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WAYS OF TURNING AROUND

A STORY is told of Nadezhda Krupskaya, Lenin's widow, author of the Communist Party's plan (back in the 1920s) for popular education, that, one day, having taken some children out in a park to play, she said to them: "Would you like some candy? Then pray to God for it!" After a while, when nothing had happened, she said: "You see, no candy! Now, pray to the Central Committee of the Communist Party for your candy." Within minutes a plane flew over the group in the park and, coming in low, released a rain of goodies from the sky.

This was Krupskaya's demonstration of the triumph of Scientific Socialism over faith, of the magical benefits of technology in the hands of the party's Central Committee. The message was no doubt impressive to the children: If you want to make things happen, master the techniques revealed by science. There is no other way.

Her claim was no new idea in the twentieth century. Krupskaya had taken instruction from Bacon and Galileo and "popularized" it in a form of special pleading to show where knowledge and power are to be found. Nor was this contention distinctively communist; it is the very heart of the conception of modern progress. If you have problems, put them in the terms of scientific inquiry and then *solve* them through exact technical knowledge. What could be more symbolic of this power than a shower of candy from a plane?

Popularizing reliance on scientific knowledge began with Galileo who, although the first great experimentalist, was neither atheist nor materialist. He thought of his work as redressing balances, of instructing his times in an approach to knowledge which had been wholly neglected by the Church. With a rhetoric seldom equaled by later scientific writers, he composed the text that would be followed for hundreds of years. Study nature, he said. Her laws are immutable. When you know how nature works, you become independent of the contradictions of human opinion. You can do things. A practical inventor as well as a natural philosopher, Galileo's achievements made his contemporary, Paolo Sarpi, declare: "To give us the science of motion God and nature have joined hands and created the intellect of Galileo."

Galileo saw that the language of nature is mathematical. "We do not learn to demonstrate from the manuals of logic," he said, "but from the books which are full of demonstrations, which are the mathematical and not the logical." Back of it all was the wisdom of God, but now, he maintained, we can *confirm* it for ourselves, and stop guessing and speculating. Passages selected from Galileo's *Two Great Systems* by E. A. Burtt (in *The Metaphysical Foundations of Modern Science*) state his conception of scientific knowledge:

> As to the truth, of which mathematical demonstrations give us the knowledge, it is the same which the Divine Wisdom knoweth; but the manner whereby God knoweth the infinite propositions, whereof we understand some few, is highly more excellent than ours, which proceedeth by ratiocination, and passeth from conclusion to conclusion, whereas his is done at a single thought or intuition.

Armed with this piety, Galileo proceeded to an act of emancipation from Scriptural authority. Since theologians disagree constantly concerning the truth, we can ignore their fruitless arguments:

> Methinks that in the discussion of natural problems, we ought not to begin at the authority of places of scripture, but at sensible experiments and necessary demonstrations. . . . I conceive that, concerning natural effects that which either sensible experiments sets before our eyes, or necessary developments do prove unto us, ought not, upon any account, to be called into question, much less

> condemned upon the testimony of texts of scripture, which may, under their words, couch senses seemingly contrary thereto. . . . Nor does God less admirably discover himself to us in Nature's actions than in the Scripture's sacred dictions.

We might call this the Magna Carta of the Enlightenment, or its Declaration of Independence. What could be more persuasive? After the extraordinary demonstrations of Newton, the need for consulting scripture for *any* reason grew increasingly remote. Writing in 1932, in *The Heavenly City of the Eighteenth-Century Philosophers,* Carl Becker put the temper of this great change in a few pithy words:

> Natural philosophy was transformed into natural science. Natural science became science, and scientists rejected, as a personal affront, the title of philosopher, which formerly they had been proud to bear. The vision of man and his world as a neat and efficient machine, designed by an intelligent Author of the Universe, gradually faded away. . . . "Science," said Lloyd Morgan, "deals exclusively with changes of configuration, and traces the accelerations which are observed to occur, leaving to metaphysics to deal with the underlying agency if it exist."
>
> It is well known that the result of pursuing this restricted aim (the scientific method reduced to its lowest terms) has been astounding. It is needless to say that we live in a machine age, that the art of inventing is the greatest of our inventions, or that within a brief space of fifty years the outward conditions of life have been transformed. . . . Novelty has ceased to excite wonder because it has ceased to be novelty. . . . There is nothing new in heaven or earth not dreamt of in our laboratories. . . . Science has taught us the futility of troubling to understand the "underlying agency" of things we use. We have found that we can drive an automobile without knowing how the carburetor works, and listen to a radio without mastering the secret of radiation. We really haven't time to stand amazed, either at the starry firmament above or the Freudian complexes within us. The multiplicity of things to manipulate and make use of so fully engages our attention that we have neither the leisure nor the inclination to seek a rational explanation of the force that makes them function so efficiently.

