

## EPISTEMOLOGY MATTERS

HOW do we think? The question is too big. Needed is some kind of functional focus to make it more manageable. What, then, is thinking? A simple answer would be, it is the production of order. When we put the elements of an experience in order, we feel that we have made sense of it. What sort of sense? A sense that relates to either an immediate or a deliberated feeling of need or desire. The focus giving sense comes from us. Making sense out of the ranges of experience develops the organism of mind. The body is an organism which relates us to the visible environment. Its organs are the means of using and being affected by the elements of the physical environment—eating and breathing and constructing houses and roads. The organism of mind relates to the various levels of meaning we find—or try to find—in all our activities, not only the physical. Its function is to discover and unify the sense we make of our experience, defining what we have learned about the order in the world and in ourselves.

What is order? Order is made up of causal relations—why things happen as they do. Knowledge—often called the various sciences—consists in a grasp of why things happen as they do. Ignorance is a clotted reality made up of the experiences we are unable to give order to. What shapes knowledge? Human need and desire. Humans are distinguished from animals by the extraordinary range of their needs and desires. A further distinguishing attribute of humans—perhaps most important of all—is the capacity to look at, give order to, and improve the modes of making sense. We study how we know, how we think, and have the term wisdom to describe excellence in knowing, thinking, understanding.

It follows from all this that our lives—what we do, what we know—are determined by the ranges of desire. Our technical knowledge is

defined by its capacity to fulfill those various desires. A higher sort of knowledge guides our choices among the desires we decide to fulfill, or try to fulfill. For a general term to describe good sense in the selection of desires to fulfill, we have the word "maturity." For the active and persistent pursuit of maturity we have the word "philosophy."

Both thought and feeling are involved in philosophy. Feeling, often an expression of desire, animates our lives. Thought both serves and is critical of feeling. Thought is the ways and means committee of decision in human life. It gives structure and sanction to desire. Thought is the work of consciousness. A main task of thought is to determine how the world we experience fits and corresponds with ourselves. Animals, for example, eat and sleep as we do, but they cannot converse about themselves and their ways as we do. They do not perform acts of self-reform, establish universities for those who hunger to know what the best thinkers have thought, nor do they send food around the world to the hungry or missionaries to the heathen. Animals are protected from the horrible mistakes made by humans. They don't invent doctrines about meaning which prove false, they are not rationalizers, and they need not patch up their theories of the universe with desperate improvisations, when calculations go wrong. Animals have instincts which seem infallible (within limits) to take the place of errant theories of knowledge. They do not argue about good and evil. They have no epistemological problems involving questions such as "How do we think?"

For us epistemological problems are crucial. Five hundred years ago, in Europe, thousands of people were burned at the stake for confessing or admitting to the "wrong" kind of thinking—for having heretical ideas concerning salvation.

Socrates was poisoned by the Athenians on similar charges. A man named McCarthy imposed an almost terroristic regime on American intellectual and social life for several years, by the exercise of demagogic skills. Certain fundamentalist religious groups in the United States are often heard to demand that the Garden of Eden story be given equal time with evolution theory in the public schools. This may be said to bear on how we think about ultimate questions. Even caricatures of thinking must be included in epistemological considerations. After all, civilization might be defined as a way of telling people how to think. We don't know how to bring up our children without telling them how to think. Science has had some ideas on the subject, but they haven't proved a means of developing independent minds. There is scientific as well as religious bigotry. It is fair to say that learning how to have independent minds is an untransferable secret of the wise. Yet it happens, because we do have some independent minds in the world.

Independent minds, even the good ones, create problems because no one has discovered how to prevent dependent minds from imitating them. Publishing one's ideas is always a calculated risk. People repeat one another. A cultural atmosphere is generated by this means. That atmosphere may be good or bad. When there is a bad cultural atmosphere, individuals who try heroically to spread a better one are usually mistreated by their countrymen, as in the case of both Socrates and Thomas Paine.

This matter of the cultural environment, sometimes called the information environment, was the subject of an article by Neil Postman in the *Nation* for last January 19. Along with an analysis of TV programs and their effect on watchers, he considered the unnoticed implications of IQ tests. That the questions are probably culturally biased may be an objection to them, he said,

But what is important about such tests does not lie in the details of their content. . . . What is of major

cultural interest here is that such tests put forward a particular metaphor of the mind of which most people seem entirely unaware—the mind as a machine whose "output" is precisely measurable. It is a metaphor which permits us to say that your mind is a "126" or a "79," and which allows us to strip from the mind all dimensions of affect, motivation and purpose. Machines have no feelings about the tests you put them to, and we do not expect a machine to have an opinion on the purpose of a test. The question of a machine's motivation is irrelevant. We require only that our test-takers be reliable, by which we mean that the mind-machine will be more or less consistent in its performance and that its performance will produce an unambiguous number.

