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A MATTER OF ELEVATION

THE way a man thinks—and therefore the conclusions he reaches and the values he embraces—depend almost entirely on where he stands. To the intellect's logic machine, elevation is a matter of indifference. If well trained, the intellect works with precision and apparent finality no matter what premises are supplied. It is mainly for this reason that apparently intelligent men are able to remain indifferent to the careful reasoning of other men just as intelligent. They make no attempt to find one another's points of origin in thought. Or, in polemics, if they seem to go where the other man stands, they do this only to "expose" him as unrealistic. They seldom try to feel what he feels—which might disarm them. Really to *understand* another man's argument, you have to experience his assumptions, and the realities on which a man bases his thought processes are always rooted as much in feeling as in idea.

What we call "argument" is seldom the serious use of logic. The partisan debater has little interest in a truly neutral tool of demonstration. He knows that to impress the crowd he must make the assumptions of his opponent seem irrelevant and foolish. All logic falls to the ground when its starting-point is undermined and washed away with ridicule or the flooding power of a counter-emotion—a weapon which may have only the most tenuous connection with the issue under debate. In the *Nation* for Nov. 6, Walter LaFeber, professor of history at Cornell University, illustrated this sort of "reason" by citing two recent interchanges on the issue of American foreign policy in Asia:

> When challenged privately that American policies must work less successfully in Asia than in Europe where strong cultural, political and economic affinity exists, Rusk shot back that he did not buy "this master-race theory." In a phrase, he blurred 2,500 years of history, and also accused his critics of resembling Nazis. President Johnson demonstrated a more sophisticated use of the past when he appealed to the policies of Theodore Roosevelt as a reason for escalation in Southeast Asia. Unfortunately, the President or the "intellectuals" who help write his speeches apparently did not know that Roosevelt denounced American intervention in Asia within two years of leaving the White House.

The technique of discrediting an opponent's assumptions—which makes it unnecessary to consider their consequences in reason—is firmly established in the manners of public debate. When this technique is cleverly applied, the issue, whatever it is, tends to dissolve in the applause of a delighted audience. The recent, more or less admiring account of Wiiliam F. Buckley's polemical exploits in *Time* (Nov. 3) shows how an agile, debating intelligence first looks for a weak or unpopular assumption that very few would be willing to share, and then connects his opponent's argument with it. The question of whether it really belongs to that argument is of course ignored. As *Time* says:

> When he is confronting a *Firing Line* adversary, Buckley's secret is surprise, plus the ability to maneuver his opponent into vulnerable positions. He often hoists the man with the petard of his own argument. When Yale's Marxist-minded Professor Staughton Lynd told Buckley that he had made a trip to Hanoi to clarify Ho Chi Minh's peace terms, Buckley shot back: "Surely, as a Marxist, you don't seriously believe that your little vacation to Hanoi would have midwifed some sort of a dialectical reconciliation which would not otherwise have taken place? Surely Hanoi isn't dependent upon Yale's vacation schedule for deciding how to press its foreign policy?" . . . . Buckley can be effectively pithy. . . . Or he can set sail on splendid seas of invective. "The Bishop of Woolwich, who is England's Bishop Pike only more so, announced recently from the pulpit of Canterbury Cathedral that he had recently traveled to America and there found that 'every Christian I met' was opposed to the war in Vietnam—a statement which, if true, suggests that the bishop

> was given a Potemkin tour of the U.S., visiting only the fever swamps of the Christian left; or, and this is more likely and more charitable, that the Bishop does not know a Christian when he sees one, even as, one must conclude on reading his books, he does not recognize Christianity when he sees it."

There is no doubt that the quickest way to disqualify a man's reasoning before a popular audience is by attacking his premises, making them seem infantile or illusory. You don't ever really examine his assumptions; you merely stomp on them and please the crowd. Unfortunately, many members of the crowd then go home under the impression that they have been witness to a quest for fact and truth. Argument, they say, is the best way to find out.

It isn't, of course. Argument is more often a method of concealing fact and truth, and after people reach the saturation-point of this misuse of dialogue, they quite naturally turn anti-intellectual and become open to "blood and soil" appeals to their intelligence. Having been alienated from reason by its most debased employments, they are now in a mood to accept only the grosser expressions of feeling, which they suppose will be a proper antidote to "intellectual" deceptions.

