

REFORM OF INSTITUTIONS

THE chief difficulty with criticism wholly aimed at institutions is that while it can lead to outrage, rebellion, and sometimes to revolution and the destruction of the offending social forms, it does not produce any long-term solutions. The defects of institutions inevitably reappear, and then the whole process of rejection and reconstruction must be gone through again.

What other way could there be to deal with the confinements, injustice, and distortions of human life that institutions produce? One suggestion, often made, is that men should reduce the function and authority of institutions to a minimum, so that their offenses will be no more than minor irritations. This seems a reasonable proposal, participating in the anarchist solution of social problems, and might work except for two rather important reasons. First, the external complexity of modern society has grown so great that there is now a built-in tendency to multiply institutions of social control to accommodate human behavior to the elaborate requirements of technological development and its numerous practical imperatives. Second, the opinion is widespread that human beings *need* to be managed in a variety of ways, since there are now so many of them and the days of individual adaptation to the natural environment have been over for generations.

But these objections are really forms of question-begging. The acceptance of social management because of technological complexity seems a peculiarly unimaginative surrender to the claim that vast controlling institutions are necessary, and the insistence upon extensive management may be only an expression of the habitual low-rating of human beings.

Yet one must also ask: Is the endless criticism and analysis of institutions itself free of this last

defect? It says in effect that we need to consider, not man, but the forces which shape him. But since neither the abolition of institutions nor their replacement seems to promise very much in the way of enduring change or reform, this might be an indication of the need to look elsewhere for a solution. Are there, for example, secrets of freedom and exemplary achievement which cannot be understood except from the study of unusual individuals? Is it possible that the balances through which institutions may be made to serve people well, inhibiting them little or not at all, are to be found only in the human beings themselves, and not in the schemes of social planners and the statistical mass psychology consulted by legislators?

Institutions are intended by their designers to shape the behavior of large numbers of people, and one class of institutions, the schools, are supposed to shape the minds of the young. By these means, the traditional wisdom maintains, human energies will be guided into paths productive of good for all.

The point we are endeavoring to make is that most of the attacks on institutions are made from a different reading of the same traditional wisdom: the energies of men, it is argued, should be turned in a different direction, and for this reason the minds of the young should be given another shape. But what if a deliberate effort should be made to exercise *less* control, with the young being encouraged to shape their own minds through self-education?

The question almost collapses of its own weighty rhetoric, for it will be said either that we are already doing just this, or that the idea is wholly impracticable, since the masses need to be guided into the right paths of belief and action. The question also suffers from the fact that it is

formulated in the statistical language of the managerial point of view. The *meaning* of the question can be developed only by considering the fact that the best human beings, the best thinkers, the best artists, the most effective reformers, are precisely those who in spite of external conditions have learned to control their own energies, directed them as their own judgment indicated, and were in some way self-taught from their very early years.

These are the persons, then, least scarred by the pressures and distortions of institutions. The very fact that they are not the standard "products" of the institutions of the times makes for independence and originality of mind. But how could schooling be *planned* for such people? The answer must be that such education cannot and need not be planned. The only important consideration is that it ought not to be planned *against*.

Well, how can this be avoided? It is plainly evident that the kind of education we have now is opposed to the self-directed shaping of the mind by individual students. In his paper, "Toward a Place for Study in a World of Instruction" (*Teachers College Record*, December, 1971), Robert McClintock shows that the "origin of evil," so far as modern education is concerned, came with Comenius' extensive plans for "instructing" the young in what they needed to know. Comenius believed that the excellence of a man corresponded exactly with the amount of "instruction" he had received from teachers. As Mr. McClintock says:

Here is the basis of our cult of the degree; and Comenius' faith in the power of the school had no bounds: he even suggested that had there been a better school in Paradise, Eve would not have made her sore mistake, for she "would have known that the serpent is unable to speak, and that there must be some deceit."