That is why social criticism must begin as media criticism, by which I mean that human affairs are conducted under the sovereignty of symbols and media whose forms control the content of our thought and action. Just as the physical environment determines what the source of food and the exertions of labor will be, the information environment gives specific direction to the kind of ideas, social attitudes and intellectual presuppositions that emerge.

What does "media criticism" mean? It requires an examination of how we get our knowledge, or what is supposed to be knowledge. Mr. Postman is an effective media critic, but the idea is far from new. Socrates was a media critic. The Sophists were shaping opinion in Athens and he spent much of his time showing what was wrong with their teachings. Jesus was a media critic; he brought a new Testament to replace the Old. In the second discourse of the *Bhagavad-Gita* Krishna offers broad media criticism, suggesting that even in holy scriptures there may be traps for the ordinary mind. He said to Arjuna:

"When thy heart shall have worked through the snares of delusion, then thou wilt attain to high indifference as to those doctrines which are already taught or which are yet to be taught. When thy mind once liberated from the Vedas shall be fixed immovably in contemplation, then shalt thou attain to devotion."

In the Gospel according to St. Luke, Jesus gave a similar counsel to his disciples, explaining that to them he was able to reveal mysteries, while to others he spoke in parables, so that the difficult

meanings would be masked. There seems a sense, then, in which the high religions all suggest that there is an escape hatch from the conventional wisdom, or orthodox knowledge, but that a certain determination, with corresponding discipline, is required of those who wish to be free in mind. A distinction, however, exists between the kind of media criticism practiced by old philosophers and religious teachers and that of Mr. Postman. The ancients taught in two ways. They taught the Vedas, you could say, as a world-view that would serve the needs of the great majority of people who were not primarily interested in finding the truth, but who needed guidance in their lives; but they also taught a more self-reliant doctrine or "way" for those determined to go beyond the Vedas, as Jesus also explained to his disciples.

Mr. Postman is concerned with specific channels of communication—called "media"—which, he finds, are not really interested in communicating any sort of knowledge, but in the sales promotion of merchandise. The world-view they propagate is a hodge-podge, a mish-mash. After describing a typical TV news "show," a carefully measured mix of big and little sensations which have no relation to each other, Postman comments:

Given such juxtapositions, what is a person to make of the world? How is one to measure the importance of events? What principles of conduct are displayed, and according to what scheme of moral order are they valued? To any such questions the TV news show has this invariable reply: There is no sense of proportion to be discerned in the world. Events are entirely idiosyncratic; history is irrelevant; there is no rational basis for valuing one thing over another. . . .

What it all adds up to is that a TV news show is a form of absurdist literature which nightly instructs us on how we shall see the day. Here is your window on the world, we are told. It will reveal to you the fevered discontinuities of modern times. You need not think much about them, or even remember the details. There is nothing you can do about this. No need to be depressed. Pan Am will fly you to Hawaii for \$60 down, the rest to be paid later.

A TV show, in short, has but one serious intention: To make sure you know what bargains the sponsors offer—which for them, if not for you, is the most important thing in the world. This is the doctrine, indeed the theology, of the acquisitive society, of which the media are the well-paid and articulate priests. Unless it means more business, the media will have nothing to do with it.

Novelists are often our most outspoken cultural critics. In a story (*Night unto Night*) which came out in 1944, Philip Wylie has one of his characters, a rebel artist, say:

"We're for it, now. We—and the world. We're going to win the war. The two wars. United States, Great Britain, Russia, China. We will have to develop the ensuing peace with the solitary advantageous symbol we commonly possess: material "improvement." The philosophy of democracy has become confused with the economics of socialism. They are actually parallel in no sense whatever. Democracy is a way for people to operate politically—a way to live in mutual respect. Socialism is merely one of many systems that refer to people as producers and consumers—a particular aspect of man. . . .

"The main present tendency of man is to escape pain and produce pleasure. By following it, he has already produced the most pain in his history. But there is more to come. The machine itself exists principally, so far, to create pleasure: ease, that is, smoothness of transportation, speed, simplicity of communication. The labor-saving features of machinery—its alleged great glory—save labor for no known or agreed *purpose*. That's nuts—if you stop to think. Why save it, if you haven't planned what to do with it? Labor-saving merely makes room for more machines, the sole end of which will be to make physical existence softer for men. We are insane in this matter of believing that, by making our lives easier, we can make ourselves any *better*, hence any better off. . . .