This brings us up to "yesterday" in our thinking. Now we are at another crossroads, presented with choices quite different from those which confronted Galileo. He saw that the medieval habit of guessing about the intentions of the deity did not work, and proposed another approach. We adopted it, and today we stand in the midst of the confusion it has produced, wondering where we went wrong. We have of course plenty of technical diagnoses and proposed solutions, but no matter which of these we apply, the problems keep on multiplying. Our remedies, thoughtful men are saying, don't get at the causes. We need, they say, not more science but something quite different—or another kind of science that will initiate radical changes in what we are doing now.

One current criticism puts in briefly abstract terms the realities which science has ignored, almost from the very beginning. Its empirical and mathematical procedures—say Peter Abbs and Graham Carey in *Proposal for a New College*—"cannot adequately meet the existential and so, compelling, questions raised by human existence." As a result—

> The deep questions that rise up from within, turning our own natures into riddles and enigmas—such questions as "Who am I?" and "How can I become that which I am?"—cannot begin to be answered or even (at the moment) adequately comprehended by the scientific disciplines. They can only be elaborated, celebrated, explored and interpreted through the symbolic and communal discourse of Art and through a continuous study of the Humanities, humanly conceived. . . . When we are witnessing in industrial society the relentless suppression of the ontological dimension, the value of such a commitment to existential understanding and imaginative recreation cannot be too highly esteemed. It is commonplace now to find many of those irreducibly human questions, relating to existential meaning, cunningly transposed into technical problems and, then, falsely solved.

This needs to be spelled out. What, for one thing, is the "ontological dimension"? Ontology is the study of Being, and being, here, means how we feel and what we know about our inner selves. The modern world knows something about matter and its motions, but little or nothing about self and

mind. Hence the constant attempt to convert into technical problems the disorders, anxieties, and rebellions arising from existential frustration and pain.

In Galileo's time, the issue was practically the reverse. The theologians of whom he was so contemptuous had turned physical and practical questions into theological mysteries and logical irrelevancies. Galileo jeered at a professor of philosophy who attempted to explain astronomy to the Duke of Pisa, using only logical arguments, "as if with magical incantations, to charm the new planets out of the sky."

Now the shoe is on the other foot. The technical explanations and manipulative methods, when it comes to human behavior and problems, are no more effective than prayers for getting candy. There may be an elementary mathematics of the psyche, but it applies only to the lowest common denominators of behavior, ignoring not only the questions but also the *capacities* which "rise up from within." We are, in short, at a crossroads giving opportunity to take the path toward rediscovery, not of "God," who has never been known, but of Man. Happily, the progress in this direction is slow. We probably could not stand another sudden leap by Revelation ("God said, Let Newton be, and there was Light"), since human beings are first intoxicated, then baffled and stultified, by precocious truths they don't know how to use intelligently.

Yet the change—call it "looking inward"—is plainly on the way. Since the modern world is empirical and pragmatic in its theory of knowledge, the change has begun among people who work in the grain of modern life. It is the specialists—often the technicians themselves—who are turning their thinking around. Several examples come to mind. So far as timing is concerned, it seems reasonable to locate the *evident* beginnings of the change somewhere around 1950. A little earlier than this, a reversal took place in the thinking of A. H. Maslow. As he tells it (in *Farther Reaches of Human Nature*):

> Our first baby changed me as a psychologist. It made the behaviorism I had been so enthusiastic about look so foolish that I could not stomach it any more. It was impossible. Having a second baby, and learning how profoundly different people are even before birth, made it impossible for me to think in terms of the kind of learning psychology in which one can teach anybody anything. Or the John B. Watson theory of "Give me two babies and I will make one into this and one into the other." It is as if he never had any children. We know only too well that a parent cannot make his children into anything. Children make themselves into something.

This was a major beginning in the creation of a humanistic psychology of health, autonomy, and transcendence.

In biology, one man will have to stand for a lot of others. John Todd, teaching biology, was out in the field with a group of graduate students, studying a region near the Mexican border. They weren't getting anywhere, not doing anything worth doing. Todd recalls:

> It occurred to me that here I'd been in university since 1957, thirteen or fourteen years in academia—and many of these students had been in almost as long as I had—and we simply weren't trained in sensitive stewardship. We didn't know anything. Science hadn't trained us to be able to answer the most fundamental questions: How do you make that piece of earth sing, and how do you make it support those that live there? Degrees in agriculture, disease ethology, ecology . . . nothing!
>
> So I decided we had to figure a way.

