VOLUME XXVIII, NO. 22
MAY 28, 1975

INTERMEDIATE TECHNOLOGY

[This is the second and concluding part of an article by E. F. Schumacher, reprinted from the February *Center Magazine*, issued by the Center for the Study of Democratic Institutions in Santa Barbara.]

II

OUR developed societies have engaged in aid studies for more than twenty years, but the poor are still as poor now as they were before. There are specific needs arising out of situations, but the situations have to be understood. Our Intermediate Technology Development Group does not touch agriculture from an agricultural-science point of view. We touch only the outgrowth of agriculture.

We do not reject anything in another people's culture. We carve out for ourselves work that responds to need, a need which may not be immediately and spontaneously recognized everywhere by the people themselves, but that, with a little bit of to-ing and fro-ing, is eventually recognized by them; and then they ask for it.

What we do first is find out the work-load pattern of the specific community over twelve months. This reveals a characteristic curve. Anyone can see that for some time nobody has anything to do; the village is idle. Then comes the month when everybody is out in the fields—men, women, grandpa, grandma, and babies. After that, there is nothing much to do, and then comes another little peak. The characteristic curve varies from place to place, particularly when there is double cropping. We say that unless we can break through at the peak of the curve with some mechanical help, you are stuck. This determines what sort of equipment is actually needed.

People immediately understand this. It presents no problem. There is no cultural gap, once you have discovered a people's real needs and helped them to understand those needs. We do not have money, so we cannot foist our ideas and knowledge on them. Until they ask for help, we cannot do anything.

If the Pakistanis tell us they need a super, super thing, we say, "Well, then, for that you don't need us." But they may say, "Our electricity grids will not reach the northern province, not in the lifetime of anyone now alive. They are left without any power. What can we do? We have falling water coming out of the Himalayas. No big sites, but lots of little streams. Could you help us to get mini-turbines to harness this water power?"

At that point, we survey the field, hand it over to our power panel, which comes back and tells us, "As far as Britain is concerned, there is only one man who makes mini-turbines. He makes them as a hobby. The design of this turbine hasn't been looked at since 1902."

We can do things better in 1974, so we take this to the engineering department in Reading University where it becomes a student project. We say, "Can't we make it at half the weight and with a simplified design so that Pakistanis can make it themselves?"

We encounter no cultural gap in Pakistan on that. We have no sociological problem. The Pakistanis already know what they need.

Of course, there is more to it than that. The turbine by -itself is not enough. You must have the use of that electricity. I am talking of mini; I am talking not of four hundred megawatts, but forty, fifty, two hundred kilowatts. That is better than nothing. It takes a few wires and at the end of the wires some busy Pakistani can make something.

We had a situation in Zambia where the egg producers were in despair because the supply of

packaging material had given out. We said, "Why can't you make egg trays in Zambia?" Nobody in Zambia knew how to make them.

Back in London we found that with very few exceptions all the egg trays in the world are made by one multinational company, headquartered in Copenhagen. We contacted them. They said, "No problem, we will build a factory in Lusaka. If you raise the money by aid, so much the better; we know we will get paid. How many do you want?"

We said, "It's a small, widely dispersed population. They need every year about a million egg trays, each holding thirty-six eggs."

Long pause. They said, "Forget it. The smallest machine, which costs a quarter of a million pounds, will make a million a month."

Obviously, that is not for Zambia. It's not for development. We asked, "Why don't you make a small machine?"

"Oh, we talked to our engineers, that would be uneconomic."

We take things at that point, where everybody says it is uneconomic. We got a young fellow and gave him two jobs. First we asked him to redesign the egg tray, which we didn't think was of a good design anyway. We wanted trays that one can fill with eggs and put one on top of the other, stringing them together, and shipping them like that, without crating, because crating is very expensive. These countries do not have a lot of timber.

That problem was taken to the Royal School of Arts in London. Within six weeks, we had the perfect design, one far better than that of the multinational company in Denmark. We patented it.

The second job we gave this young man was to set up a small production unit to make these trays. The prototype was produced at the University of Reading. We took the prototype to a manufacturer in Scotland and it is now on sale and has been installed in quite a number of African countries. We have inquiries about this unit from all over the world, including advanced countries. It has two per cent of the capacity of the hitherto smallest unit, so it fits into situations where nothing now available fits. And it costs two per cent of the hitherto cheapest model. So, in fact, if I may use the economists' jargon, the capital output ratio is just as good on the small scale, the one thing that no engineer would believe and most economists will not believe. But it is there.

