in literature. In this respect, science and literature are alike: in both of them, the mind decides to enrich the system as it stands by an addition which is made by an unmechanical act of free choice.

Bronowski could not explain how the superior (or great) mind finds the new axiom needed to restore the system to smooth functioning, but he gave the act of seeking it a name: "self-reference." Human language, the reflection of thinking, is rich because it is continually developed by acts of self-reference. "We cannot," as Bronowski says, "eliminate self-reference from human language without thereby turning it from a genuine language of information into a machine of language instructions." Since scientific systems seem to work well for a while without amendments to their axioms, we come to rely on them until they break down; we have, for example, more confidence in them than we have in, say, psychological theory and philosophy. The reason for this, according to Bronowski, is that self-reference needs to be practically continuous in fields in which the mind is the major actor, while "mathematics and science are subject to it only from time to time, when a new step has to be taken."

Many natural scientists complain that psychology, and other studies of human thought and behavior, lack the rigor of a true science. This is usually excused on the ground that such human studies are young, and have not yet developed the proper formal apparatus by which information can be turned into exact prediction. But I suggest that the logical theorems now show us that this excuse is mistaken. There is an essential difficulty in casting these disciplines into an axiomatic system; they are limited, more severely and more constantly than the natural sciences, by the self-reference that underlies them everywhere. And it cannot be got out of the

system by the occasional addition of a new axiom, as in the natural sciences. The axiomatic method may be unworkable in these studies, and whatever machinery is discovered for them in the future will (I think) not be of this traditional kind.

Called for today, then, are acts of self-reference by us all. Bronowski's analysis seems fundamental enough to show that we—individuals and societies—have reached a point where we are beginning to feel lost, and this can only mean that we need new axioms to live by, or perhaps an illuminated version of old ones we have either forgotten or misunderstood. For help in this, an illustration may serve, for what is as dark, as mysterious, as unspelled-out as the meaning of "self"? For most of us the self is so omnipresent that we cannot see it at all; paradoxically, forgetting it may be one of the ways of finding it.

What one is remaining obscure, the examination of what one does, in the clearest light of impartiality one can summon, seems a way to begin. Our illustration, then, is taken from the musings of Donella H. Meadows, principal author of *The Limits to Growth* (1971), on the way she and others practice their profession of global modeling. (This material appeared in *Futures* for April, 1982.) She attended a conference of some twenty persons in her profession, and listened closely to their comments "on major issues such as hunger, energy, international trade."

After a while, I lost track of the technical differences and became fascinated instead with the way each modeller's unique personality permeated every phase of his or her model, from the choice of the method and research question, through the writing of equations, to the style of presentation of results.

I had always known that no scientific activity, least of all social-system modeling, is truly objective. But I never realized before how our models are ourselves, made abstract, blown up large, and projected on a screen for all to see. Only Forrester could make a Forrester-type-model, only Hafele a Hafele-type. Each model is a subtle reflection not only of the insights, experiences, and technical expertise of its makers, but also of their biases and world views, fears repressions, loves, and angers.

That which we think and hope we have overcome or hidden or relegated to our private lives is in fact clearly displayed in our professional work, to those who know how to read it. Global modelling like national policymaking or multinational business operation or media reporting, is a very human drama.

Many people will not want to believe that, especially the global modellers themselves. But I mean it as strongly as I said it here—and it took me ten years to see it. And to me it is a cause for rejoicing, not dismay. By recognizing our humanity instead of denying it, we can release our energies from trying to learn from global modelling something that is not there to be learned—objective, comprehensive prescription or prediction—and turn instead to the lessons that are indeed there.

These observations are a form of self-reference. It results in a prescription for her profession:

We can learn what common messages do filter through our individual perceptions, those aspects of the world that are so general and pervasive that they become apparent to all lookers—the closest we will ever come to global truths. We can learn from our differences what *some parts* of the world look like *from some viewpoints*, and where and under what circumstances the world does *not* look like that; we can stop overgeneralizing and start piecing together the actual differences and particularities and variations of our diverse planet. We can sort out whether any of our observations have no demonstrable connection to the world at all, have been entirely self-created and are in urgent need of correction; we can map the capacity of the human mind for delusion or perpetuation of outmoded beliefs. And above all by examining more carefully the revelation of ourselves in our models, we can learn more about why people, including ourselves, do what they do, value what they value, fail where they fail, will what they will.