By the eighteenth century, the faith in "instruction" was universal in European civilization. A paternalist pedagogy dominated

the thinking of both conservative rulers and progressive thinkers. As McClintock says:

One rationale came from the spreading fascination with the possibility of progress: day by day, so it seemed, men were discovering ever better ways to order their affairs, and if some agency such as the school could systematically disseminate this knowledge, men could look forward to steady, unlimited improvement in the quality of life on earth. Such was the vision inspiring educational planners like Condorcet. Another view, closely linked to the progressive, might be called the philanthropic, here men like Robert Owen and Johann Pestalozzi looked to schooling, not only as a means of ensuring continuous future improvement, but, further, as a means of correcting the human degradation that presently resulted from economic exploitation and social dislocation. Still another view, which could partake of both the progressive and the philanthropic, was that of the political idealists; thus one found both French revolutionaries and German patriots who resisted Napoleonic domination arguing that the educator must train the perfect citizen of the perfect polity. In these ways, statist, progressives, philanthropists, and political idealists all looked to a system of compulsory instruction and state influence in higher education as an important, positive means of implementing their historic visions. Add to this the fact that most everywhere those who controlled dynamic industrial wealth were easily convinced that educational reform would be to their economic interest, and one should not be surprised that universal, compulsory schooling has indeed become universal.

Mr. McClintock continues with this history, speaking of the vast professional class of teachers brought into existence by compulsory education, which had the effect of reducing the initiative of the student and led to "the practice of making school attendance and performance the basic means of certifying the competence of people in every Western society." From this it follows that—

As communities come to rely on schools to certify the competencies of their people, they project onto those schools a productive mission to mold mechanically the populace, and students, who have increasingly seen schooling as a huge machine for stamping them with success or failure, have acquiesced, eagerly or hopelessly according to their

prospects, and have been content to be taught. Consequently, the social uses to which an apparatus of instruction could be put reinforced the single-minded reliance on instruction within that apparatus. From this stemmed the following paradox: at no time in the West have there been greater resources for self-education available to all than in the twentieth century, yet at no time has there been more extensive reliance on formal education for the education of all.

Mr. McClintock's paper is fairly evenly divided between this sort of criticism of the prevailing mode of education and discussion of what he means by resources for self-education—for *study*. Perhaps the effectiveness of self-directed study is best illustrated by the biographies of individual men who have left plenty of evidence of their impact on history. Such eminent "dropouts" would make quite a research project for educators who want to begin to help students to shape their own minds instead of "teaching" them. Montaigne and Goethe are two examples provided in this paper, and there are others. One autodidact who is not mentioned, but might have been, is Arthur E. Morgan, who is still writing in his nineties (last year Porter Sargent published Morgan's *Dams and Other Disasters*, a valuable critical study of the Army Corps of Engineers), and who devoted a long and immeasurably productive life to innovations in education, the best known being his resuscitation and reorganization of Antioch College in Yellow Springs, Ohio.

Another man who is plainly an autodidact, no matter what sort of schooling he had, is Buckminster Fuller, whose long, blank verse "treatise" in the April *Harper's* illustrates the excitement that may be generated by the free play of a mind that is both creative and disciplined by self-study. Fuller's thinking may be taken as an example of what may happen when the mind shapes itself. His contribution to *Harper's* breaks out of the confinements of conventional scientific instruction, pointing to the necessity for freedom from the deadly preoccupation of most scientific thinking with the second law of thermodynamics. Fuller argues that there are two kinds of

thinking—the thinking that men do with their brains, which takes its premises from the behavior of matter alone, and the thinking which the mind can do in its own terms and on its own ground of metaphysical principles—a great ordering and comprehending function which is greater by far than any physical function or operation of the brain by itself.

Fuller's thought—which requires a little deciphering—is very much in key with the unitary approach of L. L. Whyte, the new scientific epistemology of Michael Polanyi, and, at a less obvious level, with the humanistic psychology of A. H. Maslow. In the works of these men may be felt a view of man and the universe which cries out for expansion—one might call them the "sleepwalkers" of an age not yet born, in the sense that Arthur Koestler applied this term to Kepler, Galileo, and Newton as the forerunners of the modern scientific world-view. Of all of them it can be said that they refused to be docile students of the teachers of conventional science; they did not accept the approved "instruction" of their time, but found ways to shape their own minds. In order to do so, they had to go against the grain of their times and to learn how to stand alone.

Was there an anticipation of this need for conscious independence on the part of all men by the extraordinary individuals around whom the religions of both East and West have grown up—Jesus and Krishna? Jesus spoke of the "mysteries" he taught only to his disciples, and Paul advised the Corinthians to separate themselves from the opinions of the crowd. Krishna, urging independence of mind upon his disciple, Arjuna, declared that he must attain "to high indifference as to those doctrines which are already taught or which are yet to be taught." Arjuna, he said, would need to have a mind "liberated from the Vedas" before he could be certain of knowing the truth.

It is worthy of note that the great scriptures of the world, which are classical forms of education, are not guides to *administrators*.