"The transatlantic airplane adds nothing to the fifteenth century but *ease*: Columbus made the same trip. The airplane makes it more simply. The electric refrigerator is an easier ice box. The radio is easier than going to the concert or the lecture—but no different therefrom—and the concert and lecture are thousands of years old. The automobile is an easy

sedan chair. The oil furnace and the automatic coal stoker are easy campfires. The spinning mill and machine loom do not differ from the same operation performed on the hearth; they are just *easier* means of making cloth. You can hardly name a machine that is not merely an ease-maker of an old process.

"But what relationship has all this ease to man? To life? To the progress of the brain's evolution? To moral truth? To natural law and to biology? To instinct? To passion? To being alive? To good and evil? To kindness and cruelty? To honesty and crime? To prejudice, false conviction, hate, superstition, tabu, hope? All these machines mean *nothing!* They do not relate to what *actually* controls our private and our common destinies. We are not *changed* by them. We cannot grow through them. They become tools of our fears or our senseless ambitions as readily as they become tools of any intelligence we may have. They are only what we are.

"But we think them to be more. We, and the Russians, and the British—and someday soon after the war probably the Chinese, also—will think mere physical ease is the end. We will be *objective*. We will then become *objects in our own eyes*—not thinking, feeling, moral men—but mechanized per capital. . . .

"Centuries of this madness may lie ahead, until sin is rediscovered and at last honestly defined. Until, that is the meek take over their inheritance of the earth. Which is to say, the spiritually honest—that being a condition which automatically produces humility. There is nothing gentle enough, yet, in the common man. Suffering has not yet sufficiently tempered his vanities. We have civilized our machines instead of ourselves. . . . our materialism has slain man's good opinion of himself, stripped government of philosophy, taught the common people not to desire personal excellence but to barter in droves for the right to mediocrity!"

This, too, is media criticism—criticism of the entire social-commercial community as an "educative" influence, now shaping human minds according to the pattern of the least important and least controlled desires. It is criticism of the very opposite of what the ancient Greeks meant by *Paideia*—the entire community as the matrix in which humans learn to aspire and to grow to their full maturity.

Another kind of influence may be conveyed by a social community—spread of the chaotic tendencies which appear when the society suffers decline or collapse. This, too, is a part of the experience of our time. How shall we understand it? Its elements are not elements that can be assimilated by our ordering faculty. Yet by this experience humans may be driven to think as they have never thought before. There is an illustration in the concluding contribution to the *Journal of the New Alchemists* (No. 6). In "Reflections on the Chilean Civil War," involving the takeover of Chile by the military which brought the downfall and death of Allende, Francisco Varela recalls what happened from day to day:

There is no government. There are no instructions. The military, whom we had seen before as somewhat respectable people, now we can see that they are not. I remember very well that the soldier, whom I saw machine-gunning the other fellow who was running down the street, was probably a nineteen-year-old boy from somewhere in the south. A typical face of the people of the South. Probably, if you had met him two months before in a bar, you would have had a swell conversation—a sweet boy. He couldn't be more than nineteen, yet I could see in his face what I had never seen, a strange combination of fear and power. So those people I don't recognize any more; I don't know their faces any more. We are all stranded in this place, and we know that there is simply no hope.

Now the report becomes a reverie:

. . . I could literally see how this whole thing wasn't me here and they there. But I could literally see how the army, and that nineteen-year-old boy shooting somebody down, wasn't distinct really from me. I could somehow contemplate that murder with a sense of brotherhood at the same time. . . . As this became more and more clear to me, it dawned on me that whatever my stances had been, my opinions had been, or whatever somebody else's opinions had been (and the workers' opinions and what not), were fragments that constituted this whole, this complete mandala of sorts. That all of a sudden it revealed a craziness. . . . That's what my actual experience was; three million people being turned upside down in the same way. And you see the craziness, the way in which there was a collective pattern in which I was responsible, everybody was, and in which my views

couldn't any more signify anything except that piece of a larger puzzle for which I really didn't have any answer.

Out of what was complete chaos, mass killing, there came a sense of "the connection between the world view, political action and personal transformation."

It revealed to me, in a way that I knew but really didn't know, that I somehow vaguely understood but hadn't experienced, that unless I was able to cut through my sense of identity and attachment and identification with what I believe are my ideas, my things, my territory, my limits, I had no hope of understanding what the hell was going on. And it literally turned my life inside out. What that experience told me was: "Unless you build on the foundation of working with that sense of spirituality (what later on I began to understand was what religions are talking about), unless you build on that base there is simply no hope of understanding."