It wasn't long before the New Alchemists came into being at Woods Hole, Mass. The New Alchemists are figuring out the practical balances between biological care of man and care of the world—on a scale within the capacities of individuals and small communities.

Such thumbnail biographies could go on for a long while (with only a little "research"), but the point is to develop evidence of a trend as much as a type. In each profession, the good specialists are changing their views and outlook. Geographers start out studying geography and end up writing essays on phenomenology: How

do people react to the world around them? To the people across the street as well as the swamp on the other side of the bay? What does it *feel* like to move to a Chicago slum from Appalachia?

There are architects who realize that cities will go on being hideous and demoralizing no matter how handsome the structures they put up, so they go into planning. (Danilo Dolci began as an architect.) There are economists (like E. F. Schumacher) who go around the world as consultants and soon realize that the successes of Western industrialism are local affairs and not likely to last. They discover that foreign aid becomes domestic disaster for the countries "helped." They turn into sociologists and start explaining the things that Adam Smith left out of his calculations. They become practical moralists with the strong muscle of concrete experience to support what they say.

There are doctors who, because the poor get sick from malnutrition faster than they are able to cure them, become revolutionists, and at the same time revolutionists who, looking at recent history, become communitarians. Social workers become farmers—one of them explained, "I wanted to work at something in which what I accomplished in ten years or so couldn't be destroyed by a politician in twenty-four hours." Then there was the industrial designer who thought it would be a good idea to invent some low-cost furniture worth having around for the people who live in Watts (where the Black poor live in Los Angeles). But instead of going to the drawing board, he went to Watts and got to know some people there. Three months later he decided: "These people don't need furniture; they need a bookmobile." And he designed one.

What are all these people doing? They are investigating the "ontological dimension," finding out about the human qualities and potentialities of human beings. They are looking for whatever order they can recognize in the undiscovered country of the mind. They are also learning how to explain what has gone wrong with our society—all through the society—and to suggest what ought to be done.

Take housing—what we call "public housing"—which is not a pleasant or attractive subject at all. Housing has gained attention only from the fact that it is such an ugly mess and keeps on causing national scandals by its continuing failures. Because it seems like a lost cause, housing is not a problem one is easily drawn to work on. A slum area can't be made to fit into any of our utopian schemes. The people are poor and discouraged. Many become passive and helpless. The plumbing keeps breaking down and the streets are piled high with garbage and refuse. There are power failures and looting. The cities are almost bankrupt and seem on the verge of collapse.

Where, for such situations, do you find hope? Not, apparently, in New York, not in London or Glasgow, not in Detroit or Los Angeles. Yet hope is possible. We have a book, *Housing by People* (Pantheon, 1977), by John F. C. Turner, a man who, as a schoolboy, read Mumford's *The Culture of Cities*, then read *Cities in Evolution* by Patrick Geddes (Mumford's teacher), and later absorbed Kropotkin's ideas. In time Mr. Turner became a worker for better housing by people—not *public* housing, but housing conceived, managed, and sometimes built by people for themselves. This is not an idea you could get from practice in New York or Detroit. It came to Turner—or was thrust upon him—in faraway Peru. Colin Ward tells what happened in his preface to the Turner book:

> When E. F. Schumacher and his colleagues started the Intermediate Technology Development Group, to locate or design machines and tools that would help countries with a superfluity of labor and a shortage of capital, they were concerned with the real needs of poor countries, but they gradually realized the importance of the principles they evolved for the poor areas of the rich world, and finally they came to see that they had formulated principles of universal application: intermediate technology became alternative technology. Paulo Freire and Ivan Illich, attempting to come to grips with the educational

> needs of Latin American countries, stumbled on truths which have changed the nature of the continuing debate on education throughout the world.
>
> John Turner absorbed in Peru the lessons offered by illegal squatter settlements: that far from being the threatening symptoms of social malaise, they were a triumph of self-help which, overcoming the culture of poverty, evolved over time into fully serviced suburbs, giving their occupants a foothold in the urban economy. . . . [Later at] the Joint Center for Urban Studies [of MIT and Harvard], he found that the ideas he had formulated in Peru were also true of the richest nation in the world, and when he returned to England after seventeen years abroad, he found that the housing situation in Britain too fitted his formulation. He was perhaps to his surprise, expressing universal truths about housing.