Now, this was handed over to one of our subsidiaries, and today we have a lusty sale of this machine, simply because it meets actual recognized needs.

Here is another example. In Malawi, an aid mission went to the farmers in a particular district and said, "We can show you methods that will double your yield." The farmers were most interested, because they knew that they were poor. It all worked very successfully. They doubled their yield. A year later, the aid people returned and found that the farmers had reverted to their previous methods. The aid people were disappointed. They went back to their own country and criticized these farmers, talked about their cultural gap and all the rest.

We happened to be in Malawi, and we were asked to have a look. We did not assume that these people were stupid. We found the answer, namely, that they had been subsistence farmers and consumed everything they produced. Now that they had produced twice as much, this extra crop had to be taken to market. But there were no means of transport, except the beast of burden in Africa, the woman. The women carried the extra food to market in baskets on their heads, walking for miles and miles. They did it for one season, but they said, "Never again." The wise old farmers said, "It's more important to keep our women happy than to treat them as slaves. Our old system was better."

At that point, we got involved. We said, "Look, you can have double yields, and you can

get the stuff to market. Our transport panel will show you how to do it."

We brought to Malawi a very simple oxcart design from Scotland. We organized a scrap dealer to produce the few metal parts from an inexhaustible source of material in Africa, namely, wrecked motor cars. We devised a little do-it-yourself kit for the metal parts. We trained local carpenters to make oxcarts, and told them that if they completed the course, we would give each of them one of these kits. They could then go home and make oxcarts that they could sell at a price enabling them to buy more of these kits. They would be in business if they wanted to be. Once they had the oxcart, their problems disappeared.

One more example. The Pakistanis were desperate for increased brick production. They went to the World Bank and got a loan. Then they got an expert, an absolutely first-class retired brickmaker. He said, "I'll give you the design for a super brickworks. The only possible location for it is just outside Karachi. It has the best clay in the world. It will cost five million pounds, it will produce a million bricks a week, and it will give 150 jobs."

But this does not fit Pakistan. The country is littered with brickworks to which no one has ever given any attention. The government decided not to build a super brickworks.

We advised an intermediate-technology approach to these derelict, highly inefficient local brickworks. I took a young brickworks specialist with me, and we walked through them. He said, "There's no problem. I suggest this, and this, and this. We can increase productivity by a factor of three, with no loss of jobs, no investment worth talking about, and you will get three times as many bricks as before." This is precisely what the Pakistanis wanted.

To give this kind of help, you need people who can break away from an experience formed by life in rich countries where there is plenty of capital, where the main thrust is labor saving, and where they take for granted an infrastructure of roads and transports for the distribution of, say, a million bricks.

Two of our quasi-separate units are of a special kind. One is the industrial liaison unit, which is in touch with about five hundred firms in Britain representing two hundred branches of industry. This enables us to take our problems to industry. Of course, industry does not work for love, but we can now talk to them and say, if you can hit this off, there may be music in it for you, it may be profitable. We have learned that adaptations can be done best by industry, not in research establishments. We know the manufacturers who can produce the implements we want to put into the world.

Britain's Ministry for Overseas Development has now funded our industrial liaison unit. That ministry cannot do the job except with industry, but for government to cooperate with industry is extremely difficult. Government cannot create precedents; if it works with one firm, then it must be open to work with all other firms. But public moneys are not adequate for this kind of work. So the Ministry for Overseas Development has funded us and brings its industrial problems to us. We can then do with industry what needs to be done.

Our second special unit is the university liaison unit. That is a bit of a misnomer, because it includes not just universities but technical colleges, polytechnics, and so on. We farm out to these institutions student projects in which the subject matter seems to be interesting, but which we cannot take to industry because it is not right.

Before you take anything to industry, it must be right. For example, on these underground rainwater catchment tanks the building material is very labor intensive. In many developing countries there is that black, nasty substance, refinery residues, bitumen. It is used on roads.

Wouldn't that stuff make a good bottom for the rainwater catchment? It turns out it has to be

reinforced in some way. The immediate answer is, yes, you can reinforce it with glass fiber. But glass fiber costs six hundred dollars a ton. So we said, why not natural fiber? In Tanzania they are drowning in sisal. Couldn't sisal be used for reinforcement? Well, nobody had ever studied that. So we got this researched with all the paraphernalia of a scientific study at the Imperial College of Science and Technology. We know what can and cannot be done with natural fibers, although it is not immediately clear where to go from here. But at least we can talk to industry and ask them how one can bring this to the prototype stage.