There are at least two or three axioms here that would transform the science of socio-cultural and economic prediction, replacing its pretensions to objectivity with a quality of *wisdom*. Now comes a link with Bronowski's analysis:

To explore that territory, we will need to venture into places that we have ruled out as illegitimate. I am myself learning only slowly that there is in fact a lot of information about the meaning, the problems, and the potentiality of being human. But that

information is located in two places where I, as a scientist, have been trained to be maximally sceptical and uncomfortable. One is the soft and slippery fields of psychology, psychotherapy, the "consciousness" or "human potential" movements, religion and philosophy. Another is in self-examination, being willing to watch my own experience more carefully and to feel my own intuitions and emotions more fully. Nothing could be more difficult, more repulsive, or even more intimidating to me, as a scientist. And yet I have found much of the knowledge I seek there. In the process I have not had to throw away or even dull my precise scientific tools at all. To the contrary, I have found them more useful, as they have been released a bit from the unexamined beliefs and unrecognized emotions in which I embed them.

In one place in her review Mrs. Meadows lists twenty generalized conclusions reached by practically all modellers, noting their common sense, the need for their common recognition, and the fact that they are commonly ignored. "One of the great services that global modelling has already performed," she says, "and could perform much more effectively in the future, is to affirm and communicate these simultaneously commonplace and revolutionary messages, so people who already know them can find some strength and support for action on them. If we did nothing more than that, our work would be justified."

Yet at the conference she attended—a diverse array of modellers and a diverse audience of scientists, journalists, teachers, businessmen and policy-makers, "people who could generally be called opinion leaders"—there was an identifiable mood:

The words used on the conference floor to describe the behavior of the human race, and especially the policymakers therein, were, by actual record, and in chronological order, "distrustful, short-sighted, malevolent, anarchical, parochial counterproductive, exploitive, catastrophic, resistant, foolish, self-righteous." The masses of people were generally regarded as lumpish raw material, partially mouldable by policy, certainly never initiating anything, not powerful enough to change anything. We at the conference presumed that hardly anyone

but us cared much about the poor, about the ecosystem, or about the long-term future. Most of us managed to imply that we have very little faith that the overarching, sensible messages from our models will ever be seriously considered or implemented. The foundation on which our models and statements are built, a foundation shared by all of us and clearly consistent with our surrounding culture, is one of cynicism, unworkability, helplessness, and hopelessness. . . .

During the conference, listening to this viewpoint being expressed, implicitly or explicitly, over and over, I was struck by two thoughts. One was that if we really believed it, we would never do global modelling or policy, or reporting, or teaching in the first place. Somewhere in each of us must be a center of vision and hope we are reluctant to admit, but one strong enough to keep us working for improvements of the world—and most of us work at that very hard. Second, by putting forth that hopeless viewpoint, we are actively subverting the very political will we are calling for. A world that hears continuously from its highest authorities that the system offers only obstacles, not opportunities, that individuals will not and cannot make things better, that politicians are selfish, simple-minded, and intractable, that businessmen are greedy and shortsighted, is not likely to summon up much individual responsibility or political will. There is no real basis for those statements, their impact on social systems is not neutral, and we, as authorities, opinion-leaders, and interpreters of society have a responsibility at the very least to put forth information in a way that does not rule out in its very delivery the probability of effective action.