They do not deal with the management of men, nor are they ever directly concerned with what we speak of as "social problems." They left these matters to kings and their imperial advisers. The vicissitudes of history, the tides of empire, do not seem to have been of interest to the spiritual teachers of mankind. Was this a cavalier attitude toward mere earthly existence, or simply a form of primitive ignorance? Something of both seems to have been the modern judgment, yet a sure instinct has guided the best teachers, ever since, to address men, not organizations, to found their hope upon minds, not methods and techniques of social control.

What is meant by "study," as contrasted with highly organized systems of instruction which transmit a pre-digested mass of material scaled for student consumption? It might mean at, say, the high school level, the abandonment of textbooks altogether and an extensive use of orienting outlines and bibliographies, so that there would be direct contact between original authors and student minds, without any intermediary. This would be especially appropriate in history, where standardization has led to all sorts of bureaucratic controls and dilutions. Mr. McClintock suggests "Apprentice Schools," to eliminate the unnatural separation between work and study, and of course the networks of Ivan Illich naturally fit into this scheme. But everything would finally depend on the quality of the teachers—those whose task it would be to stir the laggard impulse to self-reliant investigation and to show how necessary it is for the student to find his own way.

The reduction of the role of "instruction" would have to be balanced by the quality of the teaching, which would mean extensive internal reforms among the teachers themselves, to make themselves able to do without the mold of a heavy-handed curriculum. Take for example what needs to happen in the teaching of science, and of the meaning of the practice of science. A review by Theodore Roszak (in the *Nation* for March 27) of *Scientific Knowledge and its Social Problems*,

by Jerome Ravetz, is peculiarly enlightening as to what the situation in science education now is, and what needs to be done. The prevailing assumption, to begin with, is that science is the accumulated body of knowledge, growing day by day, gathered by men trained in a method which shuts out all ordinary human fallibility, so that, after discoveries have been sufficiently checked, they may be taken with the rest of the store of verified conclusions to be reliable knowledge about the world we live in. This knowledge is marked by no moral quality or human idiosyncrasy, being the fruit of the exercise of abstract intellect.

Some day, the doctrine goes, there will be enough of this knowledge available to solve all the major problems of the world and order human affairs for the good of all. That is—or was—the doctrine, but it is really no more than a modern myth. Actually, the practice or "craft" aspect of science involves much personal responsibility. It is, as Roszak says, a "mind-forged" discipline shot through with philosophical assumptions, and with a strong element of mutual trust among scientists themselves. These are moral qualities on which science depends, and to which it cannot claim immunity. As to the philosophical assumptions, Roszak writes:

The personal and philosophical sub-structure of scientific thought is not built up in the neophyte scientist overtly. True, there is a sizable body of positivist philosophy whose purpose is to sanction the scientific world view by dismissing alternative modes of experience as "meaningless," "nonsensical," "irrational." But it is notorious how meagerly practicing scientists requite the adoration of their philosophical suitors. Few scientists ever learn their philosophy consciously. Rather they absorb it unwittingly from the design of curricula and textbooks. Or they find it baked into standard laboratory procedures and instruments (Ravetz is very good on this aspect of scientific "tools") or conveyed by the tone of professional journals. Above all, it rubs off on them from senior scientists who simply know what to approve and what to reject, what to encourage and what to ridicule in their students, and who wield the authority of a profession which can quickly weed

out eccentrics. Here, at last, is where the "objectivity" of science is rooted: in the tightly knit consensus of the profession which effectively enforces its paradigms of research, its style of awareness, its metaphysical commitments—but does so unself-consciously.

Thus the product of a successful scientific education will be a student who has so deeply internalized the world view of science and the craft standards of his field that he will never be aware of the judgments and evaluations he is making at every moment. While his thinking will be permeated by personal choice, he will not consciously experience it as such. The whole efficiency of science as a research machinery is based on the achievement of such a depersonalized sensibility, a quality of mind which—as a matter of professional respectability—can turn a blind eye to the philosophical foundations of thought, and which can therefore regard knowledge as something separate from wisdom. After all, think how difficult it might be for scientists to get beyond square one in their research if their education began with an unprejudiced discussion of Plato's Allegory of the Cave, or the Buddha's Diamond Sutra. Science, it has been said, progresses by sins of omission. Another way to put it might be that science advances over the dead body of philosophy—but only after having picked its pockets.

