

THE HISTORIAN'S VOCATION

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WHAT follows is based on the premise that the historian is a literary craftsman who composes in words, for the mind's eye, a picture of the past. He works in the realm of imagination, for it is only in imagination that he can recapture people, places, and circumstances that, in their physical reality, are gone forever.

It hardly needs to be said that the image the historian presents should be as close as possible to the vanished actuality it pretends to represent. How does he go about meeting this requirement?

One way is by research. The historian combs through such records as the past has left: official documents, letters, eye-witness accounts, reports at second hand. In pursuing this research he is in a position similar to that of a jury in a criminal trial. He has to discriminate among the bits and pieces of evidence in terms of credibility, selecting those that are then combined in his imagination as one combines the pieces of a picture-puzzle, the objective being to end up with as complete and convincing a picture as possible of the people involved, of the circumstances and of what actually happened.

In building up his mental picture the historian is faced, time and again, by the need to make choices among alternative possible interpretations, choices based on nothing more reliable than his own judgment of plausibility. Having to select among such alternatives, he will reject some because, in his own intuitive view, they are contrary to human nature as he understands it, or to the behavior to be expected of a certain nation or a certain individual. This kind of subjective

judgment—of how human beings behave, individually or collectively—calls for the same quality of insight as marks the writer of such fiction as undertakes to hold the mirror up to human reality. So it is that the great historian (e.g., Thucydides) is great by virtue of his possession of an insight into human behavior like that of a great composer of fiction (e.g., Shakespeare).

All this is to say that I share the view of those who regard history as belonging to the domain of literary art, as allied to fiction.

This, however, is a view that makes many of us professors uneasy today, even where we do not reject it outright. For it seems to go counter to the view we are disposed to propagate among our students and the public, that history is a scientific discipline, no less so than chemistry.

The view of history as a science, which did not exist before the latter-part of the nineteenth century, has its own history.¹ Before the nineteenth century, the writing of history was not an established profession under the jealous guardianship of the academic world. Thucydides, Caesar, Tacitus, Polybius, Livy, Eusebius, Froissart, Machiavelli Guicciardini, Voltaire, Gibbon, Hume—none of these were accredited members of a community of historians that imposed its own norms of approach, of method, and of presentation. Consequently, their individual genius and their foibles alike had free play. Gibbon wrote as he pleased, for there was no body of professional peers to whose collective judgment his work had to be submitted, whether as a condition of publication or as a basis for criticism after publication had taken place.

No one can doubt the advantages of bringing the historian's vocation under the discipline of university faculties, as happened in the nineteenth

century. Standards of objectivity and scholarship, representing the scientific disposition, were then set up as a basis for condemning meretricious work and encouraging its opposite. I need not here elaborate on the recognized improvements this made in the practice of historiography. Alongside these improvements, however, were the standard evils that result from bringing the exercise of the mind under the discipline of an academic establishment that, inevitably, comes to constitute itself the guardian of orthodoxy.

The evil consequences of having a ruling establishment in any field of scholarship are magnified by the swelling of its membership. As the community of historians rises from ten to ten thousand, mediocrity becomes increasingly prevalent in it, and the consensus of mediocrity, identified with orthodoxy, becomes increasingly dominant, not to say tyrannical.² So the occasional individual who thinks for himself, thereby separating himself from the common mind, may find it impossible to make a career.

If one takes the position that historiography is a science, to be conducted according to scientific methods, then the question arises of where, in its practice, such methods can be applied. The answer is that they can be applied to the research that precedes the actual writing of history. At this point, however, one finds oneself embarrassed to say what, precisely, are the applicable methods to which one has attached such an aura of difficulty and importance.

The first and most obvious answer is that the researcher must evaluate his sources for reliability by every means possible, rejecting forgeries, allowing for bias. This is, indeed, a matter of the first importance, but one that has always been fairly obvious. It is hard to say just what other elements of scientific method are relevant—if one disallows, as all should but none do, the pretentious use of a pseudo-scientific jargon. Some researchers have made play with methods of quantification, but one can hardly say that anything except a marginal role has been found for

these methods in most historical research. (Variations over the years in the number of hectares under cultivation for cabbages, or changes in tax-rolls, may be highly significant in a sociological interpretation of history.) For the rest, in the absence of anything better, scientific methods are associated with outward formalities in the presentation of the results of research. The scholarly apparatus of footnotes and bibliography assumes an importance as evidence of scientific rigor that it may not have. Again, however, this kind of thing, useful as it may be, cannot be regarded as central to the historian's objective of presenting a picture of the past.