For this man, the question of how we think, how we know, became the most important of all.

I cannot separate that practice, that sense of working with the contemplation of how my mind and my actions generate and operate. I cannot separate that from political action and from what my understanding of what the world is. I suppose this is why I become so passionate about issues on epistemology. Because epistemology does matter. As far as I am concerned that civil war was caused by a wrong epistemology. It cost my friends their lives, their torture, and the same for 80,000 or so people unknown to me.

Francisco Varela's "Reflections" conclude:

So it is not an abstract proposition for me when I say that we must incorporate in the enactment, in the projecting out of our world views, *at the same time* the sense in which that projection is only one perspective, that it is a relative frame, that it must contain a way to undo itself. And unless we find a way of creating expressions of that nature, we are going to be constantly going around the same circle. Whether that can be done or not I do not know. . . . My deep conviction is that we must try to see to what extent our political views and our projections on the world can express this form of relativity, the fact that every position we take will also contain the opposite one. That ultimately I cannot follow a form of political action that is based on truth any more. I

cannot say my political stance is true as opposed to yours, which is false. But every political stance contains the elements on which the truth of the other is based, and all that we are doing is a little dance. Sure, I have to take this side, and that is cool, but how do I really embody in that action that I acknowledge the importance of the other side and the essential brotherhood between those two positions? How can I go to Pinochet and say, "Hello, my brother"? I don't know. I don't think that I am that enlightened at all. I wouldn't be able to do that, but in some sense I realize that is a great limitation. That should be in some sense possible.

The final words of this paper seem an appropriate characterization of the best of present-day thinking about working for socio-moral change:

I don't believe any more in the notion of a cultural revolution in the sense that one form of politics and knowledge and religion is superseded by a new one. If I am interested in doing anything at this point, it's in creating a form of culture, knowledge, religion, or politics that does not view itself as replacing another, in any sense, but one that can contain in itself a way of undoing itself. If we are not here to do that, I quite frankly would rather go skiing.

## *REVIEW*

### THE DISCONCERTING ART

IF YOU ask yourself about the role of literature in human life, you may, along the way, be obliged to admit that lovers of literature form an aristocracy, and then, in these days of equalitarian passion, feel further obliged to defend its existence. Well, the defense seems easy enough. The curse of aristocracy is egotism and one service of literature is to lift us out of our egotisms, both personal and social. Literature instructs us in the diversities of the expression of our common humanity. It is the enemy of parochialism and every sort of cultural conceit. Literature is filled with implicit affirmation of human potentiality. It exhibits moral vision without moralizing. It displays the dignity of man casually, in a matter of course way, without didactic intent. Literature inspires without heavy reference to the moral ought. It is a vast anecdote of human character. It improves the mind without requiring that we labor with longings for self-improvement. It is good for the good in man, spontaneous and free. It is a primary means of education for the human race.

Anything you pick up at random, if it is literature, will be suggestive of these ideas. For example, we have a small book of poems by Cliff Bennett, printed by the author in Ontario (Canada) in 1967—*Bronze Man Breathing*. In a brief introductory essay he quotes from I. A. Richards, then tells what he thinks poetry is good for, if one needs justifying reasons. The following is from Richards' *Practical Criticism*:

If we wish for a population easy to control by suggestion we shall decide what repertory of suggestions it shall be susceptible to and encourage this tendency except in the few. But if we wish for a high and diffuse civilization, with its attendant risks, we shall combat this form of mental inertia.

How does poetry serve in this?

Nearly all good poetry is disconcerting. . . . Some dear habit has to be abandoned if we are to follow it. Going forward we are likely to find that other habitual responses, not directly concerned, seem

less satisfactory. In the turmoil of disturbed routines, the mind's hold on actuality is tested.

Cliff Bennett adds:

These are the functions of poetry in the present world:  
—to cut into the generalized with personal speech  
—to point directly as possible to the real  
—to provide quantitative and qualitative models for appropriate sentiment  
—to freshen, clarify, and make more meaningful our language.

We take from Bennett's poem, "Ortega in the Cellar," two stanzas that may illustrate:

"Look," said Ortega, swinging his arms at the walls,  
"suppose we did a Gauguin,  
took off for Tahiti—well?

Esso and Kleenex and Coca-Cola  
will follow us all the days of our lives  
and we shall be chewed by the teeth of a gimmick  
forever.

. . .

"Brotherhood at the university  
was compounded of credits in sociology  
with a graduate seminar in ethics.  
But, like *caritas*, which is warmer than charity,  
it begins at home. Brotherhood  
of the head is only a family of phantoms."