Contrasting with this conscious or sub-conscious framing of the findings and recommendations of the modellers is Mrs. Meadows' experience of the decency and good intentions of most of the individual human beings she meets. "I suspect," she says, "that if we examined the actual evidence, without bias, we would find most of the human race, most of the time, living peaceably and constructively, willing to contribute individual efforts to a workable whole, and eager to make a positive difference." She calls, then, for an *open* appeal to these qualities: "We can transcend the system's pressures and transform the system itself, as we all must do to solve the world's problems, but only

after seeing clearly how the system influences us." Her fundamental criticism of the present attitude of the modellers is briefly put:

Our words reach more people by orders of magnitude than the words of most citizens of the globe. Our messages plead on the surface for change but at the foundation expect no such change. They call for action, cooperation, farsightedness, broadmindedness, but between the lines they deny that such things are possible and selectively treasure up evidence to demonstrate their impossibility. We endorse an image of humanity that is not proven accurate but that perpetuates a feeling of unworkability.

All this seems true enough, yet the extreme pessimism of the modellers and planners is far from being without ground. Why, it must be asked, is there so great a difference between human behavior as a collectivity and the people we meet as individuals in everyday life? The judgment conveyed by the familiar title, *Moral Man and Immoral Society*, is accurate enough, and in view of the present discussion it sets the problem afresh. Something of a resolution was offered by E. F. Schumacher seven years ago (in the May-June 1975 *Resurgence*):

As society is composed of individuals, how could a society be more immoral than its members? It becomes immoral if its structure is such that moral individuals cannot act in accordance with their moral impulses. And one method of achieving this dreadful result is by letting organizations become too large. . . . There are three things healthy people most need to do—to be creatively productive, to render service, and to act in accordance with their moral impulses. In all three respects modern society frustrates most of the people most of the time.

One other point, made by Richard Goodwin in *The American Condition*, has bearing on this comparison between responsible individuals and a morally irresponsible society. People, Goodwin noted, give only about ten per cent or less of their time to their responsibilities as citizens. And even that may be given grudgingly, by reason of their difficulty in seeing much effect in what they attempt. In short, actually reaching people means

getting to them, catching their ear, at the level where they still have some freedom left to act.

## *REVIEW*

### TOMORROW'S PHYSICS

PLATO declared that there was not much hope for the world until philosophers become kings, or kings philosophers. He may have been right, but if so the outlook seems bleak. What serious philosophers would want to be a king? All those unpredictable disasters and unrealizable goals! And the kings—how can they give time to philosophy when they are kept so busy putting out brushfires and preparing for worse conflagrations?

In general, we can say that the kings who become philosophers (save perhaps for Asoka in India and Marcus Aurelius in Rome) inhabit only utopian romances, and that the communities in which philosophers become kings are "laid up in heaven," as Plato put it. They are certainly not evident on earth.

Yet the seminal meaning of Plato's prescription can be recognized in less dramatic transformations. What if, of their own motion, physicists should become psychologists and ontologists? The physicists, after all, have been the kings of human thought since the time of Galileo, yet now they are saying—a noticeable number of them are saying—that we must learn to think in another way. One physicist who has said this and started doing it is David Bohm, whose latest book, *Wholeness and the Implicate Order* (Routledge & Kegan Paul, 9 Park St., Boston, Mass., 1982, \$8.50), is physics in the service of psychology and philosophical cosmology. The relation between Prof. Bohm's physics and the other areas of science is integral, not speculative, although he moves on to speculative regions which seem to him an intrinsic part of our lives. His language is sober and precise, his direction determined by reason, yet his goal has a sublime pantheist implication. We cannot do much with his physics, here—it involves the equations of quantum mechanics—but his psychology and philosophy are within the grasp of any intelligent reader. At the risk of a layman's inaccuracy, then,

we may say that Bohm has reached the conclusion that modern physics, and virtually all the other branches of "hard" science, have been systemically misconceiving the nature of "reality" for hundreds of years.