After the above ramble through its outskirts, I come at last to my theme itself. The scientific approach, in all fields, tends to bear on analysis rather than its opposite, synthesis. It tends to be reductionist rather than holistic. It is readier to take its subject apart, dividing it into its ever finer components, than to assemble the components in ever larger wholes. It prefers the short view to the long, the microscope and dissecting needle to the telescope.

The fact is that analysis, as opposed to synthesis, comes within the competence of anybody who enjoys moderate intelligence and the rudiments of an education. It requires no imagination to disassemble a watch, that being a task which any normal child would take a certain joy in accomplishing. However, if one spreads out the disassembled parts, and asks how they are related to one another, only the holistic imagination, which is the creative imagination, can provide the answer. It is harder to assemble a watch than to disassemble it, just as it is harder to put a picture-puzzle together than to take it apart. Any researcher of ordinary competence can deal with the question of the particular year in which Constantine the Great was born, weighing what evidence remains for A.D. 280 as opposed to A.D. 274; but how many can embrace in one view what Gibbon called "the decline and fall of the Roman empire"? How many can see within the

frame of one picture the continuous development that leads across five centuries from Constantine to Charlemagne? These holistic challenges require wide-angle vision. They require the large, all-embracing, imaginative vision that distinguished Gibbon. Yet, without such a holistic approach, without the making of connections over time and space, without the imagination this entails, history is meaningless, a chaos of unrelated items. It is meaningless if every fact stands by itself. It is meaningless as a mere laundry-list of unconnected items. J. B. Bury (1861-1927), with his insistence on history as a science only, might indeed have reduced it to this if that had been possible. (So would Lord Acton, whose projected and understandably unaccomplished history of freedom remains the greatest book never written.)

Many years ago I undertook to achieve, by reading on my own, such a mastery of medieval history as was possible for me in the circumstances in which I found myself. The authority I consulted, with this in view, made it clear that I must, to begin with, read Gibbon's *Decline and Fall of the Roman Empire*—but only (and this was imperative) in Bury's edition, which corrected the errors of Gibbon that would otherwise mislead me. So I acquired Bury's edition, which I have before me now as I write. Then I discovered that the contribution he had made, to save readers like me from grievous misconceptions, consisted almost entirely of such footnotes as one that, commenting on Gibbon's passing reference to the use of aromatics "in religious worship and the pomp of funerals," reads: "But the use of aromatic spices among the Romans was by no means confined to these purposes,"³ or the one which reveals that Gibbon's reference to "Albim" should have been to "Albam."⁴ Gibbon, referring to the vices of Carinus, who ascended the imperial throne in A.D. 284, tells us: "In the course of a few months, he successively married and divorced nine wives, most of whom he left pregnant . . ." To this Bury adds, in a footnote: "The name of one of his wives, Magnia Urbica, is now known"—just that

and nothing more.⁵ His appendices show a like devotion to isolated points of insignificant detail. (What is impressive is how few and inconsequential were the corrections or additions with which he found it necessary to repair the supposedly defective historiography of the master.) I don't mean to discount completely the contribution Bury made, but it has no bearing at all on the large picture Gibbon presents, and the large picture is what counts.

Collingwood said of Bury:

History for him, in the true positivistic manner, consists of an assemblage of isolated facts, each capable of being ascertained or investigated without reference to the others. Thus he was able to accomplish the very strange feat of bringing Gibbon up to date by means of footnotes, adding to the aggregate of knowledge already contained in his pages the numerous facts that had been ascertained in the meantime, without suspecting that the very discovery of these facts resulted from an historical mentality so different from Gibbon's own that the result was not unlike adding a saxophone obligato to an Elizabethan madrigal.⁶

History is not simply a heap of details, any more than the cathedral of Chartres is a pile of stones. Just as the individual stones are not what counts in Chartres, so the details are not what count in history.

Take another analogy, that of any landscape painting, say Jacob van Ruisdael's "Wheatfields" in New York's Metropolitan Museum. Imagine, now, a student of painting whose method of viewing is to approach the canvas with a jeweler's magnifying glass and scrutinize it close up, detail by detail, beginning in the upper left-hand corner and going across to the right, then repeating the operation a centimeter lower—and so on until, in this fashion, he has covered the whole painting, coming to the end in the lower right-hand corner. Although he will indeed have seen the whole painting, and in far greater detail than the average observer, he will not have seen it as a whole—which is to say that he won't really know it at all.