How many learned doctoral theses are dissolved by these incisive lines?

In a literary magazine, *Towards*, published at 17417 Vintage Street, Northridge, Calif. 91325, we found some good passages on the role of literature in an essay, "Anxiety and Consciousness," by Jeffrey O'Connell. The writer asks what accounts for the tone of anxiety which haunts the poems of Alfred Tennyson and Matthew Arnold, and makes a thoughtful answer. These two were inheritors of "that great outburst of creativity, renewed sensibility and revolutionary fervor that we call the Romantic Movement," but anxiety threads through their lines:

Why could Wordsworth write with absolute conviction of "the sentiment of Being spread o'er all that moves and all that seemeth still . . ." and Arnold, a generation later, write of his father, a symbol to him of what had departed from the world:

. . . I believe that there lived  
 Others like thee in the past,  
 Not like the men of the crowd  
 Who all around me today  
 Bluster or cringe, and make life  
 Hideous, and arid and vile:  
 But souls tempered with fire . . .

The easy and obvious explanation is that during the 19th century, the world view of an arrogant, positivistic science fastened itself onto the minds of men, and that among the most sensitive individuals—notably the creative artists—the result was that confidence was lost in the power of the imagination. Men found themselves confronted with a picture of nature and man's place in it the direct opposite of that much older picture which stressed the dependence of both on an immaterial source of Being. The discoveries of 19th-century science and the theories erected on them completed the revolution in thought which had been first clearly stated by Descartes in the 17th century. The Romantic Movement represented a challenge to this view of the world and an attempt was made to reformulate the older view of man and his relationship to nature in terms suitable to the modern consciousness. For whatever reasons, the challenge was unsuccessful and we may in Coleridge's tragically unfinished "magnum opus" see a potent symbol of shattered hopes.

If we take the year 1834, the year of Coleridge's death, as marking the end of the Romantic period, then we could say that the subsequent one hundred and forty years have witnessed a further migration into the wasteland. We are all inhabitants of the wasteland now and the condition of our souls is what the psychologist, Rollo May, has described as a new type of anxiety, "not merely as a symptom of repression or pathology, but as a generalized character state." Anxiety as a pathological state is usually the result of the repression of some experience or desire with which the conscious self cannot cope. Anxiety as "a generalized character state," on the other hand, is a far more complex condition, the causes of which are to be discovered in the special circumstances of our age. May, in his valuable study, *Love and Will*, writes, "Our patients predict the culture by living out *consciously* what the masses of people are able to keep unconscious for the time being. . . . Today, the person with psychological problems bears the burdens of the conflicts of the times in his blood, and is fated to predict in his actions and struggles the issues which will later erupt on all sides in our society." . . .

After some discussion of the poet as the barometer of coming storms and ills, the writer says:

. . . I think we are justified in stating that the anxiety or uncertainty found in the poetry of Arnold and Tennyson can best be understood if we accept what Richards and Leavis have said about the poet being "the point at which the growth of the mind shows itself" and add that the area into which the modern poet (and by "modern" I here mean the poetry of at least the last one hundred and forty years) has moved is best understood in the light of Eliot's illuminating metaphor of the waste land. Furthermore, if we accept the argument of Coleridge which links conscience, or "sensitivity to one's place in the world," and consciousness, Leavis's observation that the poet is "at the most conscious point of the race in his time" acquires a new depth of meaning. Finally, we may now be able to see how all of this suggests a strong analogy between the creative artist, in this case, two poets, and Rollo May's patients, "who predict the culture by living out *consciously* what the masses of people are able to keep *unconscious* for the time being. . . ." A sensitive poet, like Arnold or Tennyson, gives expression to a mood of soul, a quality of experience which is felt, more or less dimly, by many people in the modern world. These two poets can be understood as precursors or forerunners of "the generalized character state" of anxiety which afflicts us all today, inhabitants as we are of a waste land produced by four centuries of alienating science and philosophy.

Of literature it can be said that it has no special interest—that it speaks for Man, and in what quarter of the globe, or where else, are such spokesmen to be found? A concern for humanity is unembarrassed in literature. And where worthy of the name a literary expression is a determined endeavor to free the mind of all detectable prejudice, even while using the language of the time and a vocabulary conditioned by prejudice, along with the few words still unharmed by the habits of dwellers in the waste land.

Literature reveals the wonder of the single, enterprising mind. This is the mind which seeks and sometimes finds the absolute limit of freedom that is possible during a given age, justifying Shelley's bold claim: "Poets are the unconscious legislators of the future."