There is food for thought in the fact that, in the West the Quakers, and in the East the Gandhians, have come to be trusted by widely differing groups and individuals, chiefly because they make their own assumptions plainly known and refrain from attacking the character of those whom they hope to affect. (This stance is declared in another way by Ignazio Silone in *The Seed Beneath the Snow.*) Actually, that serious search for truth must be attended by full generosity of heart, and pursued with gentility and even tenderness, is one of the fundamental and emerging discoveries of the twentieth century. A man who is ready to look impartially at basic assumptions has become virtually a defenseless man, because he must in the process determine what his own elevation is. A long, long time may be occupied in gaining the strength to do this. And he will not be really strong—able, that is, to withstand the emotional tide of partisan solutions—until he admits, in a certain nakedness, his own irreducible certainties. The only generalization we may be sure of in respect to such certainties is that they cannot be secured at second hand. But perhaps one more thing can be said about them: If these certainties are really a man's own, he will never again be capable of hostility toward other human beings, nor will he ever give up his faith in their high potentialities.

We never pursue this search for elemental certainties alone. A man may have to make his final decisions alone—for this is his only way of knowing that they are indeed his—but all along the way to the point of decision we have company. We may call the activity of that company the Educational Dialogue, and its object Discovery, to distinguish it from interchanges which have persuasion or defeat as their end. A true educator is a man who, like Socrates, is concerned with examining the starting-points of thought. Since the logic machine is neutral, yet indispensable, the important quest is for morally indisputable assumptions. Logic is necessary for elucidating their consequences, by which they may then be judged, but it is no good for establishing them. And that is why all primary truth is ethical—truth that a man embraces because he is a man.

Michael Polanyi makes this view the foundation of even scientific truth. In *Science, Faith and Society* (University of Chicago Press paperback) he writes:

> We have yet to recognize an important element of all personal judgments affecting scientific statements. Viewed from outside as we described him, the scientist may appear as a mere truth-finding machine steered by intuitive sensitivity. But this view takes no account of the curious fact that he is himself the ultimate judge of what he accepts as true. His brain labors to satisfy its own demands according to criteria applied by his own judgment. . . . While all the time, far from being neutral at heart, he is himself passionately interested in the outcome of the procedure. He must be, for otherwise he will never discover a problem at all and certainly not advance

> toward its solution. . . . Starting from some intuitive preconception of the truth, and straining every nerve to prove this to be correct—it may be very difficult for the scientist not to overshoot the mark trying to verify his suppositions. The Bible says: "Correct a wise man and he will love you." The scientist ought to be delighted when his theory, supported by a series of previous observations, appears to collapse in the light of his latest experiments. If he was wrong, then he has just escaped establishing a falsehood and been given timely warning to turn in a new direction. But that is not how he feels. He is dejected and confused, and can only think of possible ways of explaining away the obstructive observation.
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> And of course there is always the possibility that this may in fact be just the right thing to do. This may be precisely one of those cases when one has to disregard exceptions to start with and leave them for later consideration. His emotion, born of an intuition which penetrates deeper than the day-to-day evidence, may be quite right, and his correct procedure may be to persevere in following its guidance, even against the apparent evidence.
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> I have said before that problems of this kind can be resolved by no established rule. . . . this judgment has a moral aspect to it. . . . Faithfulness to the scientific ideals of care and honest self-criticism is, of course, indispensable even for the execution of the simplest jobs in the workshop of science. It is the first thing that a student is taught on being apprenticed to science. But, alas, many students only learn to be "conscientious" in the sense of being pedantic and skeptical, which may be paralyzing to all advance in research. Scientific conscience cannot be satisfied by the fulfillment of any rules, since all rules are subject to its own interpretation. To verify references, for example, is a matter of mere routine conscientiousness and not of the kind of conscience of which I am thinking here. . . . We recognize the note struck by conscience in the tone of personal responsibility in which the scientist declares his ultimate claims. This indicates the presence of a moral element in the foundation of science. . . .

The most important point, here, is the utterly solitary role of conscience. A pressed or directed conscience is not conscience at all, but some kind of moral prejudice. The freedom with which a scientist or anyone else makes conscientious decision is the measure of his manhood, of his integrity. And the fact that he can escape this ordeal of decision, simply by turning to some routine or conventional disposition of the matter, is what makes it an issue of conscience, of *ethical* import.

The philosopher is a man who gives all his resources to this wholly voluntary—in a sense "unnecessary"—task of seeking the best, truest, or most humanly fruitful assumptions. He is led by his love of the good and sustained by his will. And so it is, again, that Socrates, like Polanyi, has central concern with the higher order of virtues which govern the quest of the philosopher. And as teacher he can only invite; he can never compel. A philosopher looking for conforming students is a contradiction in terms. His task is to display, as well as he can, the possibilities of the assumptions on which a life may be based, and he tries to elucidate and compare the implications of such assumptions in company with other thinkers and seekers.