We quote this, not to make science and scientists the whipping boys of our consideration of educational reform, but as a means of illustrating how attitudes toward man and nature are actually shaped, as distinguished from much of the verbalizing that is intended to have this effect. Scientists, after all, are but a special case, highly developed exemplars of the modes of thought of the age we live in. They could be taken to represent both the good and the bad of the times, and it should also be noted that Michael Polanyi is a scientist, L. L. Whyte is a scientist, and that Buckminster Fuller is a scientifically oriented engineer and designer. These men have broken out of the straitjacket of conditioning Roszak describes, showing what minds of high caliber can do with their scientific background once they are free of the "instruction" the times have imposed upon them. With more men like them, the institution of science would no longer be a threat to mankind.

The problem, then, is to figure out how to avoid making it so difficult for such individuals to educate themselves, as indeed they must if they are to *be* themselves. Next on the agenda would be to begin some serious wondering as to why there are not more of them. Do we actually destroy such men in the making, so that only the heroes among them are able to survive? Or is it that thinkers of this sort, in the higher economy of our sort of universe, are simply in short supply?

REVIEW

EVALUATION OF A FREE SCHOOL

THE last two chapters of *No Particular Place to Go—The Making of a Free High School* (Simon and Schuster, 1972, \$6.95), by Steve Bhaerman and Joel Denker, are the most important part of this book, but the rest of it needs to be read to understand what they mean. Briefly, the two authors tell the story of how they set up a "commune" sort of free high school in Washington, D.C. Their contributions are written separately, because of different points of view, but this does not make the book disjointed. It is an extremely candid account of what happened, what led to the idea of the school, its stormy career for the two years the report covers, and what the founders learned from a risky and daring experiment. It cannot be said that the book is much of a contribution to "education"—unless education is extensively redefined, as it probably should be—but the extreme self-consciousness and basic honesty of the writers make it good evidence that the intensive experience of having to do with a free school can lead to the sudden and rapid maturation of human beings.

It will help the reader to think of this report on a free school as a micro-study of a very short interval in a long and exceedingly painful period of historical transition, when the motives and patterns of human life are being altered so extensively that rigid reference-points about what is humanly and socially constructive are almost useless. We say this for the reason that readers who respect the importance of clarity, order, and consistency in daily life will be likely to find themselves "fighting" this book most of the way through it. We did. It is an account of what happens in the thick of cultural change, and there is no over-view until you get to the last chapters. The reader will do well to honor the writers' candor by not reading their work judgmentally, especially since they make the essential judgments that need to be made, themselves, when they review the experience.

What was "right" about the enterprise of a free school in Washington, D.C.? You might say that it was right because it was a necessity for the men who started it. The early chapters give the family and educational backgrounds and teaching experience of the two authors in conventional schools. They were teachers, they wanted to teach, and they *had* to try something else. They felt smothered by working in the public schools, and they believed that most of the children felt the same way.

What then was "wrong" with the free school they got going? This is almost a meaningless question. It is not so difficult to say what is wrong with a school or institution in a society which has clear self-consciousness, which feels no urgent need for change, and which has values generally acceptable to all. But in a time like the present, when values are being questioned, and there is hardly any articulation between the vague outline of the new ideals which are seeking expression and the institutional framework of the existing society, nobody is able to say very much about the step-by-step processes of change that need to take place.

So there would be little point in offering particular criticism of this free school. What needs to be said will apply to the society at large, which labors under conditions affecting everyone in it, giving all the institutions their character, and often making them scapegoats for ills which they did not produce, but merely reflect.

The basic diagnosis comes out in Steve Bhaerman's concluding chapter, in which he speaks of the emptiness of the lives of the older generation. This is surely the heart of the matter. There is no *worthy*, animating purpose in the lives of the people; the conceptions of transcendent meaning they have are all empty echoes of forgotten metaphysics; the idea of aspiration has been almost entirely replaced by the doctrines of consumerism and hedonistic self-justification, sometimes labelled *philosophy*. And in the affluent, middle-class white society of the United

States, there is not even driving economic necessity to fill the vacuum in purposeless lives.

One of the natural functions of the continuity between generations is the supplying of ideas of meaning by the old to the young, through example and by other means. But when the parental generation is morally bankrupt, it cannot offer ideas of meaning to the children. Then the children, sensing this betrayal, revolt in anger and bitterness. They are too young, it seems, to handle so terrible a situation in any other way. Meanwhile the parents try to live in the lives of their children, since they have no real life of their own. Bhaerman quotes Jules Henry:

. . . the father is liked because he is the son's companion in the son's activities. Rarely does a child like his father because he is allowed to participate in the father's activities. This is extraordinary when viewed in the perspective of the culture of the world and even in the perspective of the not-too-distant rural past in America. There the son, and the daughter too, took pleasure in being permitted to take part in the parents' activities. In American culture, the demand is more often that the parents, especially the father, enter the child's world, not the other way around.