What were these truths, and why was Turner able to discover them in Peru but not in New York? Well, he could see them operating in Peru because there the techniques of industrialism had not yet altogether dominated the scene. Such methods of discovery seem almost universal these days. Albert Howard formulated the principles of organic gardening early in this century, after seeing them applied by the Indian peasants whom he had come to help. He *did* help them, and a lot of other people, after learning from them what they were trying to do. E. F. Schumacher discovered what was wrong with modern economic theory (and practice) by recognizing the extreme harm it was accomplishing in India and Burma. He became a Gandhian or Buddhist economist and set out to teach the rest of the world. What he has been teaching is really science—Western know-how and Western capacity for concentrated understanding—but science turned to the service of human need, fitted to the possibilities of human capacity, and subordinated to human intentions and control.

These are the truths discovered by Mr. Turner:

> First, there is the necessity for self-government in local affairs for which the principle of local and personal freedom to build must be maintained. Second is the necessity for using the least necessary power, weight, and size of tools for the job (whether managerial or technological). In principle, this is to say small is beautiful, but with the proviso that some jobs—especially the less beautiful ones—do need large organizations and powerful machines. Thirdly, there is the principle that planning is an essentially legislative function, and must cease to be confused with design, which has to do with laying down lines of action.

The task of government or any authority, in short, is to move itself out of the way and push other obstacles out of the way, so that people can design, create, and manage their own homes and their own lives. The positive role of government is to provide access to land, materials, and tools. Intelligent planners can help by providing axial controls, using water supply and sewerage facilities, but the housing is by *people.*

The fascinating thing about this book is its thrust in behalf of these principles, no matter what the practical barriers or how mighty the forces moving in an opposite direction. There are ways of doing things right, Mr. Turner shows, even under the most contradictory circumstances. It takes a man equipped with some kind of x-ray eyes to see this course through and around the obstacles set up by modern bureaucracy, but Mr. Turner seems to have developed this sort of vision. He has been putting it to work in urban scenes for years. In a society which does things backward, thinking this the only way, he found it necessary to begin with a negative approach. Authority, to do any good, must *limit* itself—proscribe instead of prescribe. Freedom is the condition of growth. This is a dramatic application of the reverse of Galileo's theory of knowledge: Now the subjective human qualities are the primary facts of life. For Mr. Turner this means housing for people as if people mattered—as if they are able to do it for themselves.

REVIEW
"ALL THIS WAS GOOD, TOO"

THERE is a somewhat rare kind of book of which Irving Petite's *Elderberry Tree* (Doubleday, 1964) is a fine illustration. Something he says about a day on his place in the foothills of the Cascade Mountains in western Washington captures the essential mood:

> Lying quietly, I could hear quails calling from the upper end of the field.
>
> I remembered Thoreau's "In a pleasant spring morning all man's sins are forgiven. Such a day is a truce to vice." Well, not *quite* forgiven, for a man never really forgives himself: the errors and meannesses he has done ride with him forevermore. But on a pleasant spring morning Earth, at least, forgives him, and that eases the ache.

He doesn't, he says, lie directly on the earth to invite such musings. There are too many rocks. "But sometimes I lie down on logs, to hear Earth's heartbeat and to get my fingers on the minor pulsings of its bloodstream.

This makes a natural introduction to another book—*Shantyboat* (University Press of Kentucky, paper, $4.95) by Harlan Hubbard. There is more water than earth on the surface of the planet, and Harlan Hubbard found a way to lie down in it—on some boards—and feel the pulsing of its streams. His account of this floating existence gives full justification of a "truce to vice." He shows how much remains of natural delight in an all-too-dissolute world.

> To build my own boat on the river shore, and drift down the Ohio to the unknown Mississippi, and on southward to the river's end—I cherished this project for so many years, even after reaching an age when the dreams of youth have been usually abandoned, that it became more like a dreamed-of or imagined adventure than a definite plan of action; so I did not recognize the opportunity when at last chance formed the right combination of circumstances; not until Anna said, "Now we can build the boat we have so often talked of, and drift down the river."

Why?

> The true shantyboater has a purer love for the river than had his drifting flatboat predecessors. These were concerned with trade or new land. To him the river is more than a means of livelihood. It is a way of life, the only one he knows which answers his innate longing to be untrammeled and independent, to live on the fringe of society, almost beyond the law, beyond taxes and ownership of property. His drifting downstream is as natural to him as his growing old in the stream of time. Away from the river he languishes, as if taken from his natural element.

Harlan Hubbard, one suspects, would not languish no matter where he landed, but we all must languish, perhaps without knowing it, unless we learn to negotiate, for some part of our lives, the "truce to vice" Thoreau spoke of. There are indeed great areas of human experience with which we can have no quarrel.