The same is true, within the province of science, of the scientific philosopher. It is easy to illustrate the kind of problem Polanyi was speaking of with a recent proposal of a "new" assumption for biology, offered by the philosopher of science, L. L. Whyte. In a small volume published in 1965, *Internal Factors in Evolution* (Braziller), Dr. Whyte describes an assumption about the process of organic evolution which he feels to be emerging, but not clearly articulated, in the work of several men. The idea is that, in addition to the "natural selection" described by Darwin, "an internal selection process acts directly on mutations, mainly at the molecular, chromosomal, and cellular levels, in terms not of struggle and competition, but of the system's capacity for coordinated activity."

Dr. Whyte's book assembles the evidence for this assumption. During the course of his study he had reason to correspond with a number of leading evolutionary biologists, including members of the new school of molecular biology. The responses he got in relation to the proposal ranged from total indifference to enthusiastic support. To

illustrate this diversity he quoted portions of the replies from eight men:

> "This is a complete misunderstanding, there is no internal selection."
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> "Modern evolutionary theory rests entirely on the statistics of populations."
>
> "If there is any internal selection, there is no basic distinction between it and Darwinian selection."
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> "The idea is a commonplace, it is obvious to anyone aware that organisms are organized. It is not of any special interest."
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> "There is nothing new in the idea of internal selection; I have been teaching it for years; it should be in the books by now."
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> "To a molecular biologist the idea is obvious. But why bother? The geneticists and evolutionary theorists must come around soon. The facts will speak for themselves."
>
> "As a molecular biologist I consider the argument obviously correct, important, and timely. For some reason, perhaps because we know so little about evolutionary theory, we molecular biologists are overcautious in drawing evolutionary consequences from our ideas."

Dr. Whyte comments:

> Such variety of opinions is healthy for science; a conflict of views is necessary to provoke the difficult reconsideration of fundamental assumptions. What is instructive is the slow percolation of new ideas across the street from one department to another, from molecular to evolutionary biology.

Well, this is the concern of a department in science, and the general public, you could say, must await the "slow percolation" of the idea before there can be any conclusion about the proposal made by Prof. Whyte. Yet there seems a basic reluctance, some kind of occupational inhibition to considering seriously this idea of an internal "filter" and "organizer" of possible evolutionary changes through mutations. Quite conceivably, this assumption, if made the basis of extensive research, would *lift* thinking about organic evolution to a higher plateau of human understanding. Yet the scientists involved are plainly free to think what they like about it. It is, you could say, a matter of "conscience." Perhaps they are waiting for the pressure of consensus. But the habit of accepting only what the pressure of consensus requires may be the principal cause of the cultural lag of our times. It may be the reason for the American tragedy in Vietnam.

Another sort of study of this problem is available in the lead article in the *Saturday Review* for December 2. The writer, Richard L. Means, who teaches sociology at Kalamazoo College in Michigan, asks the question: "Why Worry About Nature?" His article is really an analysis of the human behavior resulting from existing assumptions about the relationship of man with nature. His contention is summarized by the sub-heading: "The press, religion—all our institutions—have led us into wrong relationships with the natural world, a sociologist maintains. Is this a key to our moral crisis?"

Critically, the article is the ecologist's case against man's rape and degradation of the planet. Positively, it offers a philosophical assumption—that *man is a part of the being of nature*—which, Prof. Means maintains, would lead to a very different life on earth. Our present ethics, limited to man's relations with man, he suggests, are truncated and diminishing to man in their effect:

> . . . although the relations of man and nature may be envisioned in various ways—all the way from control to passive obedience—the notion that man's relation to nature is a moral one finds very few articulate champions, even among contemporary religious writers. Harvey Cox's book, *The Secular City*, for example, is set in an urban world in rather extreme isolation from the surrounding problems of resources, food disease, etc. The city is taken for granted and all the moral dimensions of Cox's analysis are limited to man's relations with man within this urban world, and not with the animals, the trees, the air—that is, the natural habitat.

Just conceivably, a natural pantheism involving Schweitzer's "reverence for life" would raise the problem of man's relationships with man to another, more universal level, and dissolve a great many evils through the basically changed attitudes that would result. We have come to a

place in our history when it may be more important than anything else to recognize that the philosophic assumptions of human beings are really the controlling factor in human destiny, and that our habitual anxiety and squabbling—now raised to the power of genocidal war by the skills of an atomistic technology—will continue to seem "inevitable" until we achieve the dignity of members of the universe of life. Perhaps we cannot ever be good men until we get a view of ourselves above the set of our present problem-solving myopia.

After a review of man's many disfiguring and polluting activities, Mr. Means remarks that "it should be clear that destruction of nature by man's gratuitous 'busyness' and technological arrogance is the result of a thoughtless and mindless human activity." Then he says:

> . . . the refusal to connect the human spirit to nature may reflect the traditional thought pattern of Western society wherein nature is conceived to be a separate substance—a material—mechanical, and in a metaphysical sense, irrelevant to man. . . . our contemporary moral crisis, then, goes much deeper than questions of political power and law, of urban riots and slums. It may, at least in part, reflect American society's almost utter disregard for the value of nature.