Our industry and university liaison units are in touch with a score of research institutions in Britain, and we have launched about two hundred such student projects, some of them absolutely fascinating.

We are left with a problem. After working up this knowledge, how do we get it across? We cannot communicate with lots of different people in each developing country—we are now working in two dozen such countries. They need a focal point. We have been trying to get each of them to set up an intermediate technology group. So far, eight developing countries have such groups.

We have also urged similar groups to start up in developed countries. An intermediate technology group was founded in Switzerland last year at the Duttweiler Institute. Others have started in Sweden and the Netherlands. This means that in our search for suitable equipment or techniques, we are not restricted to Britain. The Germans wanted to set up an institute, but they started out too big, and so they were shot down; but they are trying again. In the United States our main link is with VITA, the Volunteers for International Technical Assistance.

We have less organized connections with other countries, but the units in the developing countries are the most important. In any case, gradually an international network has come into being, through which the knowledge can flow. To promote this flow, we have started an international journal called *Appropriate Technology.* It does not simply report on the splendors of our own work. Its pages are open. We want to provide information of what is being done, by whom, where, and in what line.

We are not primarily interested in disquisitions on how difficult a problem is, but rather instructions on what one can actually do for oneself. We are trying to answer this most difficult question: How do you get knowledge that has been worked out in London to the two million villages that might need it?

Another large problem is how to finance something like this. It is not difficult to finance our overseas projects, which are launched not primarily to help these particular people, but to verify the knowledge, train the people, and to prove that it is both meaningful and socially acceptable. That is easy to finance. What is extremely hard to finance is the thinking work at headquarters.

To do that, we have created four subsidiaries to our main organization, the Intermediate Technology Development Group, Limited, which is registered as a charity. The four wholly owned subsidiaries are commercial organizations. The first is a consultancy bureau. When a request comes from Tanzania, if they will pay my expenses, I will go to Tanzania free of charge. But when a request comes from an oil-rich country, it would be stupid and, from an over-all economic view, not even very helpful, to refuse to make them pay for the help. They don't miss the money, and it helps to solve certain balance-of-payment problems.

The second subsidiary is a trading company which sells our designs, machines, implements like the metal-bending machine, and also more ambitious machines; and that is also profitable.

The third subsidiary is a retail shop in London. People in developing countries produce all sorts of things for sale in the advanced

countries, but they know very little about marketing. The best way to help is to have a shop where they can learn it by doing. This shop is called Afro Arts, Limited. It is very attractive. The shop sells their products at horrifying prices to people who have too much money. The profits flow into our research work.

The fourth subsidiary is Intermediate Technology Publications, Limited. We now have a long publications list with a high commercial turnover. Currently, we sell about five hundred pounds worth of our literature a week. This is chicken feed in big-business terms. But it is very specialized material and very inexpensively produced and is de signed for the poor. This has to be commercially managed, so we turned our publications department into a company, the same company that has launched our journal. That means that some of the sharp edge of commercial discipline is introduced into it.

The profits of these subsidiaries help to run the headquarters organization.

A concluding note: when one says that people in developing countries are not stupid, one does not imply that people in developed societies are stupid. Everybody is intelligent in the things he knows and has experienced.

All I say is, "Let us take the people in developing countries more seriously, and let us not imagine that our experience fits their case." Those people are intelligent. They know how to live on virtually nothing. We are intelligent and know how to live in a society where all the high-technology presuppositions are fulfilled. But it takes a mighty effort to jump out of our own experience and put ourselves inside the experience of these people. There we may be very stupid, as stupid as a most intelligent farmer might turn out to be the moment he has to cope with our technology.

E. F. SCHUMACHER

REVIEW
LOST FOR CENTURIES

IN *The Idea of Perfect History* (University of Illinois Press, 1970), George Huppert begins by saying:

> The modern mind is an historical mind. We make immense efforts to perceive the past clearly: we maintain thousands of professional historians; history is taught in every school; and historical societies exist everywhere. No portion of our lives is exempt from this historicizing: church history, the history of art and architecture, and the history of science are examples of the pervasive presence of the historical spirit.