Bhaerman is able to see the behavior of the older generation—including his own—as illustration of this:

Rather than involve his youngsters in his work, which is often dull and petty, the American father becomes a part of the kids' world. He takes them on trips to the zoo or coaches their Little League team. He is no longer a person in his own right. Instead, he is valued as an entertainer, judged by how much he can give.

Most of the older people in the school related to kids in this way. We had few skills to offer—only a vague need to help, to teach a nebulous something. Unsure of our own skills and interests, we met kids on their own turf. We were so sure kids had the answers that we fully subjected ourselves to the youth culture.

Like fathers, we appeared to have no life of our own outside the family-school. To my older friends outside the school I was "Steve from the school," and when we got together, all we talked about was our

project. But after all, the school was my "thing." I was skilled in doing organizational non-things like correspondence and setting up activities. But I couldn't teach tangible skills such as writing or music. Like the father, I saw this "family" as a refuge from the competitive world and sought to get more out of it than I put in.

As in the family, older people competed consciously, and sometimes unconsciously, for the kids' attention and approval. None of us wished to appear authoritarian or uptight. Despite the filthiness of the house, I tried to avoid confrontation with the kids. . . . Not only did we resemble the family socially but we re-established the same kinds of economic relationships. Even while living at the commune, most kids continued to be supported by their parents. The community supported those whose parents balked at paying for room and board. It was only fair—why should a kid be penalized because his parents didn't like the school?

Eventually the school administrators fell into the same attitude as the children's in relation to money and support:

We had been so involved in actually getting the school off the ground, so absorbed in our own excitement, that we never talked about what it meant for kids to leave their parents. None of us examined carefully the school's dependence on parents, nor did we consider that kids might be unwilling to give up the comforts of home. Most of us assumed that our divergence from adult society meant that we could accept support from parents without being tainted by their values. We would use them, "rip them off," as the fashionable rhetoric goes. But we failed to see that dependency is a double-edged sword.

A grant and the tuition money made finances seem easy for a while, so there was little experience in fundraising, and hardly any in self-support. Meanwhile the teachers became surrogate parents because the students needed to be fed and have their clothes washed. As Bhaerman says:

Like the modern American family, our existence became "apartmentalized." Rather than using the resources of the city, we clung together in little households. Instead of welcoming visitors, we drew sharp distinctions between "people in the school" and "outsiders." Only a few traveled to any extent. The

rest stayed home, no doubt feeling "responsibility to the house."

We began as a refuge from parental expectations. Now we imposed unreasonable demands of our own. We, the older people, were the parents who sacrificed to give the kids the support we never had. How could they be so ungrateful as to want to leave? We imposed the same kind of feelings as the overprotective mother. Our house had become a frightful parody of the American family.

Bhaerman noticed that the adults in the school who actually became models for the youngsters were the ones who had some concrete craft or skill. "These people displayed a craftsmanship and self-discipline in their own work that made it easier for them to set high standards for the kids."

Joel Denker reaches some similar conclusions in his final chapter. He believes the grant was a weakening influence, since the school was not forced to support itself:

If the demands on our survival had been greater, we would have had fewer identity crises, our communes would have been much less incestuous. Free schools will naturally find their direction once they start struggling for self-reliance.

A close friend of mine, Larry Aaronson, a former Montgomery County teacher, has suggested that free school and high school students create self-supporting projects—cooperative radio stations, garages, leathercraft shops, printing presses. Here they would acquire skills while generating capital to support themselves. Most important of all, these institutions would be *their own*—cooperatively managed and controlled. And kids would have a real incentive to protect themselves if the authorities tried to close their projects down.

There are, after all, only two sources of order and cooperative harmony in human life. One is found in circumstances, as economic necessity. But an order based only on meeting the requirements of material existence is eventually distorted into something pretty ugly, as ours has been. The other source is vision, leading to self-imposed discipline. There is doubtless a balance between the two sources of order, to be found and made operative by the individual. Education is a

means of helping the young to find this balance, but if the adult culture has not found it, even the most well-intentioned "teaching" is almost certain to fail. The secret plainly lies in individual achievement, and in a society in transition, only small social situations can be made to reflect the balances individuals have reached. In other words, a successful counter culture will have to begin in micro-countercultural situations which are the fields created by balanced human beings.