One thinks of the efforts of great men—religious geniuses, philosophers, and teachers, through the centuries—to help their fellows to gain for themselves a sense of enduring reality for a life lived in harmony with both nature and man. One further realization that seems possible in the present is that no "assumption" about the nature of man is worthy of him unless it originates at an elevation which draws him into unity with the totality of life.

REVIEW
WHAT IS AND WHAT MIGHT BE

MANY of the insights of recent sociological, psychological, and radical political thinking are united in an article by George Benello in the September issue of *Our Generation* (formerly *Our Generation Against Nuclear War*), published quarterly in Montreal. Titled "Wasteland Culture," the discussion begins by recapitulating the anti-human effects of machine-dominated modern society. The larger importance of the analysis, however, comes with demonstration that the psycho-social compensations for the oppressions and isolations of this society, which are built into its organizational structure, do the most penetrating harm to human beings. The conclusion is that so long as the organizational relationships of the acquisitive society control its operations, a change in power can do little good. The need, then, is to originate activities which will create and support infra-structures expressive of a truly human community. Conceived in this way, the object of reform is not the achievement of political power but the living of lives based upon motives growing out of wholeness, in whatever ways are possible. This will create the social patterns which will one day replace the existing structure by benevolent conquest—not because men will then "take" power, but because they have grown into *having* it. Commenting on studies by Homans, Maslow, and Dorothy Lee, Benello says:

> We begin to see, at least in outline, the structure and values of equalitarian organization. It is based on groups, rather than the individual as the nuclear unit. . . . Where the present organizational style creates a mass of personnel fixed in specialized pigeon-holes, and a status hierarchy with an elite in control at the top, the alternate style would create groups which communicate both vertically and horizontally through a system of delegates whose power is limited by the groups they represent. Structure and function interrelate, and thus the values that flow from such a structure would be in accord with it: since decision, control, and power are distributed throughout the organization, the dichotomy between the professional, job-oriented, and the status, administration-oriented will disappear, since authority will not be dissociated from function. . . . With power distributed throughout the organization, there will be no scrambling for status positions, where the power is. This in turn will reinforce the work orientation, since evaluation of achievement will be based on how well the job is done not on ability at inter-office or inter-organizational politics. Authority will be rational, since based on professional capacity.
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> The psychological effect on the individual will be to increase both freedom and involvement, rather than one at the expense of the other. Where work based on financial reward reinforces self-seeking individualism and encourages a passive orientation toward authority, work based on functional incentives reinforces responsibility, cooperativeness, and involvement. With self-fulfillment through pride in work—Veblen's instinct of craftsmanship—and from joint endeavor, many of the conflicts between free enterprise and over-all planning on the macro-economic level will be lessened. The worker as producer will not be dissociated from the worker as consumer, or the worker as community member, and thus the project of integrating work more fully with the other spheres of living will become possible. This will occur as the interests of the productive enterprise become identified with the needs of all its members, since its members after all form the society.

This is all pretty abstract, but it is clarifying to consider that Mr. Benello regards such enterprises as the French Communities of Work, Synanon, and the Poor People's Corporation, with its Liberty Houses, as exemplifying phases of his proposal.

Status is the goal to be gained in the typical organizations of the present society—status, and power over others. In a critical passage, Benello shows how the men at the top of the status-ladder achieve a "community" denied to those at the lower levels of the socio-economic pyramid, where division of labor, fractionation of responsibility, and powerlessness are constant factors. The psychic compensations of advance in status create the incentives to rise competitively on the ladder:

> The wasteland culture . . . constitutes a power-ridden system with all its parts interacting and

> consistent with each other, in a state that Marcuse terms totalitarian coordination. Let us first sketch its outlines, and then take a deeper look at the psychology. The important purposes of the society are carried out by the large organizations which are densely organized at the top into interlocking directorships wherein operates the integration of over-all purpose that makes for community. The members of the directorate see each other at work and at play, as community figures or as business or political leaders. They operate the committees, boards of trustees, cabinets, and other forms of face-to-face associations which are the inevitable forms in which decision-making takes place. The lives of the members of these groups are rendered meaningful and their effectiveness is heightened through the graded relevance and integration of the fundamental spheres of work, leisure, public and private life. As we go down the vertically organized ladder of these establishments, we find that the density of intensive structure soon gives way to a machine form of organizing. Work is specialized, and jobs are narrowly defined according to a set of procedures. As a result there is little chance for an integration of purposes and functions within the work and less chance for an over-all integration of work with other spheres of life.