Mr. Hubbard is a painter, which may explain the gentle sovereignty he finds in the things he sees and hears. They have their right to be, these things. Objects, as well as people, are usually friendly in Mr. Hubbard's book.

> A shantyboat on its way, drifting along in the swirling current, is a sight to see—colorful and gay, yet, too, of a somewhat pathetic drabness: women and children peek out of windows; dogs bark from the decks, which are draped with lines and other gear, the roof is piled with plunder a crate of chickens or pigs, fish boxes, and piles of nets, wood smoke from the cookstove in the cabin rises through a crooked chimney; the master guides his clumsy craft with long sweeps, or oars; a collection of johnboats and perhaps a small scow trail along.

It was a painter's yearning which really set him afloat. He would camp along the Ohio River in various spots:

> From these vantage points I painted the river, alone with its sky and reflections; I painted pictures of steamboats, past and contemporary; and of life along the shores. I explored the river towns, where I sketched the old waterfront buildings, relics of the days of the packets.
>
> In this way I learned the river fairly well. Desiring to come still closer to it, the answer seemed to be a shantyboat. This would enable me to live with the river, to watch it through the changing seasons, to go with it on its long journey to the sea. . . .
>
> I had no theories to prove. I merely wanted to try living by my own hands, independent as far as possible from a system of division of labor in which the participant loses most of the pleasure of making

> and growing things for himself. I wanted to bring in my own fuel and smell its sweet smoke as it burned on the hearth I had made. I wanted to grow my own food, catch it in the river, or forage after it. In short, I wanted to do as much as I could for myself, because I had already realized from partial experience the inexpressible joy of doing so.

And so, day by day, he tells about doing it. He begins with building the boat in Brent, Kentucky, where he found a good site for construction and launching. He built it himself, listening to the counsel of oldtime shantyboat experts, but daring his own innovations, most of which worked well. The author grew up on a farm and is handy with tools. He always had a dog or two on the boat, but there were other livestock—bees. The gardening was done in the summer when they would tie up near a deserted farm or get permission to use some unoccupied field. Then, after harvest, they would drift along downstream.

There's not very much said about his painting. He didn't talk about it to people, but if someone found out about his work and showed an interest, he would let them look at his paintings. Once a preacher asked him to do a painting for his church—"a baptismal scene, a picture of a river rolling down from the far distance to the very pulpit." Hubbard agreed, asking the church to pay just for the materials. "This was not," Hubbard says, "a benevolent gesture on my part, but selfishly I hoped to work with greater freedom than would be possible with the suggestions and requirements of a paying client to consider.)" Everything turned out well.

> We liked it. The church folk did, too, when they saw it the following Sunday. It was not what they envisioned. It was not the Jordan of the Sunday School pictures, but the Ohio, its golden current coming forward from the distance, the landscape a patchwork of sun and shadow. The only ecclesiastical note was a white church spire in the little town in the foreground.

Grateful, the congregation gave a supper in his honor—"good country food of a deliciousness and abundance only farm women can achieve."

Harlan and Anna Hubbard both play stringed instruments, and music, like gardening, had its season:

> Some river people complain of the dreary confinement of winter, but we find it a season of special delight. The mere joy of being sheltered is magnified by our closeness to the elements: rain on the roof directly overhead, snow sifting on our faces asleep, the swaying and rolling of the boat, the wild and muddy world without. Our fires have the directness of campfires kindled in riverbank driftpiles for warmth on a winter walk. In bad weather one can sit by the fire indoors without compunction, and not feel that he should be stirring about outside. It is then that we reap the harvest of winter, painting, writing, reading, making music. Our playing together has given us much solid satisfaction. Often we play two parts of a quartet or trio; incomplete music, to be sure, but the rich treasures of the inner voices, often lost in a complete performance, are realized.

There was more reading, too, in the winter:

> The first session of the day came after breakfast. It might be only a few lines if there was a press of weather, or some affair needed immediate attention, yet we often lingered to read a whole chapter. To be read in the morning a book must be exceptionally good. Then we could take on some demanding, stirring volume like Walden. In the morning we liked to read poetry; it might be anything from Chaucer to Emily Dickinson. An honest, outdoor book of travel went well at that time—Hakluyt, *Two Years Before the Mast*, or Doughty's *Arabia Felix*.