COMMENTARY
POETRY OF THE PEOPLE

T. E. LAWRENCE remarked somewhere that the desert Arabs he knew spoke like poets because they learned their own language from the epics and folk tales which are the medium of education among people who learn by hearing instead of reading. This seems true of other oral cultures—perhaps all of them. When an American notary public and interpreter asked an aged Creek Indian how old he was, the Indian replied:

I have passed through many days and travelled a long way,
the shadows have fallen all about me and I
can see but dimly.

But my mind is dear and my memory does not fail me.
I cannot count the years I have lived.

All that I know about my age is that I was old enough to
draw the bow
and kill squirrels at the time of the second emigration of the
Creeks and Cherokees from the old country under
the leadership of Chief Cooweescoowee.

I was born near Eufaula, Alabama, and left there
when about fifteen years of age and the trip
took about a year,
for the peaches were green when we left Alabama
and the wild onions were plentiful here when we arrived.

The notary, Alexander Posey, took down this statement and published it in a collection of poems, in Topeka, Kansas, in 1910. William Brandon found it there and included it in his book of American Indian songs and poems, *The Magic World* (Morrow, 1971). In his Introduction to this collection, which includes a number of Maya and Aztec songs, Brandon says that the extent of American Indian literature is vast, and only a little of it has been published. He also remarks that the "scientific" approach to the study of the Indians has led to neglect of the remarkable beauty of their literature. "The religious and artistic preoccupation of the Indian world went far beyond anything in the European-American experience," he says, adding:

To European eyes it was a life that appeared to
consist overwhelmingly of play taken seriously. If the
Pawnees had operated a General Motors, each worker

would have had his time-clock-punching song, his assembly line song, and so on, and the management would have been at least as attentive to the songs as to the rate of production, probably more so.

Now books are coming out which reveal the poetic sensibility of the Indians. Brandon's book is one illustration, and Richard Lewis' volume, quoted in "Children," is another.

CHILDREN

. . . and Ourselves

COMMENT ON BEHAVIORISM

IN the Winter-Spring issue of *New Directions in Teaching* (Bowling Green State University, Bowling Green, Ohio), two writers discuss the question of whether the "behavioral objectives approach" is consistent with humanistic intentions in education. The writers think that this approach can enlarge and enrich the humanist values involved, endeavoring to show how this works by examining and replying to five criticisms of the behavioral approach. Since we didn't understand very much of this discussion, we can't report on the merits of the argument, but one sentence recalled George Kateb's objection to Joseph Wood Krutch's criticism of B. F. Skinner's ideas, set forth by Krutch in *The Measure of Man*. (Kateb was quoted in last week's lead article.) In the article in *New Directions in Teaching*, the writers say: "The answer we usually get from the anti-behaviorists tends toward the mystical and unspecific."

We don't plan to defend "mystical and unspecific" answers, here, but would like to consider the reasons which may be back of the discomfort felt by some teachers when behavioristic methods are proposed.

As we understand such things, a behavioristic approach involves "motivating" other people. You get them to behave in certain ways by either rewarding or punishing them. You don't do this as a big authoritarian boss, but in a way that makes your rewards and punishments seem a bit like Laws of Nature. You decide upon the way people ought to behave, in some specific relationship, then set up a pattern of experience which is likely to persuade them that that is a good way to behave.

What can be wrong with doing this? Everybody applies it with infants, but the idea of being human is that the more human you are, the more you decide for yourself. A man may need to be "conditioned" to the observance of certain rules for the sake of survival and the common good, in difficult and limited situations, but one who enters such situations voluntarily accepts the rules because of their rational basis.

So there may always be some situations where some kind of behavioral approach is in order. Even a grown man can use a little encouragement from a friend, from time to time. But he might not be much of a friend if he said to himself, "This man needs some positive reinforcement." Encouragement between friends ought to be spontaneous, not so calculating—perhaps an intuitive response to the being of the friend rather than something you do after making a quick diagnosis.

From another point of view, what is at issue is not so much what you do as how you think about it. The vocabulary of behaviorism is not really a way of speaking of individual human beings as subjects; it deals with aspects of man's equipment, which may be made to respond to certain stimuli. Of course, as the techniques of reinforcement grow sophisticated, the question of whether the "real man" is finally reached by such deliberate manipulation is an open one, which places the argument at another level.