Briefly, the present idea of reality is the result of what we "see" by our senses, which by no means see all. We see only the limited "projections" of what is real, which reach up into the sphere of our sensuous awareness. We use our perception of these projections to organize our picture of the world, making them the basis for various calculations, and generating from this combination of perception and mathematical constructions an account of the world which is in large measure man-made. Then, as Prof. Bohm points out, we mistake these constructions for the actual world itself, becoming unaware that they are largely the result of our own thinking. He proposes that the researches of modern physics—relativity and quantum theory—now suggest that our conventional scientific picture of the world, as a vast collection of tiny units or fragments, held in predictable relationships by fields of force, should give way to a theory which maintains that behind the projections that we see is a vast, unseen whole. Revealed to our senses is a corresponding set of phenomena that are only the tip of the "iceberg" of reality.

If we had a body of physical theory grounded in this assumption, it would illuminate the problems now confronting present-day physicists, and lead to a science much closer to the actualities of the universe in which we live. He also proposes that there is a striking parallel between the way nature works and the way our minds work, suggesting that "knowing" and "being" are but aspects of a single, living process. In a sense, he is saying that the universe is not "out there," but "within," and that if we can retrain our minds to think of nature and science in this way—which will take considerable effort and time—our moral and psychological problems will either be greatly reduced or entirely eliminated.

*Wholeness and the Implicate Order* is devoted to presenting both physical and psychological evidence in support of this view. Bohm's mode of reasoning is well illustrated by a passage which begins with analysis of the assumption that the "matter" of our world is composed of "elementary particles" such as electrons, protons, neutrons, etc. (these having lately been subdivided into "quarks" ).

For a long time it was thought that these latter are the "ultimate substance" of the whole of reality, and that all flowing movements, such as those of streams, must reduce to forms abstracted from the motions through space of collections of interacting particles. However, it has been found even the "elementary particles" can be created, annihilated and transformed, and this indicates that not even these can be ultimate substances but, rather, that they too are relatively constant forms, abstracted from some deeper level of movement.

One may suppose that this deeper level of movement may be analyzable into yet finer particles which will perhaps turn out to be the ultimate substance of the whole of reality. However, the notion that all is flux, into which we are inquiring here, denies such a supposition. Rather, it implies that any describable event, object, entity, etc., is an abstraction from an unknown and undefinable totality of flowing movement. This means that no matter how far our knowledge of the laws of physics may go, the content of these laws will still deal with such abstractions, having only a relative independence of existence and independence of behaviour. So one will not be led to suppose that *all* properties of collections of objects, events, etc., will have to be explainable in terms of some knowable set of ultimate substances. At any stage, further properties of such collections may arise, whose ultimate ground is to be regarded as the unknown totality of universal flux.

This is the fundamental implication of Bohm's book, so far as the physical world is concerned. He turns, now, to our consciousness of the world and our supposed or actual knowledge of it.

Clearly, to be consistent, one has to say that knowledge, too, is a process, an abstraction from the one total flux which latter is therefore the ground both of reality and of knowledge of this reality. Of course, one may fairly readily verbalize such a notion, but in actual fact it is very difficult not to fall into the

almost universal tendency to treat our knowledge as a set of basically fixed truths, and thus not of the process (e.g., one may admit that knowledge is always changing but say that it is accumulative, thus implying that its basic elements are permanent truths which we have to discover). Indeed, even to assert any absolutely invariant element of knowledge (such as "all is flux") is to establish in the field of knowledge something that is permanent, but if *all* is flux, then every part of knowledge must have its being as an abstracted form in the process of becoming, so that there can be no absolutely invariant elements of knowledge.

Here the author is wearing away at what he regards as a fundamental misconception or even "delusion"—that the world is a collection of fragments—indeed, that we, too, are but fragments, lonely bits of awareness trying to act on other fragments outside ourselves, whether atoms, objects, or other humans. Here we see the moral effect of the way we think; one could argue from Prof. Bohm's assumptions that there is no such thing as a morally "neutral" fact or idea. He says:

When man thinks of himself in this way, he will inevitably tend to defend the needs of his own "Ego" against those of the others; or, if he identifies with a group of people of the same kind, he will defend this group in a similar way. He cannot seriously think of mankind as the basic reality, whose claims come first. Even if he does try to consider the needs of mankind he tends to regard humanity as separate from nature, and so on. What I am proposing here is that man's general way of thinking of the totality, i.e., his general world view, is crucial for over-all order of the human mind itself. If he thinks of the totality as constituted of independent fragments, then that is how his mind will tend to operate, but if he can include everything coherently and harmoniously in an over-all whole that is undivided, unbroken, and without a border (for every border is a division or break) then his mind will tend to move in a similar way, and from this will flow an orderly action within the whole. . . . My suggestion is that a proper world view, appropriate for its time, is generally one of the basic factors that is essential for harmony in the individual and in society as a whole.