Mr. Huppert sets out in this book to show the origins of history as a "scientific" study. He does not meet directly the philosophical or psychological challenge of our historical-mindedness—what we think it does for us, and why. The scientific method, after all, is not competent to tell us why we care about what we care about—why human beings are constituted as they are—but pursues lesser matters in the hope of gaining unambiguous answers. If, science says, we cannot know who or what man is, we may at least be able to determine what he does. And when, Mr. Huppert wants to know, did we adopt this "practical" attitude toward the events of the past? When did we begin to say, in effect, that we have been fooling ourselves too long by trying to explain the *meaning* of life, and that the modest enterprise of collecting and relating the *facts* of life is the best and only sensible thing to do? Facts are safe; meaning is filled with contradiction and error.

The stage is set for this inquiry by showing our intense preoccupation with what are regarded as the "facts" of history:

> It is not so much that we worship the past for its own sake. When we visit a museum or when we travel to ancient places, we may not always commune in spirit with the dead, but we require that the statues and palaces be assigned a definite place in some tidy scheme. We want to know the date of the object's creation and the maker's name, if nothing else. Schoolchildren must memorize the dates of successive reigns as if this gave them some hold on the past.
>
> Now this historical coloring of our mentality is unusual; together with the growth of the sciences, it distinguishes our civilization from all previous ones. Yet we know very little—almost nothing of the origins of our historical-mindedness. Admittedly, this is a diffuse and complicated subject. To trace the history of a sentiment is no easy task, but even if we restrict ourselves to the study of the origins of history as a formal discipline, we do not get very far. Can we answer the question: did historiography begin with Herodotus or was historical science as we understand it born in the Berlin seminars of the nineteenth century?

Mr. Huppert writes something of a detective story, showing, finally, that the spirit and method of modern history-writing were born in the sixteenth century; that this attitude was then submerged for several reasons, to appear once more in the nineteenth century. What was the provocation which caused the historians of the fifteen hundreds—who were mostly lawyers—to turn to what we now call scientific method? The answer is that they couldn't make sense out of the special pleadings of the Christian interpretation of history, which bent every event to the justification of dogma, inventing freely what they could not supply from the meager records of the past—to which, in fact, they were quite indifferent unless such reports served their pious purposes. In sixteenth-century France, for various political reasons, there was a kind of truce between Catholics and Protestants, so that, in the resulting atmosphere of "tolerance," scholars were able to say things that a hundred years later would have involved them in serious trouble. It seems clear, says Mr. Huppert in his conclusion, "that the modern historical mentality—with all that this implies—can no longer be regarded as a belated by-product of the scientific revolution." In other words, the eighteenth-century *philosophes* repeated the ideas and attitudes of humanist lawyers in France two hundred years earlier, whose work, Huppert says, was "a stunning first act, full of consequences" for the future. Vico's outlook was clearly anticipated by the sixteenth-

century "new science" of history, and even the present division of history into ancient, medieval, and modern dates from that time. Chief among the theorists of the New History of four hundred years ago were Jean Bodin and Henri La Popelinière, while notable writers of history were Estienne Pasquier and Nicolas Vignier. Of Vignier's outlook, Mr. Huppert says:

> Whatever could be documented was a fitting subject for the historian. He proceeds on the assumption that his reader will want to know not only about politics but also about religion and culture. The most striking result of this policy is that the history of religion is taken over by the historian and treated in as objective a fashion as politics. Twenty years earlier, Bodin had expelled church history from the historian's domain in order to free him from a theological interpretation of events. Now we have come full circle, for Vignier takes over church history and treats it exactly as if it were profane history. He has secularized the history of religion itself. . . . Vignier does not say, as do the Protestant theologians, that the *mutations* of the church since the time of Christ are errors caused by Satan, or that Christians must return to the true doctrine of the primitive church—of the time, that is, before the *mutations* began. He merely shows that the church as an institution has changed in the course of time.

History, for Vignier, is what can be documented, what is *historically* demonstrable. Despite the free air of the time, however, the new historians had to exercise a measure of tact, since there were issues of nationalism as well as of religion to be delicately handled, if not ignored. The French were sensitive about their origins and for many centuries accepted the myth that they had come to Gaul as a colony of Trojans, thus giving themselves heroic ancestors. "As late as 1714, the learned Nicolas Fréret was thrown into the Bastille for showing that the Franks were Germans." But in 1573 François Hotman demonstrated that the Franks who settled France were a tribe of Germans, and he gently ridiculed "those naïve souls who still chose to believe the Trojan legend."