A Bury may be intimately acquainted with the whole of Gibbon, detail by detail, and still not know it because he has never seen it as a whole, and still not know it because he cannot see it as a whole.

Every historian who amounts to anything is, first of all, a man of vision. He is possessed by a grand, coherent vision of the past that he seeks to get down on paper, a vision that embodies his own insight into the human situation and into the wellsprings of human behavior. In composing his vision for presentation, he must properly engage in the most conscientious research into all its aspects, including the details, making whatever corrections that calls for. But the vision is still primary, the research secondary.

We professors, who are producing the new generations of historians, cannot teach our students how to evoke in themselves vision and insight. All we can teach them is how to do research (which is not hard) and, incidentally, how to present their work. This means that we tend to emphasize the secondary scientific aspect exclusively, automatically concentrating on analytical detail, like a teacher of painting who addresses himself to the technique required for the individual brush-strokes but overlooks composition. And this means that we come to think of history, and to teach our students to think of it as no more than an analytical exercise for the accumulation of verified details.

The analytical approach goes from the small to the smaller. But history, below a certain scale in space and time, is no longer history. A history limited to one square meter in France, even over a period of many centuries, would not be history because the area is too small to comprehend self-contained historical happenings. A history covering the whole world, but limited to five minutes, would not be history because the time is too short to comprehend self-contained historical happenings. The local chronicles, of a town or a parish, such as are found in local libraries or archives, may be called history, but they are on

such a small scale that they lack the large significance we commonly attach to the term. Great history is not without a certain grandeur and significance that requires it to cover a large scene over an ample span of time—as in Gibbon's history, as in Bernard Pares's *History of Russia*. And this implies the holistic vision, rather than the reductionist lack of vision in terms of which historical research is conducted scientifically.

Perhaps it is inevitable that in history, as in politics, we teach only what lends itself to teaching, what is teachable, omitting everything else, however transcendent its importance. What is teachable is research, which entails the scientific, reductionist approach. But we mislead our students if we teach this as representing the entirety or even the principal element of the historian's vocation.

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¹Note that in English the word "science" has traditionally had a more restricted meaning than in French, implying only such investigation as leads to precise conclusions verifiable by repeatable experiments.

²I have dealt with this more circumstantially in *The Ideological Imagination*. London and New York, 1972, pp. 112-116.

³Gibbon, Edward, *The History of the Decline and Fall of the Roman Empire*, London, 1895, I, p. 55.

⁴*Ibid.*, 1, p. 330.

⁵*Ibid.*, 1, p. 342.

⁶Collingwood, Robin George, *The Idea of History*, Oxford, 1946, p. 147.

REVIEW BACK IN 1833

WHILE by the self-definition of practice *Environment* is a hard-headed scientific journal with articles and reports of research you can rely on, now and then it publishes material that tempts the literary reviewer. "The Original Blueprint for a Solar America," by Lamont C. Hempel, in the March issue, is an example. On his first page, properly sprinkled with footnotes, the writer begins:

Sooner or later, nearly all thinkers and inventors with an awareness of history experience the humbling realization that their most cherished discoveries have been anticipated in the ancient writings of a Plato, the notes and drawings of Leonardo da Vinci, or one of a thousand other sources of intellectual stimulation echoing through our past. Today's "original" ideas often turn out to be only elaborations or refinements of some historically obscure or previously ignored line of thought. But the fact that these ideas have been thought of before and then forgotten need not diminish the sense of accomplishment that comes with their rediscovery and application in modern times. As Goethe said, "Everything has been thought of; the difficulty is in thinking of it again."

This is a fine opening paragraph. The writer's subject, it develops, is the use, ancient and modern, of solar energy, and after telling about archaeological evidence that ancient Greek cities were "successfully designed to take advantage of the sun's heat," and of finds in America showing that American Indians of 3,000 B.C. understood and used, solar heating, he gets to his main point' which is to report on the theories of a nineteenth-century German immigrant to the United States—one John Adolphus Etzler, whose book, *The Paradise within the Reach of All Men, Without Labor, by Powers of Nature and Machinery*, was published in Pittsburgh in 1833.