At noon they often read French writers—Racine, France, Proust—and sometimes a scene from Shakespeare. In winter evenings, besides reading, they made fish nets. And at night—

> We lay awake listening to the moaning of the trees, the chirping of the frogs, and the lashing current out in the river. It had been a good day after all. This is what we were on the river for—to feel the power of it, to see it in action to be near it with as little as possible between us and it, to know it as an elemental force, stripped of names and associations. The hard work and aggravation, the unwieldly boat stubborn as a mule, water like glue, all this was good, too. What true understanding of the river could one acquire by a fast trip in ease and comfort?

As noted elsewhere, Wendell Berry—a friend of the Hubbards—wrote the introduction to *Shantyboat*, calling it a voyage of rediscovery, which it is.

COMMENTARY
OUR COMMONEST MISTAKE

IN *Guide for the Perplexed,* E. F. Schumacher speaks of two kinds of problems—convergent and divergent. The elements of convergent problems can be isolated, understood, and controlled, leading to practical solutions. Inventing and making a bicycle is an example. Divergent problems are essentially different: their elements are never completely understood, and the solutions proposed are always paradoxical. A typical divergent problem is: How should we educate our children?

The authors of *Proposal for a New College* (see page 2) use other words but draw attention to the same fundamental distinction. They call the divergent problems "irreducibly human questions," saying that because we commonly try to convert them into "technical" (convergent) problems, only false solutions are obtained.

There could be, we think, no more important clarification of what is wrong with the way present-day human beings go at things.

A closely related clarification is provided by Leslie Farber in *The Ways of the Will* (Basic Books, 1966). His second chapter is titled "The Two Realms of the Will," the first realm having to do with attitudes and motives, the second with definable acts. Dr. Farber says:

> The problem of the will lies in our recurring temptation to apply the will of the second realm to those portions of life that not only will not comply, but that will become distorted under such coercion. Let me give a few examples: I can will knowledge but not wisdom; going to bed but not sleeping; eating, but not hunger; meekness, but not humility; scrupulosity, but not love; commiseration, but not sympathy; congratulations, but not admiration; religiosity, but not faith; reading, but not understanding. The list could be extended, but it must be clear, when will of the second realm turns to such qualities, that it seeks in its own utilitarian way to capture through imitation their public face—the manner or style that is visible and objective, as well as available.

To what extent, one wonders, is the often admired process of "politicalization" little more than the attempt to substitute overt acts for those inner changes which can never be accomplished by manipulation?

CHILDREN
. . . and Ourselves
STAGES OF KNOWING

IN a paper on Mathematical Education, Jean Piaget stresses the difference between abstract knowledge and concrete or working know-how. Children (and of course adults) are able to do lots of things they can't describe. Learning to describe in abstract terms will take them time, and they must be old enough (have evolved the corresponding mental structures) before they can attempt it. Piaget says:

> In order to make this necessary conjunction between the logico-mathematical structures of the teacher and those of the pupil at different levels of his development, certain very general psycho-pedagogical principles should perhaps be mentioned. The first is that real comprehension of a notion or a theory implies the re-invention of the theory by the subject. Once the child is capable of repeating certain notions and using some applications of these in learning situations he often gives the impression of understanding; however, this does not fulfill the condition of re-invention. True understanding manifests itself by new spontaneous applications, in other words an active generalization supposes a great deal more: it seems that the subject has been able to discover for himself the true reasons involved in the understanding of a situation and, therefore, has at least partially re-invented it for himself. Naturally, this does not mean that the teacher has no role any more, but that his role is less that of a person who gives "lessons" and is rather that of someone who organizes situations that will give rise to curiosity and solution-seeking in the child, and who will support such behavior by means of appropriate arrangements. Should the child have difficulties in his attempts to grasp a certain idea, the procedure with an active methodology would not be directly to correct him, but to suggest such counter-examples that the child's new exploration will lead him to correct himself.

This, at any rate, seems clear: Teaching is knowing how to arrange invitation to re-invention. Then, by varying the scheme, the inventive capacity should have opportunity to confirm itself in diverse ways. Piaget continues:

> A second consideration should constantly be present in the teacher's mind: that is, at all levels, including adolescence and in a systematic manner at the more elementary levels, the pupil will be far more capable of "doing" and "understanding in actions" than of expressing himself verbally. In other words, a large part of the structures the child uses when he sets out actively to solve a problem remain unconscious. In fact, it is a very general psychological law that the child can do something in action long before he really becomes "aware" of what is involved—"awareness" occurs long after the action. In other words, the subject possesses far greater intellectual powers than he actually consciously uses. Consequently, once the teacher has had the opportunity of becoming acquainted with the psychological research mentioned above, and knows the subjacent thought structures the child possesses, he can more easily help the child to become aware of these either by appropriate discussions between the child and himself, or by the organization of the work in groups where partners of the same age or similar ages (an older child acting as leader of a small group) discuss between themselves, which in turn favorizes verbalization and awareness.