Another critical subject was the treatment of Joan of Arc. The historians concluded from the records of her trial that she was an innocent, sincere girl who caught the imagination of the people, and that the knights of France decided that a "miracle" would serve well in the fight with the English. Fired by the romance of her appeal, the king as well as the people regained heart and forged victory out of ruin—"whether," wrote Du Haillan in 1580, "it was a genuine miracle or not," for such, he adds, "is the power of religion, and, often, of superstition." In the work of these sixteenth-century historians, Huppert says, "There is not a trace yet of the grandiose national legend which will be so dear to the nineteenth-century historians."

A good illustration of tough-minded, fact-finding, religion-ignoring scholarship is found in the theories of Jean Bodin. Human history, he said, has nothing in common with the study of God or Nature. Human history results from the will of men, and this is a field ample enough to engage all the energies of historians. Rejecting the belief in an ancient Golden Age, Bodin declared that the new enlightenment of his own time was far superior to anything in the past. Men, he said, now discover new worlds, expand their trade, invent such weapons as artillery, crafts such as printing, and civilization reaches its climax in cultural refinement and luxury. Bodin's book, *Methodus*, says Huppert, "contains in embryonic form most of the precepts of later liberalisms."

The motives and justifications of the sixteenth-century reformers in the writing of history are evident enough, but what, we should ask, was lost by restricting the idea of history to an "objective" recital of human activities since the beginning of civilization? Thrown out with ridiculous theological claims and superstitious traditions were all forms of metaphysical wondering and interpretation, all reaching after a transcendental meaning for human life. Banned and lost to conventional learning were the deeper inquiries so richly present in Emerson's essay on History—the searchings of mind interest on the meaning of human life—filled with recognition of

the analogues between man and nature, and with the kind of reflection that, today, we are obliged to disguise and cautiously smuggle into our scientific studies.

> I am ashamed [Emerson concluded] to see what a shallow village tale our so-called History is. How many times must we say Rome, and Paris, and Constantinople! What does Rome know of rat and lizard? What are Olympiads and Consulates to these neighboring systems of being? Nay, what food or experience or succor have they for the Esquimaux seal hunter, for the Kanaka in his canoe, for the fisher man, the stevedore, the porter?
>
> Broader and deeper we must write our annals,—from an ethical reformation, from an influx of the ever new, ever sanative conscience,—if we would trulier express our central and wide-related nature, instead of this old chronology of selfishness and pride to which we have too long lent our eyes. Already that day exists for us, shines in on us unawares but the path of science and of letters is not the way into nature. The idiot, the Indian, the child, and unschooled farmer's boy, stand nearer to the light by which nature is to be read, than the dissector or the antiquary.

COMMENTARY
DEATH AND REBIRTH

IN this week's Review we learn of those early reformers of historiography in sixteenth-century France who devoted themselves to making sacred history profane. They did this in the name of truth and freedom, since the theologians then writing history were determined to make every past fact and event into proof of their partisan creeds. So, in the course of three hundred years, the secular became the impartial, the objective, the scientifically reliable.

Where, then, was truth to be sought? In a secular age, the mantle of the prophet or the priest is worn uneasily by the poet and the painter—by the artist. As Octavio Paz said last year in the May *Atlantic*, "Art inherited from the religion that had gone before, the power of consecrating things and imparting a sort of eternity to them." This new faith had the artist's intensity, but no sense of direction, and was lacking in depth. "The modern religion of art," Paz observed, "continually circles back on itself without ever finding the path to salvation: it keeps shifting back and forth from the negation of meaning for the sake of the object to the negation of the object for the sake of meaning."

Why this endless circling? Because a scientized, secularized culture cannot nourish the arts. In an article in the *Los Angeles Times* for Feb. 23, William Irwin Thompson spoke of the periodless eclecticism in present-day art:

> All is in revival because art is dead, and art is dead because we tried to make an entire culture out of art and the Artist. But art grows out of culture and is fed by culture. If art has to feed upon itself for mythology, it will die, like a stomach with nothing on it, it will soon digest itself. How can we have art now that all traditional cultures, industrial and preindustrial, are dying? In these declining years of the second millennium AD, what is left to us but apocalypse?