Etzler is a familiar name, but probably would not be, except that ten years after his book appeared, Henry David Thoreau gave it critical attention (in the *Democratic Review*, 1843), not so much to deny the possibilities that Etzler proclaimed as to suggest that these mechanical exploits are a presumptuous replacement of the moral reform needed in human life. A sample of Etzler's tumultuous prose is

needed to explain why Thoreau responded with equally tumultuous satire. Etzler declared that by harnessing natural forces to properly designed machinery, man could transform "the whole face of nature . . . into the most beautiful forms," with "all imaginable refinements of luxury." He could "level mountains, sink valleys, create lakes, drain lakes and swamps, and intersect the land everywhere with beautiful canals, and roads for traveling one thousand miles in twenty-four hours." Finally, he could "free himself from almost all the evils that afflict mankind, except death, and even put death far beyond the common period of human life, and finally render it less afflicting." Mankind would create "and enjoy a new world, far superior to the present, and raise themselves far higher in the scale of being."

Thoreau's naturalist ardor is aroused. Joining in, he added: "We will wash water, and warm fire, and cool ice, and underprop the earth." Indeed, "We will teach birds to fly, and fishes to swim, and ruminants to chew the cud. It is time we had looked into these things."

What else might man do, with the help of Etzler's ingenious machines?

. . . make the stars shine more brightly, the sun more cheery and joyous, the moon more placid and content. Could he not heighten the tints of flowers and the melody of birds? Does he perform his duty to the inferior races? What is the part of magnanimity to the whale and the beaver? Should we not fear to exchange places with them for a day lest by their behavior they should shame us? Might we not treat with magnanimity the shark and the tiger, not descend to meet them on their own level, with spears of sharks' teeth and bucklers of tiger's skin? We slander the hyena; man is the fiercest and cruelest animal.

Getting down to cases, Thoreau declares that "a moral reform must take place first," suggesting that the mechanical improvements, if needed, will then come naturally, needing none of Etzler's fanfare.

There is a speedier way than the "Mechanical System" can show to fill up marshes, to drown the roar of waves, to tame hyenas, secure agreeable environs, diversify the land, and refresh it with "rivulets of sweet water," and that is by the power of rectitude and true behavior. . . .

Surely a good man need not be at the labor to level a hill for the sake of a prospect, or to raise fruits and flowers and constructing floating islands, for the sake of a paradise. Where an angel travels it will be paradise all the way, but where Satan travels it will be burning marl and cinders.

By implication, Thoreau virtually casts Etzler as Satan, or at least a main minion, and in reviewing (in 1976) the Thoreau essay a MANAS writer adopted this judgment. The *Environment* writer, however, while not disputing Thoreau's warnings, has gone back to Etzler's book and discovered that he was almost a nineteenth-century Amory Lovins! He says:

To describe Etzler simply as an engineer would be misleading, for he was first and foremost a social planner—a utopian dreamer, some would say—who wanted to capture and redirect "nature's powers" for the benefit of human kind. He was convinced that the energy in sunshine, wind and moving water could be harnessed on a wide scale to create a far more humane and leisurely way of life. Moreover, he was confident that he had discovered a way to store this energy in sufficient reserve to dispel doubts about reliability caused by their intermittent or interruptible nature.

Etzler proposed mirrors twenty feet in diameter to absorb the solar heat needed to provide endless steam power, solar stills to desalinate sea-water, and wind machines so numerous that "their combined power output would equal the power of 40 trillion men, each exerting his muscles about 19 hours a day." Etzler declared that America stood at a crossroads: Would we "plunge ahead with the new solar technology or continue to ignore it?" Americans, he warned, would have to choose between "two roads," and "do it now, or your chance may soon be lost forever." He meant that other nations would seize the solar initiative and leave us behind in the race for power and independence. Mr. Hempel says:

The similarity between Lovins and Etzler ends with their use of the "two paths" argument to promote solar development. While Lovins' aim is to bring about an ecologically and economically sound transition from non-renewable energy sources to renewable ones, Etzler's objective did not involve an energy transition at all, strictly speaking, but rather a rapid expansion of what was then the *only* form of energy in use—renewable energy.

Hempel shares Thoreau's apprehensions at Etzler's announced goal—to remodel the face of the earth in accordance with nineteenth-century notions of landscape gardening—and is wary of his belief that "a technological solution," even of the sanctified solar variety, "to the problems of resource scarcity and oppressive human labor" would make a paradise on earth. Etzler was clearly a centralist confirmed in his managerial outlook, a believer that "more production" could solve all problems—as both capitalists and communists of our time maintain. Hempel points out (drawing on Roderick Nash's *Wilderness and the American Mind*) that "certain types of solar technology (e.g., giant wind farms, biomass plantations, and large-scale arrays of solar collectors or heliostats) require vast land areas for their operation, and consequently may threaten open space and wilderness regions."