For example, simply on the basis of experience and common sense, a teacher will encourage a struggling child in a way that is quite different from what he may say to an exceptionally bright youngster that does many things almost without effort. The teacher speaks to individual need; he moves by a subjective map of understanding of the child, and there will be delicate nuances in the way in which the teacher distinguishes between first- and second-rate motives in the child, subordinating the latter when he can, trying to encourage self-reliant growth, while giving as little support as possible to egotistical tendencies. It is not possible to have relationships with others without taking both levels into account. But it seems to many that the behaviorist armamentarium recognizes the reality of only the apparently "automatic" responses of the lesser half of the individual, and the behaviorist delights in this because it becomes possible for him to talk about a "law" of behavior to which people can be made to conform. And even if one rejects this view of man as an account of "human nature," there is still a denigrating *feeling* about the language of the behavioral approach which makes it extremely unattractive even as a "technique."

It may be said that we are obliged to *use* that technique, now and then, whether we think of it that way or not—and isn't it sentimental pretense to deny the fact?

Even this reading of the situation could quite possibly be contested. An element of love always enters into every genuine teaching situation. The wise person is wise because he was once a fool, but learned how to think and behave differently. To love is to be a larger self, and this means, for the wise man, that he identifies with the weakness or foolishness of another as he might with his own former past; he is not "manipulating" when he acts according to the insight which enabled him to overcome his own folly, endeavoring to help his pupil or friend to see for himself the value of a better way to think or behave. The way he presents the insight will be according to his understanding of what will make it most recognizable. Viewed objectively, while "teaching" in this way, he could be said to be practicing positive or negative reinforcement, or both, but he isn't, really, because he doesn't think of it in these terms at all. He wouldn't use such language to verbalize about it; in fact, he probably wouldn't talk about it, just as he wouldn't talk about a great many things whose meanings are mutilated and destroyed by being chopped up to fit into words. The "we" and "they" dichotomy has many abusive applications, not only to the divisions of class and nation.

Another way to speak of this would be to say that all the subtleties of behavior which are "objectified" by the behavioral scientists are no doubt real; all sorts of delicate relationships in human life are real, but their appearance at a certain level of observation and in the light of theories which have a mechanistic heritage may be only the shadow, the mere silhouette, of what their meanings might prove to be when observed from another point of view.

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In the Introduction to *Out of the Earth I Sing*, his lovely book of the songs and poetry of "Primitive Peoples of the World" (Norton, 1968), Richard Lewis says:

In putting together a book of this type, I felt and saw certain things which were not obvious to me at the

start. It became dear that primitive peoples had and still have secrets about living, which our "civilized" cultures could learn from. Part of their secret is that they have not broken their hold on the rhythms of the earth—they live with and alongside the ever-changing weather, they are sensitive to the ways of animals and creatures, they understand the solemnity of the ritual—they are alive to the natural world in a way that we, over the centuries, have lost.

Opening the book at random, we turned a few pages and came to "Dance of the Animals," which is a Pygmy song:

I throw myself to the left,
I turn myself to the right,
I am the fish
Who glides in the water, who glides,
Who twists himself, who leaps.
Everything lives, everything dances, everything sings.

The bird flies.
Flies, flies, flies.
Goes, comes back, passes,
Mounts, hovers, and drops down.
I am the bird.
Everything lives, everything dances, everything sings.

The monkey, from bough to bough,
Runs, leaps, and jumps,
With his wife, with his little one,
His mouth full, his tail in the air:
This is the monkey, this is the monkey.
Everything lives, everything dances, everything sings.

A Papago song:

Blue evening falls,
Blue evening falls,
Nearby, in every direction
It sets the corn tassels trembling.

And from the Ka-ni-ga, of North America:

The poor little bee
That lives in the tree
The poor little bee
That lives in the tree
Has only one arrow
In his quiver.

Mr. Lewis collected the material for this book during his travels in which, with the help of UNESCO, he gathered poems by the children of all countries, later published in the volume, *Miracles*.

FRONTIERS The Origins of Science

TOWARD the end of an article in the *March Liberation*, "How Sir Isaac Newton Helped Restore Law n' Order to the West," David Kubrin considers a basic distortion in Western intellectual history. He says:

Two things have constituted the sole content of the notion of progress in the West: science and technology. Not by accident did the important cultural debate in the West over whether civilization was progressing, regressing, or remaining constant take place in the seventeenth century, the century of the scientific revolution.