## *COMMENTARY*

### COMFORT FOR THE IGNORANT

IN this week's lead article, "Ignorance" is defined as experience we are unable to reduce to order. Here "experience" is the operative word, for there are endless relationships we are not even aware of, and it does not seem sensible to call this unawareness ignorance, since what we are unaware of makes no problems. It is the disorder that impinges on our lives that gives us the feeling of being ignorant, a condition which we try to remedy through the acquirement of knowledge.

In an article in *Resurgence* for January, 1974, Vinoba Bhave says something along these lines:

In the *Upanishads*, the praises of ignorance are sung side by side with the praises of knowledge. Man needs not only knowledge, but ignorance, too. Knowledge alone, or ignorance alone, leads him into darkness. But the union of fitting knowledge with fitting ignorance is the nectar of eternity. The world is so filled with the matter of knowledge that men would go mad if they were to attempt to cram all of it into their heads. The ability to forget is just as necessary to us as the ability to remember.

What we call knowledge, this seems to suggest, is largely a matter of *relevance*. One could say that often knowledge is a kind of fashion—a mode of knowing that changes, day after day.

Vinoba's counsels on education gain their point from this idea:

The present school syllabus contains a multiplicity of languages and subjects, and the student feels that in every one of these he needs the teacher's help for years . . . But a student should be so taught that he is capable of going forward and acquiring knowledge for himself. There is an infinite sum of knowledge in the world, and each one needs some finite portion of it for the conduct of his affairs. But it is a mistake to think that this life-knowledge can be had in any school. Life-knowledge can only be had from life.

Finally, he says:

The question "What shall we teach our children?" is raised in the *Upanishads*, and the

answer given is that we should teach them "the Veda of *Vedas*." We teach the *Vedas*, but omit the *Bible*; we teach the *Bible*, but omit the *Quran*; we teach the *Quran*, but omit the *Dhammapada*, we teach the *Dhammapada*, but omit science; we teach science but omit political economy. Where are we to stop? No, we have to give them instead the Veda of *Vedas*, that is to say, the power to study the *Vedas*, and everything else for themselves.

## CHILDREN ... and Ourselves HONORING MARY BOOLE

GEORGE BOOLE (1815-64) is known to mathematicians as one of the founders of symbolic logic and an extraordinarily inventive mind. His wife, Mary Everest Boole, is known hardly at all, yet her work may have been equally important in its way. She survived him for fifty years, devoting this long career to putting the substance of his ideas into terms which could be understood by the ordinary reader. This included, for her, teaching little children to use their minds well. Her book, *Preparation of the Child for Science* (Clarendon Press, 1904), rings with the quality of everyday experience in working with small children (during the nine years of her marriage she bore five girls), and it also conveys to the reader something of the authentic inspiration which Science and scientific undertakings held for serious nineteenth-century thinkers. Happily, this small book of 157 pages has been restored to print by the International Society for General Semantics (P.O. Box 2469, San Francisco, Calif. 94196), with an introduction by Mary Morain.

What shall we say about this book? First, that it is a magnificent anticipation of Piaget, set down in language that anyone can understand. Mary Boole says in her first chapter on "The Scientific Mind":

. . . in science there are, there can be, no absolutely right impressions; our minds are not big enough to grasp any natural fact as a whole; everything depends upon drawing right conclusions from combinations of impressions, each of which is in itself inadequate and partially misleading, and if the pupil is to be got into scientific methods, that is what he must be trained to do. And in order that he may learn to do it, it is sometimes necessary that each of a succession of "wrong" impressions should have time to register itself on the brain and become part of its available stock. . . .

What science does claim is, that no child shall be told anything about the motion of the earth till he has observed many sunrises and sunsets; till a clear

sense-impression of the earth standing still and the sun moving has become organic within him. This registering of a "wrong" impression is what in science we have to secure. . . .

Suppose a youth gazes at the starry heavens till he has soaked in an impression of their varying aspect, that is instructive; but the instruction is not scientific. Suppose a navigator reads or is told that when the heavenly bodies appear in certain relative positions at a certain hour the latitude must be so-and-so, that is useful technological instruction: it has no claim to be called scientific. (Technologic information is often miscalled "scientific" in advertisements.) Suppose we read up a history of the various theories which have been held as to the causes of phenomena presented by the heavenly bodies, that is in itself a historic or literary treatment of the subject, not a scientific one. But when a child has formed for himself a clear, undisturbed impression of the earth's unmovableness and the apparent motion of the sun, and then has read that astronomers believe the earth goes round and the sun does not go round the earth, if he then puts together in his mind the two apparently conflicting statements—that made by his senses, and that made by his book—and lets them combine to create in him an impression which shall embrace both, then the sacrosanct scientific act has taken place within his mind. He has really done a bit of true science work.