The argument in essence is that solar development, despite the best intentions, could entail the same kind of environmental disaster that John Etzler once unwittingly sought to bring about.

This argument is compelling if one assumes that energy demand will increase significantly in the future, and that centralized solar power generation and large-scale biofuel production will be required to meet that demand. Such assumptions, however, are neither necessary nor appropriate for the successful application of most solar technologies. Large-scale, land-intensive solar energy systems, as compared to rooftop or neighborhood-scale solar technologies, do not appear economically attractive when total system costs, deployment rates, and the state of the capital market are considered and their sociopolitical liabilities and military and terrorism vulnerabilities make them even less attractive.

Hempel suggests that, even without the universal use of solar technology advocated by Etzler, we have achieved some of the ends he held up as so admirable, yet the resulting "paradise" leaves much to be desired. There is, we are beginning to suspect, no road to heaven paved with technology, and Thoreau, in short, was fully justified in ridiculing Etzler's priorities.

COMMENTARY ETZLER'S MISTAKE

IN fairness to John Etzler (see Review), we should note that in his conclusion the *Environment* writer, Lamont Hempel, has a friendly word for the German immigrant—after all, he *was* far ahead of his time, even if, along with practically everyone else except Thoreau and Emerson, he guessed wrong about socio-ethical dynamics. We are still able to put many of Etzler's ideas to work. This is the ending of the *Environment* article:

Developed within the social framework of the appropriate technology movement, solar energy could find increasing importance as a political symbol embodying values of the type advocated by Thoreau, such as increased self-reliance, ecological awareness, and technological frugality (in terms of both scale and use). Conversely, and more likely, solar energy could advance in the conventional marketplace as an environmentally prudent technical fix designed to sustain present patterns of energy consumption in the face of increasing oil and gas prices. In either case, the prospects for an ecologically sound energy transition would appear to be enhanced—albeit with different degrees of success. The prospects for a broader, sociopolitical transition however, would be far less clear. Solar development promises a "cleaner" world, but not necessarily a more egalitarian or more democratic one.

If the need to move from a consumer to a conserver society becomes widely accepted, then these two approaches to solar development—market economics and the social philosophy of appropriate technology—could syncretically converge, perhaps focusing on ecosystems as models of sustainable production and social diversity. Under those circumstances, even the disparate views of Etzler and Thoreau could, in part, be reconciled. A solar transition that combined Etzler's best thinking about renewable energy with Thoreau's admonitions about technology and estrangement from nature might be just the kind of synthesis needed to help rescue the concept of progress from Goethe's revolving wheel.

One more comment:

Supporters of appropriate technology generally advocate increased self-reliance, political and economic decentralization, the subordination of

technological progress to moral progress, and heavy reliance on renewable energy sources. Like Emerson and Thoreau, who feared that people would become "tools of their tools," appropriate technology adherents fear that modern technological artifacts will become "tools without handles"—reducing basic human freedoms through subtle forms of technological domination.

CHILDREN ... and Ourselves

HERBERT READ, LEWIS MUMFORD

PEOPLE who use their minds well have a continuous feud with the rule of habit—habit which neglects or suppresses questioning in the interest of a smooth-running system. All real educators are the enemies of this sort of habit, and likely to be continuously at odds with the systems of their time. The thought of such educators never goes out of date. In evidence we offer the work of two men of our century—one, no longer with us, Herbert Read; the other, Lewis Mumford, who has become a living monument to the art of questioning the habits of present-day thinking. (We owe this material, Herbert Read's book, *Education for Peace*, published by Scribner's in 1949, and the Summer 1980 issue of *Salmagundi*, providing eight essays of criticism and appreciation of Mumford, to a thoughtful reader.)

First, then, in Read's book, there is the chapter titled "Culture and Education in a World Order." He starts with a quotation from Nietzsche. The German philosopher had called the Danish critic, George Brandes, "an apostle of culture." Brandes objected. He told Nietzsche that such activity had become for him an abomination. "Is there," he asked, "anything at all inspiring in our culture taken as a whole, and who can conceive of an apostle without inspiration?" Nietzsche deftly reversed the argument: "You should not repudiate the expression 'apostle of culture.' In these days one cannot be more of an apostle of culture than by making a mission of his unbelief in culture."