Prof. Bohm is quite aware that in passages of this sort he is making use of an Eastern mode of

thought, suggesting a pantheistic ground for ethics, with the doctrine of Maya a part of the epistemological approach of science. For a final quotation from this provocative book, we take a passage on thought and intelligence:

What is the process of thought? Thought is, in essence, the active response of memory in every phase of life. We include in thought the intellectual, emotional, sensuous, muscular and physical responses of memory. These are all aspects of one indissoluble process. To treat them separately makes for fragmentation and confusion. . . . It is dear that thought, considered in this way as the response of memory, is basically mechanical in its order of operation. Either it is a repetition of some previously existent structure drawn from memory, or else it is some combination arrangement and organization of these memories into further structures of ideas and concepts, categories, etc. These combinations may possess a certain kind of novelty resulting from the fortuitous interplay of elements of memory, but it is clear that such novelty is still essentially mechanical (like the new combinations appearing in a kaleidoscope). . . . The perception of whether or not any particular thoughts are relevant or fitting requires the operation of an energy that is not mechanical, an energy that we shall call *intelligence*. This latter is able to perceive a new order or a new structure, that is not just a modification of what is already known or present in memory. For example, one may be working on a puzzling problem for a long time. Suddenly, in a flash of understanding, one may see the irrelevance of one's whole way of thinking about the problem, along with a different approach in which all elements fit in a new order and in a new structure.

This is the sort of thinking Prof. Bohm does in this book, inviting the reader to participate.

**COMMENTARY**  
**THE "FLASH OF UNDERSTANDING"**

GODDARD (see Children ) does as well as anyone has done to explain the meaning of the poetic in literature, but this is an inexhaustible activity that should and will go on forever. The writer of prose is one who deals in confidence with the "set of basically fixed truths" spoken of by David Bohm. He does not explore resonances of meaning, but deliberately suppresses them as subversive of the exactitude he seeks. His purpose is understandable: Who would want to cross a bridge built by an engineer who took allegories for a guide instead of the manuals of tensile strength?

The poet is one unwilling or even unable to shut out of his mind the natural symbolisms which pervade all human experience. Not the thing but the conjurations made by the mind from the raw material of the thing provide the substance of poetry. It deals with possibilities and is ruined by certainties. Certainties may prevent the imagination from functioning. The man who is consciously a poet needs to know when to unleash the imagination and when to keep it on a short tether.

Where do the sublime relations celebrated by the poet come from? Relations are the continuity of unities which are "real" above or beyond the world of separate things and beings. The poet sees those unities more clearly, not with certainty but intuitively, than others. His magical power is the result. As Owen Barfield put it in *Poetic Diction*: "Men do not *invent* those mysterious relations between separate external objects, which it is the function of poetry to reveal." Ancient poets—some of them—saw as realities what are now only intuitions. The present-day poet seeks through true metaphor to restore that vision.

The "acts of self-reference" proposed by Donella Meadows (see pages two and seven) are another aspect of this struggle, and what Bronowski calls "a free play of the mind outside

the logical processes" distinguishes the creative scientist from the bookkeepers of his profession.

It is the poetic intelligence which brings that sudden "flash of understanding" by which "one may see the irrelevance of one's whole way of thinking, along with a different approach in which all elements fit in a new order and in a new structure" (David Bohm on page eight).