The drive for status originates in the psychic deprivation felt by all at the bottom of the ladder. While there is no genuine community at the top, it *seems* to exist there, and this provides the aggressive, competitive drive to rise. As Benello says, "If people happily join in the scramble up the status ladder to power, it is not universal human nature that drives them, but rather a fundamental reaction to an environment of psychic scarcity." Mr. Benello's article is filled with sociological and psychological verifications of these equations. The change he seeks must be made, initially, at almost a "molecular" level, by forging ties and relationships which grow from humanistic values, with a gradual proliferation of infra-structures based upon these values. In another passage, he says:

> The decentralists, Goodman, Mumford, Borsodi, and Fromm, have argued for a fundamentally altered approach to the problem of organization. But to speak of decentralizing skews the perspective slightly. What is needed is a change in organizational form. Organization is power only for those sectors which are involved in face-to-face communication—as at the top where decision-making in its full dimensions takes place: proposing, planning, deciding, and testing. The need is to spread this form throughout the entire organizational structure. . . . What we have now is intensive organization at the top and mass organization elsewhere, and what is needed is a social structure with an organizational density capable of distributing in a functional way the extensive power of technological and productive instrumentalities.

A final observation of this paper is the warning "not to get caught in the old bind of getting into power." One could say that we need to use the power we already have in such ways as to make power over others uninteresting and undesirable. Benello concludes:

> In the end, it is a philosophy of the person, and of human possibility that is in question. But the expression of this philosophy must confront the organized power of dehumanization that has grown so tremendously in this century, and created the wasteland we see all around us. For this, it is not enough to be on the right side, committed to the right philosophy. One must act.

It is a fact of the prevalent psychology of reform, or of radical revolution, that people engaged in these pursuits seldom feel that their action is "real" unless it is directed toward the achievement of power. Unless there is a move toward compelling other people to behave in a certain way, or restraining a class or group, nothing seems to be happening. Yet it is just such coercive methods, employed by men already in power, that have brought the alienation and directionless disgust felt by so many in the present. Benello points out that the infra-structures resulting from use of authority over others do not change simply by putting others in the seats of power. Almost invariably, those who get power use it for their own purposes; they do not wish or know how to distribute the power, and all the old abuses remain, although they are given new names.

There is one other idea of importance in this article. It is the need for clear-eyed utopian

thinking—the formulation, not of blueprints, but of ideals understood in terms of basic human relationships. The action is not in behalf of some carefully defined social system, but for the creation of those relationships, within or around, underneath or on top of, the existing structures. If the thinking is clear, the action persistent, the old structures will gradually be replaced, and eventually the general social balance will swing to support of another sort of social organism. This will happen when enough people have begun to *live* according to the new conceptions.

An indispensable element in any such program is the factor of personal ardor, of intense dreaming. No great social achievement has ever been lacking in this fundamental inspiration. We need, in other words, to fill out, structure, and declare a "philosophy of the person" that will help make the vision contagious for all.

COMMENTARY
THE PLATONIC DEMONSTRATION

IN arguing (as quoted in this week's "Children") that education consists in helping the student "to tolerate the ambiguity of constructing his own ways of understanding," Prof. Gordon is repeating Platonic doctrine. For genuine learning consists, as Socrates maintains in the *Gorgias*, not in reaching agreement with others, but in coming to agreement with oneself. As the student put it: "I can never make this science my own . . . my friend, until I grasp it in terms of my own way of seeing it."

A conclusion sanctioned by agreement with that of others may have only the validity of a political consensus—notorious for having little to do with actual truth. As Socrates tells Polus:

> . . . at times a man may be the victim of false witness on the part of many people of repute. And now practically all men, Athenians and strangers alike, will support your statements, if you wish to produce them as witnesses that my view is false. . . . Yet I, who am but one, do not agree with you, for you cannot compel me to; you are merely producing many false witnesses against me in your endeavor to drive me out of my property the truth. But if I cannot produce in you yourself a single witness in agreement with my views, I consider that I have accomplished nothing worth speaking of in the matter under debate. . . .

This is the obligation of teaching, as distinguished from the rhetoric of manipulation or the pressure of common opinion. Even in matters of established "public truth," such as experimentally verified science, the rule of *teaching* remains the same: the student must finally find agreement *with himself,* or he has not really learned anything; he has only conformed. As Prof. Gordon says: "Perhaps the greatest danger in the teaching of science is to present students with a *fait accompli* universe." To learn *why* one thinks as one does, and if one ought to, is the whole of the Socratic enterprise.

But why does it matter so much how one reaches the truth, if, in the last analysis, the "right answer" has to be reached—in science, anyway?

The reply must be that it matters a great deal, for the reason that, at any given moment of history, the important truths are always the undiscovered ones, since these make the substance of our future lives. To adopt known truths without understanding how to obtain them for ourselves is to accept imprisonment by them. The vitality of truth lies, not in its "objectivity," but in our relation to it. If it does not represent a growth-process for us, it is not really ours.