This was Read's way of introducing his own view, his unbelief in establishment culture. His concern, here, is with the academic program of UNESCO—United Nations Educational, Scientific and Cultural Organization. Its announced program (he wrote soon after the war) revealed he said, typical academic reliance on conferences and committees, and "in general there

is the same tendency to confuse culture with learning, and education with propaganda." He said in explanation:

It has already been announced that one of the main campaigns of UNESCO will be directed against illiteracy. Here we see the prejudice of the scientific humanist, and scientific humanism is undoubtedly the intellectual atmosphere in which UNESCO has been conceived and is now being directed. Now, to the scientific humanist it is axiomatic that knowledge, in the sense of knowledge about the structures of the universe, about the facts of life, about history, geography and economics—that such knowledge constitutes the basis of human progress and that it should therefore be as widely diffused as possible. If every inhabitant of the globe could be taught to read and write, and if UNESCO could provide them with what are called "objective textbooks of history," then the problem of the solidarity of mankind would seem, to the scientific humanist, to be largely solved.

Why did he choose this target? He was not, surely, against the sort of literacy to which Paulo Freire has given his life in spreading, and which Jonathan Kozol would like to see achieved by the thirty million or so "illiterates" in the United States. He is making a "the medium is the message" sort of criticism. He wants us to look at the conventional goal, not the techniques, of reading and writing. He says:

The fallacy which underlies this type of reasoning is a heritage of our cultural development since the Renaissance, and is due to the separation which then took place between intellectual and moral education. The ancient Greek philosophers, particularly Plato and Aristotle, had always insisted that the minds and the emotions of children should be trained *pari passe*, in equal measure, step by step; and that if there was any question of priority, then the education of the emotions, moral or ethical education, should come first. The ideal put forward by UNESCO—"the unrestricted pursuit of objective truth"—would have been regarded by them as an extremely dangerous ideal. Objective truth, they would have said, must never be separated from subjective truth. Indeed, its scope should never exceed the limits set by subjective truth. The limits set by subjective truth are moral limits—limits, that is to say, set by our sense of a measure or harmony in the emotional and practical aspects of living.

In a brief historical review, Read tells how the men of the Enlightenment broke out of the confinements of dogmatic religion and then, to protect their new independence, separated intellectuality from moral feelings, granting reliability and certainty only to the fruit of scientific and intellectual inquiry. The result: "For all practical purposes moral education, in all but a few isolated communities, has entirely disappeared from our modern civilization." (One might add, here, that because the educational establishment has found no way to respond to such criticism, we now have the ridiculous equal-time controversy going on in the courts, the futility of which was demonstrated by Gene Lyon in *Harper's* for April.)

Herbert Read goes on:

The natural assumption is that, in order to restore moral education, we must re-establish the educational authority of the churches. But that is to forget that there is no essential connection between moral education, as defined by pagan philosophers like Plato and Aristotle, and religious belief as required by the Christian church. . . . I would go so far as to say that a religious revival, if that is our desire, is not conceivable until there has been a moral re-education of mankind. . . .

But it is morality itself, as a concept, which must first be revised. It has become hopelessly entangled with religious emotion, on the one hand, and, on the other hand, with a purely rationalistic or legalistic codification of right and wrong. But morality is neither a mystery nor a judgment. It is the exercise of a free choice. It is a spontaneous act of volition, and the only problem, as Plato realized, and as later educationists like Pestalozzi and Herbart realized, is how to ensure that the will always jumps instinctively, so to speak, in the right direction.

This seems a clear identification of what needs to be done, which sets for us, unambiguously, the old Socratic question: Can Virtue be taught? Read has some suggestions, here and especially in his *Redemption of the Robot*, a modern application of the Platonic program of child education. At the beginning of *Education for Peace* he says: "My main

proposition is that mankind must be predisposed for peace by the right kind of education."

And now, for Mr. Mumford, we turn to Thomas S. W. Lewis, a contributor to *Salmagundi*, who writes on "Mumford and the Academy." Mumford has hardly been popular with the academy, perhaps because he knows so much, writes so well, and has published in so many fields. He shows, Lewis says, "a distaste for the myopic vision of scholars, and perhaps what hurts even more, . . . he has made his original contributions to various fields of inquiry without so much as a college degree." Yet a little over fifty years ago Mumford was a visiting professor of art at Dartmouth College, during the presidency of Ernest Hopkins. Dartmouth then impressed Mumford "as an institution most compatible to his own intellectual aims." The reasons:

Hopkins, who took over Dartmouth in 1914, cannot be said to be typical in the twentieth century. At a time when educational factories like Columbia were creating the machinery to hand out hundreds of doctorates each year and thereby encouraging narrow speculation and specialization on the German model, Hopkins was writing that graduate school "tends to unfit a man for teaching" because it makes the young scholar lose his sense of proportion. "It is comparatively simple for a person to develop brain power," he wrote in 1930, the year Mumford started lecturing, "but it is difficult to develop the essential blend of knowledge, purpose, and sense of proportion which constitutes intelligence." Mumford found Hopkins to be changing Dartmouth from "a country club for young barbarians" into an institution of serious intellectual endeavor that considered the education of the entire man, both his mind and his spirit, to be of great importance. He praised the president for "breaking down the barriers between the various departments and reintegrating the whole curriculum," for attracting faculty members who, like Mumford, did not have Ph.D.'s, and for seeking out younger men as teachers before they became "useless." . . .