Now despite the fact that many of the main figures of the scientific revolution believed that their science was but a dim and imperfect mirroring of a more ancient tradition, of which they felt themselves to have but a scanty knowledge, the history of the scientific revolution has till recently been viewed in terms of the necessity for the nascent science *to sever its ties* to the views held by antiquity. While Copernicus, Bruno Kepler, and Newton, among others, have told us how much they owed to the wise men of the past, history has listened mainly only to Descartes of the *Discours sur la méthode*, eschewing all authorities, all traditions.

This is in the main the case, as Frank Manuel, in his recent life of Newton, has helped to show. Yet there have been intellectual historians, and even scientists, who acknowledged the debt to the ancients. In an article for the *Phi Beta Kappa Key* for January, 1931, Robert A. Millikan, for one, pointed out that after the fall of Constantinople in 1453, Greek teachers as well as Greek manuscripts flooded into northern Europe, bringing with them the knowledge of ancient philosophy and science. "It was," Millikan wrote, "because of this so-called humanistic movement that Copernicus, Leonardo da Vinci, and Galileo became thoroughly familiar with, indeed, very careful students of the work of Archimedes and his Alexandrian contemporaries and successors." Thus, as Millikan puts it, "modern science itself owes its very birth to humanism."

Copernicus, E. A. Burt suggests, may have learned Greek in order to read the works of the Pythagorean astronomers, and the application of mathematics to the astronomical realm was for him consistent with the renewed Platonism of the time. In *Reason and Nature*, Morris Cohen points out that for the formulation of the mathematical relationship called the law of gravitation, it was necessary for Newton to be aware not only of Galileo's law of falling bodies and Kepler's analysis of circular motion into centrifugal and centripetal components, but also of "the daring and unorthodox speculative idea (which Newton derived from Boehme and Kepler) of a parallelism between the celestial and the terrestrial realm." Pythagorean conceptions of number and the book of nature led Galileo to look for the law of falling bodies, while Kepler's laws, Cohen says, required the background of "certain speculative ideas of Apollonius [of Perga] (on conic sections) and of Plotinus."

Thus both the vision of ancient idealists and the insights of mystics played a fundamental part in providing the conceptual structure for ordering the empirical data gathered by the natural philosophers, or first physicists.

Interestingly, David Kubrin writes in *Liberation* to restore modern awareness of the deep connection of science—at least in its origins—with antique philosophy, and to suggest that the time of keeping the two separate may be coming to an end. He concludes:

Ironically, by pursuing our questions where they lead, even if they take us to magic or to an ancient tradition of wisdom, we will not be abandoning science so much as uncovering some of the roots of science which, though they have been hidden from us for centuries, have been of crucial importance as a source for many scientific insights through the ages. It is commonly acknowledged by those familiar with modern theoretical physics that its view of nature is now far more akin to certain Eastern mystic philosophies than to the mechanistic tradition which still, significantly, dominates most peoples' conception of nature. The writings of Einstein, Erwin Schrodinger, Werner Heisenberg, Max Born, and

Murray Gell-Mann, for example, all discuss or allude to the similarity of the notions of contemporary physics, dissolving away the concepts of space, time, matter itself, individuation, or causality, to Eastern philosophies thousands of years old, which also managed to avoid those logical traps but which started in a totally different way. Nor is it merely in modern physics that one finds these similarities. If we go back to the sixth century B.C. in Greece we will find the mystery-cult of Pythagoras—who was both the disciple of the magician-priests of Egypt and the father of much of Greek mathematical thought. Pythagorean thought, even though hardly any of it survives in written form, existed throughout the history of Western science as an underground movement. In the early stages of scientific development in western Europe, in fact, it was not even so underground. Galileo, Kepler, Copernicus, and Newton, to name but a few, all openly referred to their allegiance to the Pythagoreans. Modern historians have chosen to interpret those references to be restricted to Pythagoras the mathematician, rather than Pythagoras the disciple of the Egyptian priests, or the Pythagoras who is said to have studied in India with sages. But surely it is the fuller interests of Pythagoras we must consider when searching for the real roots of Western science, the Pythagoras with intimate connections to Hermetic magic, alchemy, cabala (an occult body of interpretation of Scripture in terms of its mathematical symbolism), and astrology. It is a difficult job digging up these roots of Western science because they lie buried under layers of cultural repression.

But, Mr. Kubrin says, the job must be done, and he hopes that his discussion "will serve as some kind of historical shovel." Only the first part of his work, not yet published, appears in the March *Liberation*. Readers interested in seeing more of it are invited to write the author, care of *Liberation*, 339 Lafayette Street, New York, N.Y.10012.