## CHILDREN

### ... and Ourselves

#### NO MONUMENTS NEEDED

THERE are a few—too few—clarifying statements about the condition of higher education in America. One of them appeared in the closing paragraph of an article by Robert M. Adams in the Spring *American Scholar*. After attention to "Literary Studies" during the past fifty years, this writer says:

Fifty years ago the American population of college and university students amounted to no more than a million and a quarter; the equivalent figure for 1981 is over nine million. Of our high school graduates over 50 per cent go on to some form of higher education; if that is not absolutely the highest percentage in the world, it is one of the highest. (I know there has been a reaction lately against going to college: it's a big financial outlay, and the tangible returns have been much overplayed. Besides, there's such a thing as a failed education, and the unhappy victim of it is far worse off than if he had not pushed himself, or been pushed, toward work for which he had no natural bent. Still, the big numbers are not yet affected.) Inevitably, a good number of these millions who pass through the educational machine wind up half-educated or worse. We don't winnow them severely; we never face them with a make-or-break situation like the tripos in England or the bac in France. A clever, elusive lazy student can graduate from a college, and from a graduate school if he wants, knowing less than when he entered. Many do. English departments get their share, perhaps more than their share, of the floaters. But the glory of the system, or rather nonsystem, is the self-directed, self-motivated young person who swims through the warm soup of American education to a goal of his own making. To their delight, he uses his instructors to educate himself. I think there are just about as many of these rare and wonderful phenomena as there ever were, maybe more. We get no credit for what they do—unless, indeed, a little credit attaches to shutting up and getting out of the way. But then that is one of the things a nonsystem does best.

Real teachers always know what is happening in the classroom situation; if asked, they say what Mr. Adams says. Ortega said virtually the same thing in the first chapter of *Some Lessons in*

*Metaphysics*, although with another emphasis, too. He distinguishes between the rank and file of students who are only doing what is "expected" of them, in ways entailing the least effort, and the rare few who carve their way to goals of their own making. Speaking of the typical student, he says: "What he seeks is simply to assimilate it [the course content] as it already is."

On the other hand, the man who is needful of a science, he who feels the profound necessity of a truth, will approach this bit of ready-made knowledge with caution, full of suspicion and prejudice, submitting it to criticism, even assuming in advance that what the book says is not true. In short, for the very reason that he needs, with such deep anguish, to know, he will think that this knowledge does not exist, and he will manage to unmake what is presented as already made. It is men like this who are constantly correcting, renewing, recreating science.

Well, if these are the facts about students—and anyone with experience in teaching knows that they are—then what is the duty of the teacher? Ortega put it well: It is to try to fire the rest of the students with the same concern for knowing for oneself, for teaching oneself. This is really all that counts; the rest is routine, hardly education at all, although it passes as education.

For the student, then, the idea would be to look for teachers who understand this. In the area of literature, we think of one: Harold C. Goddard. Goddard taught English and literature at Swarthmore for most of his life, and died in 1951, a little before his two-volume study, *The Meaning of Shakespeare*, appeared. (University of Chicago paperback.) Readers may recall that earlier this year (in the May 12 issue), Jacob Needleman wrote of "the role of universal, philosophical ideas in the intellectual, moral and psychological development of a normal human being." Goddard was directly aware of this role and had the capacity to evoke philosophic ideas in the reading and enjoyment of Shakespeare. His book is filled with evidence of this.

Goddard celebrates the *poet* in Shakespeare. He is a multifaceted genius, of course, and a great dramatist, but his work as a poet transcends all else, in Goddard's view. What does this mean?

Poetry, the elemental speech, is like the elements. Its primary function is not to convey thought, but to reflect life. It shows man his soul, as a looking glass does his face. There hangs the mirror on the wall, a definite object, the same for all. Yet whoever looks into it sees not the mirror but himself. We all live in the same world, but what different worlds we see in it and make out of it: Caesar's, Jesus', Machiavelli's, Mozart's—yours and mine.