There is a lot more to this article (in the Fall 1975 *Contemporary Education*, Indiana State University, Terre Haute), but mostly the sort of material the reader needs to "re-invent" before he can be sure he understands it. Not so with the general ideas given above.

It will perhaps occur to others, as it has to us, that the idea of "knowing" a lot more than we can explain applies not only to mathematics, but to very nearly everything we do. What, then, is the value of the "awareness" Piaget is talking about?

Well, there is one sort of action or behavior which can't be attempted without awareness—the acts of *deliberated decision.* With knowledge we can do things, but with awareness we begin to see the relationships of what we do. The reality of hierarchies of value dawns on us. We begin to distinguish between levels of knowledge. We see how a given level, while opening the way to a field of action, also restricts.

An article in the Fall *Dædalus* (Journal of the American Academy of Arts and Sciences), "Criticism and Authority," by Jean Starobinski,

shows how this works. Scholarly criticism, the author suggests—going back to the Renaissance—began with finding out what the Great of the past really said. Biblical and classical texts have to be cleaned up, verified, and made reliable. When you read the true texts you have knowledge.

Then came a kind of leap. The critical faculty, once aroused continues to operate. The text speaks wisdom to us—but it speaks to *us*—and we use our own critical faculty to discern its meaning. This is another level of criticism. Once scholarship required only poring over old manuscripts and deciding on the best version. But when we have it, another kind of reading begins:

> If, during his submission to the text, the reader hears an inner voice that acquiesces to the text and gives it its full agreement, he will soon believe that an identical law speaks within himself. The solitary reading of the sacred text marks the beginning of a transfer of authority which will later consecrate the dictates of the lone inner voice, or, to speak in Rousseauistic terms, the reading of those characters which Nature (or God) has engraved in the heart of man. In order to get to this point, it will be necessary to reactivate the critical process which, in time, will be directed entirely against all exterior law, even if it be the one ordained by the revealed Book.
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> At this juncture, the text, no matter how authentic, itself becomes suspect.

The stages of these transitions are examined in detail by Mr. Starobinski. They have immeasurable historical effect:

> . . . such criticism, constantly demanding positive proofs and reliable texts, will leave nothing standing and will hence function as an act of destitution. The authority of the individual conscience is thus reinforced and comforted until, toward the end of the eighteenth century, it becomes the main recourse for theoreticians of political power who, unable to appeal to the authority of revelation or of tradition in order to establish public order, will have to invoke the testimony of free inner conviction as sole guarantor of respect for law.

This was seen to be a pretty shaky foundation for social order. People don't know enough to trust their intuitions. But as the old external authority was dying, another, based on experience, was gathering strength. Science would now show the way. As Renan put it (in *L'Avenir de la Science*)*:*

> I feel that if I had ten lives to live simultaneously, so as to explore every world, myself there at the center, inhaling the scent of all things, judging and comparing, combining and inferring, I would finally get to the system of things. Well, what no individual is capable of, humanity will do: for it is immortal and we all work for it. Humanity will be able to perceive the true physiognomy of things, that is, it will attain truth at all levels. Will you then say that those who have contributed to this immense work, who have polished one of the facets of this diamond, who have rid it of some of the dross that dims its native brilliance, are just pedants, idlers, ponderous minds busy wasting their time?

A strange thing has happened, evident from Renan's dream. Truth, which used to be in the past, where scholars mined for it in documents, is now mainly in the future, at which we can only guess! Mr. Starobinski says:

> We have shown how this new dogmatism, by transferring the emergence of authority to some remote future, can become (despite the best intentions of its adepts) as tyrannical as those orthodoxies derived from sacred scriptures, because it is immune to inquiry, to doubt, and to the very test of criticism: its interpretation of past events can be judged only in terms of a hope that tries to hasten its own realization by assuming the role of law.

This sort of insight is far too important to be limited to scholarly interchange.