Another part of Mary Boole's book brings to mind a memorable paper by David Hawkins, "Messing About in Science" (Education Development Center, Newton, Mass.). Good science teaching, Hawkins maintains, begins with letting the children simply "mess about." He quotes the Water Rat in *Wind in the Willows*:

"Believe me, my young friend, there is *nothing*—absolutely nothing—half so much worth doing as simply messing about in boats. Simply messing," he went on dreamily, "messing—about—in—boats—messing—about in boats—or with boats. . . . In or out of 'em, it doesn't matter. Nothing seems really to matter, that's the charm of it."

Commenting, Hawkins says:

In some jargon, this kind of situation is called "unstructured," which is misleading; some doubters call it chaotic, which it need never be. "Unstructured" is misleading because there is always a kind of structure to *what* is presented in a class, as there was to the world of boats and the river with its

rushes and weeds and mud that smelled like plumcake. Structure in this sense is of the utmost importance, depending on the children, the teacher, and the backgrounds of all concerned.

Hawkins tells about a fifth-grade class to which pendulums were introduced in the form of simple frames with weights on strings.

In starting this way I, for one, naively assumed that a couple of hours of "Messing About" would suffice. After two hours, instead, we allowed two more and, in the end, a stretch of several weeks. In all of this time, there was little or no evidence of boredom or confusion. Most of the questions we might have planned for came up unscheduled.

Why did we permit this length of time? First, because in our previous classes we had noticed that things went well when we veered toward "Messing About" and not as well when we held too tight a rein on what we wanted the children to do. It was clear that these children had had insufficient acquaintance with the sheer phenomena of pendulum motion and needed to build an apperceptive background, against which a more analytical sort of knowledge could take form and make sense.

Mary Boole's earlier and effective version of this idea:

The principle I wish to illustrate is that actions which are artificial should be practiced in connection with ideas which are familiar; and new ideas should be learned by means of actions which are natural. E.G. we ought not to try to teach a little girl to cut out a doll's frock as long as she has to stop with the scissors in her hand and think how to open and shut them. We let her learn the series of movements involved in the act of cutting by reference to some idea already familiar to her, such as that of dividing a piece of paper in two. . . . We allow her to cut for mere cutting's sake, till the single thought "I will cut" suffices to place her fingers properly in the holes, to initiate the movements of opening and shutting, and to direct and steady those movements. Till this is accomplished the use of scissors is artificial; and, while it is so, we do not puzzle the brain with any new idea in connexion with scissors. . . . Not till the process of cutting has become a natural one do we introduce the new idea . . . at no step in this sequence is the mind distracted by trying simultaneously to receive a new idea and to correlate for a still artificial process.

There is no more important habit for a child to acquire than that of learning from his own mistakes. A carpenter shop is an ideal place for this:

He can begin to make something out of wood that has a flaw, or that is too soft for his purpose; or he can try to gouge out a piece that is too hard for anything but a very sharp chisel to bite into. He can begin on too small a piece; he can begin without taking proper measurements and put his center-bit in the wrong place, and, when he finds himself baffled, he can try again another way. And when he is tired of failures he can ask the carpenter how *he* begins; and that is a useful lesson in modesty. And he can get so delightfully dirty without any real soil or filth.

Mary Boole is talking about what Hawkins calls an "apperceptive background." She names it the unconscious mind, which needs to be "fed":

Choose for this purpose some subject to which you see the child attracted. . . . The means used for feeding the unconscious brain should be as far as possible dissociated in the children's minds from any notion of doing things *for their own instruction*. Whatever you set children to do for this purpose should be done either to amuse themselves, or, better, to amuse someone else; or by way of helping someone else. . . . Lay no stress on their learning any special thing . . . leave the children to absorb whatever impressions they can gather.

Mary Boole has as much to say about deliberate teaching as she says about being careful not to "teach" until the time is ripe.

## *FRONTIERS*

### An Atmosphere of Health

PRACTICALLY all the books devoted to alternative sources of energy, small-scale agriculture, smaller, more self-reliant communities, and general decentralization of authority and power, speak briefly, toward the end, of the importance of change in *attitude*. Not much can be said about this without getting preachy, yet all agree that attitude is the heart of the matter. People who write about this well are people who have already made some changes themselves, so that it comes naturally to say what the changes mean. They may say it indirectly, as Emerson did, back in 1859, writing in his journal:

I have been writing and speaking what were once called novelties, for twenty-five or thirty years, and have not now one disciple. Why? Not that what I said was not true, not that it has not found intelligent receivers; but because it did not go from any wish in me to bring men to me, but to themselves. What could I do if they came to me? They would interrupt and encumber me. This is my boast, that I have no school and no followers. I should account it a measure of the impurity of insight if it did not create independence.