In her contribution to Robert Boyers' *Contemporary Poets in America* (Schocken, 1974), Joyce Carol Oates pursued this analysis further:

> . . . poetry—like all art—demands that its subject be made sacred. Art is the sacralizing of its subject. The problem, then, is a nearly impossible one. . . . Most of modern poetry is scornful, cynical, contemptuous of its subject (whether self or others), bitter or amused or coldly detached. It shrinks from the activity of making the profane world sacred, because it can approach the world only *through* the self-as-subject; and the prospect of glorifying oneself is an impossible one. . . . Most lyric poets explore themselves endlessly, like patients involved in a permanent psychoanalysis, reporting back for each session determined to discover, to drag out of hiding, the essential problem of their personalities—when perhaps there is no problem *in* their personalities at all, except this insane preoccupation with the self and its moods and doubts, while much of the human universe struggles simply for survival. If the Iyric poet believes—as most people do—that the "I" he inhabits is not integrated with the entire stream of life, he is doomed to solipsistic and ironic self-pitying art in which metaphors for his own predicament are snatched from newspaper headlines. . .

Again from William Irwin Thompson:

> Suicide seems to be the fate of many artists these days: Sylvia Plath, John Berryman and Anne Sexton. Those who linger do not seem to do so in good health, some, like J. D. Salinger, lapse into a catatonic silence; others, like Saul Bellow, become voices of resentment and complaint. At least, no one is kidding himself anymore, the Age of the Artist is over, and the posturing of the avant-garde is as ridiculous as Moral Rearmament.

Curiously, Saul Bellow may himself have reached a somewhat similar conclusion. In the *American Scholar* for last winter Mr. Bellow gave a retrospective look at his life in America, speaking of the American Experience as a "murky, heavy, burdensome, chaotic thing." Then he says:

> I see that my own error, shared with many others, was to seek sanctuary in what corners of culture one could find in this country, there to enjoy my high thoughts and to perfect myself in the symbolic discipline of an art. I can't help feeling that I overdid it. One didn't need as much sanctuary as all that.

Hardest to bear in the present, he finds, is the endless *noise* of American civilization—the "real and unreal issues, ideologies, rationalizations, errors, delusions, nonsituations that look real, nonquestions demanding consideration, opinions, analyses in the press, on the air, expertise, inside dope, factional disagreement, official rhetoric, information—in short, the sounds of the public sphere, the din of politics, the turbulence and agitation that set in about 1914 and have now reached an intolerable volume."

What Mr. Bellow complains of here—and his complaint is certainly legitimate—seems precisely what might be expected of a mass society in which a sense of inward meaning in life has been lost for a generation or two. Also to be expected, after such an interval of history, is the cry of awakening represented by the article by Luis Racionero, reprinted in this week's Frontiers.

CHILDREN
. . . and Ourselves
ON GYROSCOPES

IT is easy to be snobbish about "hobbies." The word seems born from celebrations of the trivial. The hobby is an elaborate way to waste time, to dignify enterprises likely to end in petty achievement productive of smalltime exclusiveness.

But then, if you investigate such activities, it is possible to see another side of them. Aldo Leopold is of some help in this. *A Sand County Almanac* is a wonderful resource for seeing another side of a great many supposedly commonplace things. In fact, Leopold, along with a few other writers—say, Emerson, Thoreau, Ortega, Wendell Berry—gives magnificent justification for developing the hobby of reading, picking up certain books, again and again, in odd moments, and browsing to get unexpected sparks.

In the part of the Ballantine (paperback) edition of *A Sand County Almanac* that is taken from *Round River*, Leopold has a section on hobbies that may win over even the most skeptical believer in first things first. It is not exactly profound, but certainly makes a pertinent tract for the times.

> What is a hobby anyway? Where is the line of demarcation between hobbies and ordinary normal pursuits? I have been unable to answer this question to my own satisfaction. At first blush I am tempted to conclude that a satisfactory hobby must be in large degree useless, inefficient, laborious, or irrelevant. Certainly many of our most satisfying avocations today consist of making something by hand which machines can usually make more quickly and cheaply, and sometimes better. Nevertheless I must in fairness admit that in a different age the mere fashioning of a machine might have been an excellent hobby. Galileo, I fancy, derived a real and personal satisfaction when he set the ecclesiastical world on its ear by embodying in a new catapult some natural law that St. Peter had inadvertently omitted to catalogue. Today the invention of a new machine, however noteworthy to industry, would, as a hobby, be trite stuff. Perhaps we have here the real inwardness of our question: A hobby is a defiance of the contemporary. It is an assertion of those permanent values which the momentary eddies of social evolution have contravened or overlooked. If this is true, then we may say that every hobbyist is inherently a radical, and that his tribe is inherently a minority.

But Leopold won't have any heavy justifications for developing a hobby. He doesn't want it to be a rational and "progressive" measure:

> To wish to do it is reason enough. To find reasons why it is useful or beneficial converts it at once from an avocation into an industry—lowers it at once to the ignominious category of an "exercise" undertaken for health, power, or profit. Lifting dumbells is not a hobby. It is a confession of subservience, not an assertion of liberty.