For Mumford, then, Hopkins represented a movement away from the compartmentalization and assembly line techniques that universities across the nation were stressing. . . . But Mumford was quick to point out that the educational philosophy that dominated the American scene could be traced back

to the Moravian Comenius of the seventeenth century, who, he tells us in *The Condition of Man*, invented modern pedagogy and helped ruin modern education. Comenius set the standards in his *Magna Didactica* by conceiving of the mind as a blank sheet on which anything might be inscribed. Such a view of mind (which isn't far from Skinner's) took hold of education in the nineteenth century and exists today, Mumford concludes, "in its ultimate perversion" in the "credit accounting of American colleges." The *Magna Didactica* fails to integrate the historic, the communal, the personal, and above all, the organic worlds, and its precepts serve only to produce minds that will submit to the mechanical discipline of a world dissociated from reality.

Mumford is here converging on Read's criticism, as the next paragraph makes clear:

From Comenius' philosophy it is but a short step to the encyclopedia and the textbook, which Mumford characterized as early as 1916 as "the bane of real education." In 1938 he would connect Megalopolis (the city under the "influence of a capitalist mythos that concentrates on bigness and power") with education and culture. "Megalopolis," Mumford tells us, "ushers in an age of cultural aggrandizement: scholarship and science by tabulation: sterile research: elaborate fact finding apparatus and refined technic with no reference to rational intellectual purpose. . . ." Education in this era becomes quantitative, "domination of the cram machine and the encyclopedia." This sterile world of knowledge that bears no relation to living, Mumford contended, was upon us, and would spell our ruin.

Needing, like the rest of us, to make a living, Mumford wrote articles and books—he called this taking up with the "Sophists of *journalism*." It was fortunate for us that he did. His intentions as thinker and writer have always been clear:

Typically, when he considers a subject, he locates what he takes to be an important aspect, and then moves on more or less quickly to other considerations. He likes to think of himself as moving out beyond established limits, expanding horizons. If his job is to lead us into virgin territory, it is our job to settle it. Without apology he has helped to instigate radical change without presuming to take a position at the head of the revolutionary army.

This seems exactly right.

FRONTIERS

A Considerable Way To Go

IN 1921, when Arthur Morgan took over Antioch College, he decided that one of the things an institution of learning ought to do is to make its home town—in this case Yellow Springs, Ohio—a better place to live and work. This meant for him the development of small industry, which hardly existed in Yellow Springs. Morgan turned the talents of his faculty to developing small industrial undertakings appropriate to the town, so that its young people would not have to go elsewhere to find work. There was also another motive: he wanted Antioch students to work while they studied, to experience the world along with their instruction *about* the world. Years later, in 1945, he described the fruit of this effort in *Industries for Small Communities—With Cases from Yellow Springs* (Community Service, Inc.), telling what it did for the town. He ended a later (still available) edition of the book (1953) by saying:

America is still a long way from achieving a philosophy of community, or a clear picture of what qualities make a good community, or an understanding of how to manage affairs to bring about the kind we do want. At best we are still feeling our way. Yet certain fundamentals of good living conditions are becoming clear. If we keep those well in mind we may adjust ourselves and our communities to a wide range of changing conditions, and yet keep and steadily increase the essential community qualities. One of these essentials is varied occupational opportunity, such as is provided by small-scale industry.