The oracle remains the type of the purest poetry. Oracles are *ambiguous* (a very different thing from obscure). They are uttered as the world seems to be made, to tempt men to meet them halfway, to find in them one of at least two fatal meanings. Life or death hangs on how they are taken. "The Lord at Delphi," says Heraclitus, "neither speaks nor conceals, but gives a sign." Dreams have the same Delphic characteristic. So does poetry.

To our age anything Delphic is anathema. We want the definite. As certainly as ours is a time of the expert and the technician, we are living under a dynasty of the intellect and the aim of the intellect is not to wonder and love and grow wise about life, but to control it. The subsenience of so much of our science to invention is proof of this. We want the facts for the practical use we can make of them. We want the tree for its lumber, not, as Thoreau did, to make an appointment with it as a friend. We want uranium in order to make an atom bomb, not for the mysterious quality that gave it its heavenly name. When the intellect speaks, its instrument is a rational prose. The more unmistakable the meaning the better. "Two and two are four." Everybody understands what that means, and it means the same to everybody. But "Become what thou art", "Know thyself"; "Ye must be born again"; "I should never have sought thee if I had not already found thee", "The rest is silence": what do they mean? Will any two men exactly agree? Such sentences are poetry.

This is Harold Goddard's invitation to the study of Shakespeare—invitation by evocation.

Shakespeare's heroes—if he has heroes—often seem deeply flawed. Cleopatra is flawed, Antony is flawed, and so is Hamlet. Yet the

poetic undermeanings may be what Shakespeare intended:

As statesman and soldier it was Antony's duty to fight to the bitter end at the Battle of Actium for his half of the empire. If he had, at the price of depriving the world of the story of Antony and Cleopatra—including Shakespeare's play—is it certain that the world would be better off? The destiny of the world is determined less by the battles that are lost and won than by the stories it loves and believes in. That is a hard saying for hardheaded men to accept, but it is true. Stories are told, grow old, and are remembered. Battles are fought, fade out, and are forgotten—unless they beget great stories. We do not need to put up massive monuments to great poets nor to those heroes who have made themselves immortal.

Antony, in the end, forgot, "like Desdemona and Cordelia, that he had been sinned against and went on loving the one who had injured him."

Was that not better than winning the Battle of Actium or any other battle? He that ruleth himself is better than he who taketh a city. And the weaker the man is, Shakespeare seems to add, the greater the victory.

## *FRONTIERS*

### Theory Embodied in Lives

THEORISTS who work personally at what they advocate are few in number, but they are probably the only theorists worth reading. Their books are more than "books." Their practice says something about their theories and something about themselves. Theories which can be carried out by individuals do not depend on the exercise of power, nor do they involve risky plans reaching into an unpredictable future. They attract little attention from the press, yet they are potentially mighty in influence because they shape human attitudes, give pattern to lives, and stability to vision. In some happy day to come, the education of the young will be largely devoted to the ideas and actions of such theorists, not only for the good they accomplish, but mainly because of the stimulus to the imagination which results.

*Alternative Americas* (Universe Books, 1982, \$7.95 in paperback), by Mildred J. Loomis, is about the teachings and work of theorists of this sort, over the period of about a century in America, until the present. Best known as a decentralist, Mrs. Loomis is one of their number, a stalwart now in her eighties, who knew and worked with many of those she writes about. The early chapters are general, dealing with the processes and effects of centralization of political and economic power. The effects are obviously not good. The author concludes her diagnosis:

Centralization has not lessened the prevalence of the five D's. On the contrary, there is more dependency, disease, degeneration, delinquency, and decadence. What is clearly and desperately called for, then, is a fourth revolution [after the political, industrial, and economic revolutions]—a decentralist revolution.

Decentralization is not a turning back of the dock. Through decentralization, independence would replace dependency; honesty and justice would replace delinquency. Health would prevent disease and degeneracy. Creative work and folk art would replace decadent and inhuman activities.

For these desired ends, decentralization would organize production, control, ownership, government, communications, education, and population in smaller, more human units.