Leopold is determined not to sound like a moralist. He is Zennishly suggesting that if you *want* to hit the mark, you will miss. He is arguing that art loses its purpose when it is consciously purposive—loaded with a "message." And yet, and yet . . . this is a paradox needing continuous examination but never a resolution, except by happy accident, and then only for a time.

For some, we suppose, gardening is a hobby. A few days ago we listened to an engineer talk about his backyard garden. About what he had learned from raising radishes, how if they grew too big too fast they had no tart and pleasant flavor, about the mulching he did with old newspapers, about his magnificent lettuce crop that the family consumption couldn't keep up with. And so on—it's hard to remember all he found out at first hand from having a garden.

So, score one for having a hobby like gardening. You have the experience of knowing for yourself, of enjoying the symmetries of direct discovery, of feeling the meaning of competence. You may not talk about it in this way—to do so would be a bit blighting—yet something like that happens to anyone who learns to do something well, all by himself.

Through the years, we have noticed that the boy or girl who has some real competence in something—it doesn't matter much what, although gardening would of course be a lot better than, say, stamp-collecting—gets through the storms of adolescence with fewer disasters and scars. It's like being able to play the piano a bit; you can sit down and make some sounds that feel good; you wait out the pain or embarrassment, and eventually you get back on keel and life is not so dark. You have a gyroscopic principle of your own which you can invoke when you need it.

An artist knows some of the secrets of the philosopher—not all of them, not the deepest, but some of the important secrets. An artist, a good one, objectifies those secrets in dramatic ways; we may not recognize them, but they are made visible. And, in a way, certain lesser arts are cultivated in the practice of a hobby:

> I knew a bank president who adventured in roses. Roses made him a happy man and a better bank president. I know a wheel manufacturer who adventured in tomatoes. He knows all about them, and, whether as a result or as a cause he also knows all about wheels. I know a taxi driver who romances in sweet corn. Get him wound up once and you will be surprised how much he knows, and hardly less at how much there is to be known.

Mr. Leopold hides his secrets carefully! He delights in minor profanities, in cajoling, almost "regular guy" tactics.

> To make and shoot a longbow is another [perfect hobby]. There is a subversive belief among laymen that in the hands of an expert the bow is an efficient weapon. Each fall, less than a hundred Wisconsin experts register to hunt deer with the broadheaded arrow. One out of the hundred may get a buck, and he is surprised. One out of five riflemen gets his buck. As an archer, therefore, and on the basis of our record, I indignantly deny the allegation of efficiency. I admit only this: that making archery tackle is an effective alibi for being late at the office or failing to carry out the ashcan on Thursdays.
>
> One cannot make a gun—at least I can't. But I can make a bow, and some of them will shoot. And this reminds me that perhaps our definition ought to be amended. A good hobby, in these times, is one that entails either making something or making the tools to make it with, and then using it to accomplish some needless thing. When we have passed out of the present age, a good hobby will be the reverse of all these. I come again to the defiance of the contemporary.

As we said, Mr. Leopold writes a tract for the times. After we have passed out of the present age, such matters as these will need another sort of discussion and advocacy. Meanwhile, we note in passing that a boy or girl who knows how to string, aim, and shoot an arrow with a bow will have a better chance to understand the *Mundaka Upanishad*, should he come across it after a few years. And one who throws pots in his teens will find both light and delight in the musings of Mary Richard's *Centering*.

FRONTIERS

What Time Is It?

[This article is reprinted from the September 1974 issue of *Ajoblanco,* first issue of a new magazine published in Barcelona, Spain. Some liberties have been taken in making the translation, in order to preserve the spirit of the Iyrical Spanish text. Barcelona is a city of nearly three million in Catalonia, on the Mediterranean in northeastern Spain. Readers stirred by this writing might wish to turn to Orwell's *Homage to Catalonia,* and to read of the achievements of the Barcelonians in a long essay about them in Noam Chomsky's *American Power and the New Mandarins.*]

IT has been twenty-five centuries since Buddha instructed Siddhartha in the Four Noble Truths, since Pythagoras listened to celestial harmonies, and Lao tse found the sonorous solitude where being and non-being are one.

What time is it?

Two thousand years have passed since the Greeks ended their beautiful dream of life, since Praxiteles sculpted the Hermetic smile, and an Essene resuscitated the dead.