This seems a good place to confess that we make no pretense to understanding how the analogy of the "two cotton bird bodies" brings the "right answer" reached by the Harvard freshman, yet we thought it worth reproducing anyway, to illustrate how a free-wheeling imagination is valued by a teacher intent upon helping his students to get "at the heart of the organic development of science." In other words, daring use of analogy is the thing—the rest is a matter of technical vocabulary and reference to the limits set by established laws.

It is at this level—the Platonic elevation—that the "two cultures" are really one. For both Cervantes and Prof. Gordon, the road is better than the inn.

It should not be difficult to see how fundamental this view is to both education and society. The task is not to instruct students in what we "know," but to lead them to discovery of the true meaning of knowing. Only as they learn this will they be able to free themselves of the heavy hand of the past. And "reaction," in society, is the active form taken by ignorance of the fact that conformity to "truths" of the past is always and everywhere the leverage of tyranny.

CHILDREN
. . . and Ourselves
THE EDUCATED MAN

OF definitions of education, like the making of books, there is no end. And this is doubtless as it should be, since Education can have no final definition. It is a truism that a man's education is never finished, and the adult, looking back on the years of his formal training, may have some difficulty in deciding what was of the most value among the things he learned while he was at school. There is a sense in which he did not begin to use well what he learned until he discovered its comparative unimportance. The "memory" subjects, such as history, are usually a collection of over-simplifications which one finds it necessary to replace or correct. The facts of science provide a kind of access to the mind of the times—to the accustomed way of talking about the natural world—but these, too, change. The skills of communication are basic, but their artificialities are sometimes better learned than their simplicities. Men at the top of their profession or line of work almost always show their capacities by thinking and expressing themselves with the utmost clarity. This is hardly ever learned in school. In fact, there often seems very small relation between typical school education and the qualities that give a human being command over his life. An educated man, in short, is a man who can range his imagination at will, think richly in analogues, and at the same time apply a practical sense of measure or limit in his deliberations.

The value of memory is in its library of analogues. As any good text on scientific method points out, the ability to draw imaginatively on analogues is the basis of hypothesis-making. This is the creative side of science, or of growth in any sort of knowledge. So education, as the discipline of the learning intelligence, involves the method of analogy, the capacity to launch a flight of the imagination, together with a strong instinct for reality-testing, for finding the limits which must prevail in practical application.

It is these faculties which are important, and not the body of facts and doctrine on which they are exercised. A crucial aspect of the sense of limit comes into play with recognition of the frequent unreliability of doctrine—the collection of opinions which is often mistaken for the substance of education. Michael Polanyi (in *Personal Knowledge*) speaks to this point:

> In the days when an idea could be silenced by showing that it was contrary to religion, theology was the greatest source of fallacies. Today, when any human thought can be discredited by branding it as unscientific, the power previously exercised by theology has passed over to science; hence science has become in its turn the greatest single source of error.

An obvious question is: How do you explain such matters to the young? Do you spend the first twelve years teaching children the well-recognized truths of the time, and the next four shaking their faith in them? Or are there ways to transmit the Heritage without implying that it is all "true"? In any event, Polanyi's statement shows that transmitting the deposit of learning is of small importance compared to the stimulation of the imaginative and critical faculties.

Well, couldn't you teach only "facts" and mark matters of opinion clearly, so that the young will not have to be disillusioned of their naïve certainties later on?

You could try—in fact, you have to try—but the "facts" that get taught are not half so important in themselves as the reasons for selecting them from among all the other facts as worthy of transmission. Every fact is put in a context of well-received opinion simply by being honorifically titled "fact." And it is "well-received opinions" which lead us astray.

Perhaps this view of education seems too iconoclastic, but it would not be so in a culture which found more reliability in the human qualities of human beings than in the ever-changing array

of facts. Iconoclasm means the breaking of idols, but if you don't idolize facts it is not iconoclastic to treat them casually. Next year they will have changed. The important matter is the development of the man who looks at them. A recent comment on Marshall McLuhan by Harold Rosenberg seems worth repeating here. To McLuhan, says Mr. Rosenberg, man "often appears to be a device employed by the communications mechanisms in their self-development." You could say the same thing about the multiversity view of education—in the multiversity man is taught to be a special sort of cog in the self-development of technology.

It need not turn education into something dreamy and vague to teach that nothing is "certain." In *Education of Vision* (Braziller, edited by Gyorgy Kepes), William J. J. Gordon, who taught applied physics and engineering at Harvard, has this to say:

> Perhaps the greatest danger in the teaching of science is to present students with a *fait accompli* universe. It is a didactic tradition that undergraduate students must accept the phenomenological universe as described by someone with special knowledge, i.e. the teacher. The teacher is saying to students they must surrender to his rules or they can't play in his backyard. By the time a student has clerked his way through his undergraduate work in a science, it may be impossible for him to tolerate the ambiguity of constructing his own ways of understanding.