Such a trend is apparent as we have moved into the 1980s. The worm is turning. Important groups and wise individuals have contributed to decentralist ends and means in American history. Some have worked significantly and dropped out of sight. Others continue, more or less obscurely. Most of them have been crowded out of school textbooks and hidden from public discussion by the all-conquering centralization of modern times. But hundreds of thousands of people are seeking human alternatives. Thousands of groups are publishing journals, exchanging newsletters, and getting into action over environmental, social, political, energy, and many other issues. Knowledge, support, and guidance are at hand in American decentralist forebears. . . . I present some of the outstanding leaders and groups who make up America's fourth and decentralist revolution.

These are people who looked around and asked themselves: What can I do in these circumstances to make life better for myself and others? It takes time to change circumstances, so I am going to get to work right now!

Mildred Loomis's story begins with brief but colorful accounts of the nineteenth-century American anarchists, starting with Josiah Warren (1798-1874). These were individuals "who adhered to decentralized local communities, and free associations of producers and consumers in urban centers." They "abandoned the ideal of an *equalitarian* utopia where everyone was an *economic equal* under pooled property. Instead, they worked for a world of *equity*—a world free of legal privilege and free from legal restrictions to opportunity to work and live." Henry George is shown to have been a decentralist, and a sketch of the cooperative movement, from the time of the Rochdale weavers (1844) on, illustrates its strongly decentralist influence. The core of Mrs. Loomis's book is her account of the life and work of Ralph Borsodi, an economist who in 1919 moved to Rockland County, New York, and built a home for his family where they "produced all of

their food, and most of their shelter and clothing by themselves." Borsodi also wrote books, good ones, about what people can do to change their own lives. *This Ugly Civilization* appeared in 1928—an account of the distortions of life produced by industrialism, and in *Flight from the City* (1933) Borsodi described his personal correction of those distortions for at least one family—his—although, as it turned out, dozens of other people followed his example. Mrs. Loomis says:

Borsodi presented the modern homestead as an alternative and challenge to industrial factory workers. He described and showed the implications of Dogwoods Homestead, where he and his family produced from the ground up. They made organic compost by layering vegetables and animal waste, kitchen refuse, and good earth. They tilled the resulting humus, full of living bacteria, into their soil. They planted and harvested green beans, peas, corn, tomatoes, carrots, potatoes, squash, and pumpkins. They cared for a small flock of chickens and their two goats. They pruned old grape vines, berry canes, aging apple and pear trees. They were rewarded with bushels of fruit, although not always of first grade. "It's better to find a worm now and then, than to spray with chemicals," Borsodi said.

In 1936 Borsodi founded the School for Living, for education in homesteading and decentralist ideas and practice, an informal institution which still continues under the direction of Mildred Loomis, a colleague of Borsodi over many years. Several of the chapters of her book are devoted to individuals and families who came under the influence of the School for Living and then went on to major accomplishment in organic farming, home design and building, nutrition, and related activities. The School's magazine, *Green Revolution* (P.O. Box 3233, York, Pa. 17402), is well known among decentralists and widely read.

As Hazel Henderson says in a foreword, this book by Mildred Loomis transmits from one generation of decentralists to the next the "profound ecological and social logic" of the movement's pioneers—indeed a "precious legacy." It is also a celebration of unsung heroes who

should become better known. Arthur E. Morgan, flood control engineer, educator, and founder of Community Service in Yellow Springs, Ohio, has a chapter, and so does Peter van Dresser, who has been contributing to decentralist thought since the 1930s. His *Landscape for Humans* is a landmark achievement in ecological regional planning. The chapter on Ken Kern, author of *The Owner-Built Home*, reveals the "Horatio Alger" flavor in the career of this life member of the School of Living:

He has designed and built several homes for his family; he has designed and helped in the building of hundreds of other homes and homesteads. He does not encounter any piece of land that his imagination does not immediately see on it people and animals, houses and buildings to fit the landscape, gardens and woodlots to build the soil, and all manner of new cost-saving decentralist technology such as indoor greenhouses, original housing units, fireplaces, and compost privies.

All the theories in this book are grounded in the lives of the people who make its content.