What time is it?

Six hundred years ago St. Francis conversed with the birds, because he had learned the language of silence. Six centuries ago a living Dante journeyed to Heaven and to Hell, while the blessed Angelico painted the world in blue and mystic rose.

What time is it?

Five hundred years since Pico della Mirandola dwelt in *Pulchritudo, Amor, et Voluptas*—since the magnificent Lorenzo' caressing a cameo, sang to youth of the fleeting course of beauty, and since the magician Leonardo traced in profound and sombre lines the path of love and mystery.

What time is it?

Hardly two hundred years since Luzbel Byron suffered the fatal gift of beauty, when Shelley told of the coming legislator for mankind, while Keats died yearning for the kingdom of the Good, the True, and the Beautiful.

But what time is it, *now?*

It is time to make an end. An end to our age of agonies, of nausea, of absurdity. This time of the waterless clepsydra. Of hours of lava that melt clocks in their magma. Of the hour of Joyce, of Kafka, of Camus, of Sartre, who proclaimed the ending.

Now we begin again.

Now we are at a crossroads, suspended between a nostalgic past and a fearful future, in the detestable present.

We look back in anger, ahead with fear, not daring to turn inward. We must begin again, to create new culture. The vacuum, the absurdity, and the agony are useless; only love can engender. Love on all planes, for all things. The revolution is a great copulation: the penetration of a new mind into the body of the world.

Thus shall we hear again the song of Orpheus, the ripple of Heraclitos' river, the breath of the Buddha, the chords of Pythagoras; thus shall we lave in the lustral waters of the Essene, see Praxiteles chisel the Paros marble, hear the verses of Lao tse, the birds of St. Francis, and see Dante's pen rest on paper like a brush of Angelico. Will they not guide us to the path that Leonardo showed, teach us how to fulfill, at last, the promise of the Renaissance?

The Renaissance was aborted by Descartes, the egghead, and by a cold museum science that analyzes and reasons, kills and dissects. It will go on and on, this abortion and defeat, if we listen only to Sartre, to Monod or Ionesco. They are making the end; and in order to make it they had to be heard. So they have helped us, these elder brothers; but they help no longer, for the time has come to empower a fresh imagination—to animate anew the Good, the True, and the Beautiful. The time of ending is the time to create.

These older ones reached the same dead-end the Greek Sophists found, the stopping place of the Christians without Mysteries. They could not understand Heraditos, and they made Orpheus recant. The games and devices of intellectuality show no way out; reason has imprisoned itself, logic has no ladders to scale the walls it has built by rule. So they tell us, these older ones, that reason compels admission of nausea, absurdity, emptiness at the heart of things.

We cannot go this way. We must part with the skeptics, the positivists, the existentialists, the abstractionists. We see that the West was an experiment, an invention; that there are other paths, as those known in the Orient. We have felt this and now we see it—a scroll of smoke reveals other paths. We see that the forces of life are eternal, have always existed, that the forces of creation bring order to chaos, give form to dance, open mouths and flowers, stir oceans.

History is the unfolding of visionary states of mind. We are made of the stuff of dreams, and we can dream terribly or beautifully. In the beginning is vision—the shimmering formative power which shapes images within the clay of the brain, where, finding multiple mirrors, we contemplate and understand. Then comes the act—the unexpected power of inspiration which realizes vision by transforming it into action. So history is written, materializing visionary states of mind, forging the still uncreated conscience of the race.

The vision must be our own, or we shall remain slaves to the dreams of other men. So we shall set aside logic-chopping, undertaking to create. To invent truth and reality anew. Out of the end of a time we must make a new path to the hidden meaning of things, and choose a new name for the mystery—letting go the dead letter, finding the immediate god. Once again there must be Apocalypsis and Palingenesis—death and rebirth, a renewal of Shiva's cosmic dance. So there will be a new language to express the new metaphysics, reason, vision, and ethics. No politician can be our legislator, only a poet. The news will not be found in the daily papers, but in poetry. Truth is not happened upon in affairs of the world, but is created. It is a truth interchangeable with life and action, as in old and recurring tales.

So the time has come, and what are we waiting for? We have these dreams—the stuff of reality—in our minds. We know there the Good, the True, and the Beautiful; there we experience harmony in diversity, unity in the universal. As anciently said, as above, so below; as we are, so we see, and we shall become only what we are able to love. Because in the end the love you take is equal to the love you make.

LUIS RACIONERO

Barcelona