Prof. Gordon taught science by stimulating the use of analogue or metaphor. Following is an example from a collection of written assignments:

> *Problem:* The H-X (x-halogen) bond is more polar than any of the other hydrogen halides. Why then is HF least ionized in aqueous solution?
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> *Student's solution:* After an hour of battling out this and related questions with a section man who couldn't make me understand, I decided to attempt the metaphorical approach.
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> The bond in every hydrogen halide is a polar covalent one. It was stated axiomatically that hydrogen will not give up its one electron to form a completely ionic bond. What puzzled me was that a completely polar, or ionic bond, such as in sodium fluoride, ionized or dissociated very readily in aqueous solution. . . . So I began with direct analogy. [Students sometimes confuse their facts, but the variety of examples included here have been chosen to give the reader a true sense of the experiment.]
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> I imagined two cotton bird bodies, one heavier than the other. Around each of the two fluffy spheres was loosely wound a few fibers of long staple cotton. I imagined them to have been oppositely charged by some lucite rod and cat's fur action within this sort of light cocoon, and floating around in space, encountering water molecules of similar consistency. NaF molecules would only be held by their opposite charges since they shared none of these strands (electrons or covalent bonding), and would dissociate. Now the number of strands holding H-halogen molecules together is always the same, but the larger molecule of halogen (a) the more likely that it will be "hit" and knocked free and (b) the more inertia and momentum it will gain, and thus have more power to break away from the hydrogen ion. It stands to reason that two pea-sized objects wound around with four strands of cotton are less likely to separate than two basketballs wound around with the same number of strands. The length of the cotton fibers ultimately relates to an appreciation of the universal gravitation law.
>
> Prof. Gordon comments:
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> The student's hypothesis about the polarity of hydrogen halides derives from his Direct Analogy of the cotton bird bodies. This student has been able to get the right answer but he was disturbed about his lack of understanding. The student said, "I can never make this science my own . . . my friend, until I grasp it in terms of my own way of seeing it."

The students participating in this educational experiment at Harvard were freshmen. As a result of learning how to use metaphor in science, they began, Prof. Gordon says, "to sense that they are getting at the heart of the organic development of science"—getting a "sense of the image formation that underlies great science." He added in one place:

> Of course, there are some students who continually strive for immediate certainty. This kind of student will be uncomfortable when asked to develop his own images. Probably his reason for going into science is his dependence on the chromium exactness which he equates with scientific knowledge.

FRONTIERS

Two Demonstrations

As the flow of anti-war demonstrations, protests, and resistance mounts, breaks, ebbs, and then gathers new strength, seeking fresh areas to saturate with its moral emotion, it seems clear that whatever may be said about this rising tide, *it is not going to stop.* The pressure for change behind these varying activities seems generated by a paroxysmic fervor, as though a vast reservoir of longing were in the process of finding outlet. And if the novel sense of freedom brought by this expression seems sometimes to have an intoxicating effect, there are also signs of growing self-consciousness and deliberation.

It can hardly be questioned that the moral revulsion toward the Vietnam war is reaching a "mass" proportion. When somewhere near a hundred thousand people descend on Washington to express their objection to a national policy—as happened in the case of the Pentagon demonstration of Oct. 21—to speak of "mass" action is not inappropriate. No one can be sure of what is the "best" way to convince both the authorities and the general public that the passionately held convictions of a minority of aroused citizens concerning the "general good" ought to be adopted as the "general will." Actually, the world has had little experience of such persuasion, while the literature devoted to the winning of world peace—if we date it, say, from the writings of Gandhi—is barely a generation old. One thing, however, is certain: moral rejection of war is in the air and it will do nothing but increase; it will continue to find diverse and experimental forms of expression, until, finally, a true culture of peace gains the maturity and self-confidence which come from continued testing in the fires of experience.

Following is the thoughtful comment of one participant in the Pentagon protest:

> It was a very valuable demonstration and the shifting from protest to resistance may be of positive historical consequence. The mass media reportage of the event was incredibly distorted. The crowd—from fifty to a hundred thousand—was for the most part "respectable" in anybody's terms, and the rally and march were most orderly and good-tempered. At the Pentagon itself there were some minor individual acts that were certainly not in the nonviolent spirit, but these were remarkably few in relation to the tens of thousands present. In purely theoretical nonviolent terms, the demonstration should have been called off because of the real possibility of violence (the government tried to establish a violent atmosphere to discourage people from participating). Certainly Gandhi called off several demonstrations and campaigns because of the possibility of violence. A major difference between our present situation and the Indian one is that when Gandhi, for reasons of discipline or purity, delayed tactics the consequences were felt by himself and the Indian people, but if we wait until our means are 100 per cent pure, it is not we who bear the brunt of the consequences but rather the Vietnamese people, who will continue to be exterminated. Thus the risks of violence from the coalition were and are a necessary risk and well worth it. The April 15 and Oct. 21 demonstrations have shaken (and to some extent confronted) the people and the U.S. Government, and this shaking is seemingly an important and necessary step forward. There were over six hundred people who committed civil disobedience at Washington, and such confrontations at all levels will be valid and hopeful in the coming months.