FRONTIERS

A Good Book on Planning

IN *Retracking America* (Doubleday, 1973), possibly one of the best books on planning now available, John Friedmann devotes as much attention to what won't work and why, as he does to the education of planners. His heroes are Thomas Jefferson and Karl Mannheim. His choice of Jefferson as guide is vindicated by quotation from a letter Jefferson wrote (to Joseph C. Cabell) in 1816:

> The way to have good and safe government, is not to trust it all to one but to divide it among the many, distributing to every one exactly the functions he is competent to. . . . It is by dividing and subdividing these republics from the great national one down through all its subordinations, until it ends in the administration of every man's farm by himself; by placing under every one what his own eye may superintend, that all will be done for the best. . . . The elementary republics of the wards, the country republics, the State republics, and the republic of the Union, would form a gradation of authorities, standing each on the basis of law, holding every one its delegated share of powers, and constituting truly a system of fundamental balances and checks for the government. Where every man is a sharer in the direction of his ward-republic, or of some of the higher ones and feels that he is a participator in the government of affairs, not merely at an election one day in the year, but every day, when there shall not be a man in the State who will not be a member of some one of its councils great or small, he will let the heart be torn out of his body sooner than his power be wrested from him by a Caesar or a Bonaparte.

The heart of the matter, for Jefferson, was the realistic participation in self-government by the wards. Nothing, Jefferson was convinced, would work well without a network of these active democratic units in all the states. Without them—as in his time were "the unwieldly counties of the Middle, the South, and the West"—the country would have no protection against the manipulations of groups tightly organized for self-interest. What would happen if you suddenly call a town meeting in, say, the South? Lack of experience in self-government would doom the issue:

> Call a county meeting, and the drunken loungers at and about the court houses would have collected, the distances being too great for the good people and the industrious generally to attend. The character of those who really met would have been the measure of the weight they would have had in the scale of public opinion. As Cato, then, concluded every speech with the words, *"Carthago delenda est,"* so do I every opinion, with the injunction, "divide the counties into wards." Begin them only for a single purpose; they will soon show for what others are the best instruments.

This needs no updating elaboration: we know exactly what Jefferson means.

Friedmann gives a luminous summary of Karl Mannheim's contribution (in *Ideology and Utopia*, 1949):

> Mannheim invented the idea of democratic planning. . . . The course of human events, he believed, could be decisively influenced by rational thought without loss of freedom. . . .
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> Scientific work, he thought, could not produce "pure" facts but only a selected emphasis and perspectivist interpretation of them. Scientific analysis had to begin either from a given position in the social order or, for the free-floating intelligentsia, with insight into the hidden forces of societal change. A moral judgment lay at the root of both kinds of knowledge: either you defended the system of social relations because it served you well (ideology), or you criticized it from the vantage point of a possible future (utopia). Facts without values were meaningless; an array of data such as might be contained in a census publication revealed nothing until subjected to disciplined analysis and interpretation. The intellectual, even though he was detached from the social structure, could not remain without moral commitments. His task was more than to measure and record; it was to understand reality, to reveal subterranean forces working for change, to point out the directions in which the system was moving, to signal dangers in the present situation, and to advocate the measures required for reconstruction on the basis of new sets of values.

This seems an apt account of what most of the effective intellectuals are now doing.

Friedmann continues with his appreciation of Mannheim's work:

> In his method, Mannheim proceeded much as a physician would, beginning with a diagnosis of the illness and then prescribing the necessary steps for a recovery. Doctors do not define the state of health to which they hope to restore their patients, and Mannheim never spelled out his particular vision of the future. . . . Mannheim's utopias were immersed in the stream of historical change. They were not models of ideal society but instances of a continuously moving intelligence, its bearing set upon the future. Mannheim refused to fall into the trap of objectifying states of social order whose time had not yet come.
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> In this he distinguished himself also from the average bourgeois reformer, who spent much of his time designing the future while ignoring the processes by which present social actions might be redirected. Faced with the practical problem of how to move from here to there, the desperate wisdom of both Marxist and bourgeois planners was to control everything in sight. . . . The dynamics of communist society did not conform to the initial expectations of its planners, who were surprised to find the Soviet economy lurching awkwardly from crisis to crisis. Planners in capitalist countries, on the other hand, discovered that controls such as land use zoning regulations could, at best, slow down the avarice of speculative enterprise, they were ineffective in giving form to a life-sustaining physical environment for man.

Friedmann's conclusion is: Don't look at the future but watch what you are doing right now. Does it move things in the right direction? What *is* the right direction, considering the means we have available and the limit of their possible achievement?

Mannheim, Friedmann thinks, made one bad mistake. He believed that "intellectuals" could free themselves from bias. They can't. The best they can do is to keep watch over their thinking, guarding themselves from tyrannical roles and democratizing their failures by increasing the participation of others in guidance activities. The unit of this sort of planning Friedmann calls "the *task-oriented working group"*—an intensive refinement of Jefferson's wards. Control over undue optimism is provided in the last chapter of *Retracking America*, in which the author lists the psychological changes in man that will need to take place if a cellular structure of actively participating small groups is to conduct both the planning and the day-to-day processes of realization.