This basic idea, which was also one of the themes in the work of E. F. Schumacher, makes the inspiration and content of a book just published by Intermediate Technology Publications, a division of the Intermediate Technology Development Group (9 King Street, London, U.K. WC2E8HN), which, with George McRobie and Julia Porter, Schumacher founded in 1965. The book is *Developing Small-Scale Industries in India—An Integrated Approach* by

Marilyn Carr, an economist on the staff of ITDG. This effort, like Arthur Morgan's, grew out of an educational institution, the Birla Institute of Technology, founded in the early 1960s at Ranchi, India, in the State of Bihar. The author says in her introduction:

The characteristics of small enterprises dovetail well with the socio-economic objectives of many of the developing countries. Generally, they are labour-intensive, employment generating, capital saving, and capable of operation on a decentralized basis in rural areas. In countries which are concerned with the generation of thousands of new work places—especially in the rural areas—and with raising the incomes and quality of life of the poorer sections of the population, small-scale industrialization offers a far more appropriate alternative to industrialization strategies that emphasize large-scale, centralized industries, which until recently were favoured by development planners and practitioners.

Bihar, where the development project was begun by the Birla teachers, is the ninth largest state in India, with the second largest population—56,353,000 people in 1971. Literacy at that time was about twenty per cent. Bihar is enormously rich in minerals—accounting for 44 per cent of all India's mineral production (iron, coal, copper, chromite, manganese, bauxite, steatite, asbestos, and kyanite)—yet the development of these resources, Marilyn Carr says, "has not been beneficial in terms of providing employment and increased incomes for the majority of the population." Agriculture and forest products account for 80 per cent of employment in the state. Food crops are rice, wheat, maize, ragi and pulses (legumes), with cash crops of sugar cane, oil seeds, tobacco, and jute. The soil is not especially fertile. "Drought is common, irrigation is sparse, and given the shortage of non-agricultural employment opportunities in the regional, seasonal migration in search of work is a regular feature."

What could the people at the Birla Institute of Technology do to help? They began by studying nearby heavy industries. "Before this, industry and academic institutions had not discussed how

they might work together." They found that the industries often had to wait months for delivery from overseas of parts needed to keep their machinery going. Why couldn't engineering graduates of the Institute start small firms to supply these parts? "This idea appealed because it was a way of turning job seekers into job creators, thus tackling the problem of unemployment among technical graduates and at the same time creating employment for their semi-skilled and unskilled workers."

Looking ahead, the Birla people realized that their graduate students, while they might be talented engineers, would need help in becoming industrial entrepreneurs—help in business common sense, help in financing, and help in industrial facilities. Funding was obtained from the Bihar government to build twenty factory sheds where students could begin to make products for the market and five members (teachers) of the Birla Institute of Technology staff, active in this work with students, became members of an autonomous body, Small Industries Training and Development Organization (SIRDTO), to help launch small enterprises.

The entrepreneurs are all engineering graduates from BIT and most had no business experience and very little work experience before setting up their firms. The small-scale units they operate produce a great variety of products, including mining equipment, transmission clamps, truck components, steel balls, nuts and bolts, electronic control panels, voltage stabilizers, dry-type transformers, fluids for intravenous injections and industrial adhesives.

The idea was to create a type of firm which did not then exist in Bihar—a unit which could make products equal in quality to those of large companies, and also handle orders profitably.

At the start training is given to the young engineers in running a business, with courses involving bankers, lawyers, tax consultants and government officers. The instruction is down-to-earth and related to practical situations. There is a "nursing" stage during which the beginning "industrialists" are counseled and helped by the

BIT faculty. Finally, the entrepreneurs are expected to move out on their own. Three had accomplished this when Marilyn Carr wrote her book, and a number of others were expected to do so.

The BIT committee for teaching development also pursues research in rural technology. For example, some villagers pointed out that the diesel engines which operate their irrigation pumps remain idle for half a day, and they wondered if other uses for this power could be found. The Birla technologists decided to make a simple farm vehicle.

An old chassis was purchased from a scrap yard and the diesel engine fitted. After some modifications to the gear box and other parts of the vehicle, it was found that the whole thing worked quite well. The first prototype is currently being tried out in some neighboring villages by farmers using it to transport their crops. Once technical performance is proved satisfactory, SIRDTO will proceed to identify an entrepreneur who can start manufacturing these simple vehicles. Since there are approximately 5,000 pump sets in the neighborhood, there should be no lack of demand for this product.

Experience shows that it takes as much as five years to help these students to become self-employed engineers and businessmen. The point, however, is that it can be done. Marilyn Carr concludes her book by saying:

The ultimate aim of the BIT staff is to increase the rate of small-scale industrialization in the area surrounding BIT and to assist with the establishment of one small industry for every ten villages and one rural artisan for every village in the immediate vicinity. There is still a considerable way to go before this objective—which amounts to creating 300 small industries and establishing 3,000 rural artisans—is fulfilled. A lesson to be learned from this is that small industry development and rural development are not fields in which rapid results can be expected.