Only a careful student of Gandhi's writings could say whether he would agree entirely with this analysis, yet an effort to weigh the demonstration by the Gandhian canon remains important, since the object is persuasion and change of heart, and Gandhi was admittedly a master in this.

A more extended analysis of the Oct. 16 (Monday) draft resistance at the Oakland (California) Induction Center was made by Roy Kepler in a KPFA broadcast on Nov. 5. This action, largely neglected by the press, was undertaken by 123 people, all of whom were arrested, yet the police "operated within the structure of the nonviolent plan." In his commentary, Roy Kepler contrasted this "disciplined act of civil disobedience" (sit-ins at the Induction Center) with less orderly demonstrations the next day and on the following Friday:

> Eight or ten thousand people on Friday, milling through the streets and blocking intersections in a mix of "self-defense" and "militant" styles, were little

more successful than the 123 of Monday in terms of the amount of time that they prevented access to the Induction Center. But has anyone asked himself what might have been possible Monday (or any other day of the week) if instead of 123 people there had been five hundred or a thousand or more ready to undertake disciplined nonviolent action backed up by a readiness both to absorb any violence on the part of the police *and* to accept arrest and imprisonment?

Toward the end of his broadcast Kepler said:

> The future of the peace movement, in my opinion, does not lie primarily in the streets. Rather it lies in whether or not the movement grows in the minds and hearts of many millions and in whether they see peace-making as having not to do with overcoming or destroying others, not with romantic and arrogant notions about themselves as guerillas or revolutionaries seeking power over others, but rather with peacemaking as nonviolent problem-solving. Solving a problem is not the same as obliterating it. Through intelligent and humane application of nonviolent methods and alternatives, through principled non-cooperation with oppression and organized violence, we can move on to build a grass-roots understanding and organization that can win its way, not through conventional politics—which remain still the dead-end of recent antiwar movements—but rather through a movement which goes over the heads of the Government directly to the people.

The group participating in the Oct. 16 resistance at the Oakland Induction Center were brought to Santa Rita, the Alameda County Jail. There the relations of the civil disobedients to the rest of the jail population, more than half of which is Negro, were of special interest. At the beginning the other inmates scoffed at the idea of nonviolence, with some expressions of minor hostility; however—

> there was a clear change within a few days, so that by Saturday night, when our group—which was kept entirely segregated from the rest of the prison population insofar as the barracks and general use of the open areas were concerned—when our group walked together into the auditorium where the Saturday night movie was to be shown, the entire prisoner group already there—some hundreds of men, black and white—rose to their feet and applauded as we took our seats.

Interchange between the civil disobedients and the other prisoners was impossible for the guards to prevent. The isolation of the demonstrators led to the passing of written communications, even poems, especially from the Negro inmates, who, as Kepler put it, "as men with a group consciousness, sensed immediately the strong solidarity and mutual aid within our group." Following is one of the messages passed to the civil disobedients:

> To My Brothers,
>
> I am a _____year-old Black youth. I have spent years of my life in state prison. I was released _____ and arrested again last_____. I have no family, home, or job. My education goes only to the eight grade. I have been very sensitive to the power structure for a long time an it seems as if all my life has been spent banging a stone wall.
>
> I am not a believer of non-violence as a tactic or a way of life, but I have only the deepest respect for people such as yourselves who are not forced by circumstances to rebel, but only by your own moral convictions, an your own sense of fair play and justice. The system has been designed to protect your best interest, and yet you reject it. It is not surprising that I reject it, for it was designed to hold me down. I have always been a very agresive person, but it has always showed in a frustrated type of violence which only hurted people and made me feel even worse.
>
> I have myself together an I realize that the system here is no different than anywhere else. When people say "Oh well, it will change," or "You can't buck the system," we are brought up to believe that it is actually impossible to change things in this country, but [that] eventually they will change by themselves. So a few secure people go ahead making major decisions which should be left to the people. I am really happy to see middle class educated white people whom I am able to identify with, because it shows that harmony is still possible. So each time you demonstrate my heart an soul is with you.
>
> LOVE—PEACE—JUSTICE—FREEDOM
>
> P.S. I wish I could talk to you people but they fear you would wake me up.

It is by such means, surely, that men are brought to perceive aspects of themselves in others.