Is it too much to say that the best causes are best served in this way? That the most important writers are the writers who have become Emersonian in this sense? Think of the influences that are all around us these days, from persuaders hidden and manifest: Which of them work to help people to become *independent*? One might propose that achieving independence is something like the kingdom of heaven—when you get there all things are added unto you.

Emerson goes on:

I would have my book read as I have read my favorite books,—not with explosion and astonishment, a marvel and a rocket, but a friendly and agreeable influence, stealing like the scent of a flower or the insight of a new landscape on a traveller. I neither wish to be hated and defied by such as I startle, nor to be kissed and hugged by the young whose thoughts I stimulate.

There will always be ad hoc reformers and earnest campaigners for or against some good or evil things; we need these helpers, leaders who inform and arouse; but such problems will continue, probably eternally, and not just this or that problem but *all* of them will be better met and often prevented from recurring by people who have learned not only the value but also the practice of independence. It seems to begin with the soil or mother earth, but it really begins in the mind.

Emerson is no longer with us—happily we have his books—but we are not without writers intent upon change who focus, as Emerson did, on attitudes of mind. In his *Unforeseen Wilderness* (on the Red River Gorge in Kentucky, issued by the University of Kentucky Press in 1971), Wendell Berry writes musingly about a form that human life may take, and of the feeling and thinking from which it grows.

I am speaking of the life of a man who knows that the world is not given by his fathers, but borrowed from his children; who has undertaken to cherish it and do it no damage, not because he is duty-bound, but because he loves the world and loves his children; whose work serves the earth he lives on and from and with, and is therefore pleasurable and meaningful and unending; whose rewards are not deferred until "retirement," but arrive daily and seasonally out of the details of his place; whose goal is the continuance of the life of the world, which for a while animates and contains him, and which he knows he can never encompass with his understanding or desire.

How are these affections and loyalties acquired? That is the question. Only little pieces of us feel them now, and it is in these pieces that we respond to writers like Emerson and Berry. How do we direct our lives so that they may become whole again, and respond as we should, if not to these two, then to some calling in ourselves? What sort of beginning can we make? Is there anything "specific" that we can do?

The specific things are what the new books and magazines are about. They deal with ways to remove the obstacles to what we shall very much

want to do as we experience a change in attitude. Berry puts his finger on the major obstacles, which are really old attitudes which have been consolidated into institutions and habits of thought:

Comparatively few white men have ever lived this way in America. And for the ones who have, or who have attempted to, it has been difficult, for the prevailing social current has always flowed away from the land, toward the city and the abstractions of wealth and specialization and power. The pressures against a modest and preserving life on the land have been manifested most immediately in adverse agricultural markets and in an overwhelming prejudice against all things identifiable as "country." These pressures have already destroyed the small farmers of most sections of the country, and are well advanced in the destruction of the rest.

People have lost their roots. The "mobility" of our time is a nervous wandering, seeking advantage which has little to do with the meaning of home and land and place. The continuity of our time is the cash nexus, not in generations on the land. Even our well-intentioned remedies are infected with the ills of everyday life:

Unchecked by any feeling that they may return soon, or at all, weekenders strew the public woodlands and streamsides with trash. Lacking any association with the disciplines of maintaining the farmlands the year round, urban hunters have become notorious as destroyers of fences and gates—and as most indiscriminate shooters.

The conservation movement has become almost exclusively a matter of power struggles between agencies and corporations and *organizations* of conservationists. The agencies and corporations are motivated by visions of power and profit. The conservation organizations are motivated by principles which very largely remain abstract, since the number of people who can *know* a place is necessarily too small to protect it, and must therefore enlist the aid of people who do not know it but are willing to protect it on principle.

The implications here need a great deal of reflection. Berry continues:

I should make it clear that I recognize the need for the conservation organizations, and that I am emphatically on their side. But the organizations, by

themselves, are not enough. If they are to succeed in any way that is meaningful, or perhaps if they are to succeed at all, their work must be augmented by an effort to rebuild the life of our society in terms of a decent spiritual and economic connection to the land. That can't be done by organizations, but only by individuals and by families and by small informal groups.

That is, by people who bind up the wounds of the earth and create an atmosphere of health—little by little—for the world.