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TOWARD GENTLE, EQUITABLE TRANSITION

WE have received (by different channels) two Annual Reports that came out this year. Both are impressive, but in different ways. One, which goes to stockholders, tells about the operations and income of a large utility company, combining gas and electricity, which had a *net* income in 1978 of more than four hundred million dollars. The figures in the operating statement are so large that they are given in thousands. The last three zeroes are left out, we suppose, to permit the ordinary reader to grasp the numbers.

This company was started just a hundred years ago, when Thomas Edison was perfecting the electric light bulb. It now sells annually $56 billion worth of electricity and $513 million of gas to its six million customers. There are 384,000 stockholders and 26,000 employees. The energy comes from fossil fuel, geothermal installations, hydroelectric turbines, and nuclear power plants. The company is experimenting with solar energy sources (photovoltaic systems) and is collecting information on wind velocity. Production of methane from garbage and manure is being investigated. Last year the company employed 20 per cent more women in professional and management positions than the year before. Any customer who has a question can call toll-free to get an answer.

A healthy company, it seems, with great prospects. Yes, it's P G & E (Pacific Gas and Electric). You just sit and read and are impressed. Or overwhelmed. The annual statement is a fine piece of printing (lots of full color) for consumers. It is a statement about today which suggests that the Diablo Canyon Nuclear Power Plant will soon be in operation, but says nothing about the protest demonstration of the Abalone Alliance and the Mothers for Peace, nor does it comment on the fact, as reported, that P G & E "recently spent $900,000 for a media blitz to discredit solar's potential and encourage the construction of new nuclear and coal-fired plants." *(Washington Spectator*, April, 1979.)

The other Annual Report is about an organization that is just ten years old—The New Alchemy Institute at Woods Hole, Massachusetts. It comes in the form of the *Journal of the New Alchemists*, which has settled down to appearing once a year, making it an annual report. It is bigger and thicker than the other one, and beautifully designed and printed. Both are about energy and energy production, but the similarity stops there. The New Alchemists issue a report in the service of the world of tomorrow, filled with good things that can and are being done today.

Who are the New Alchemists? The founders are John Todd and Bill McLarney, both biologists, and they got started on Cape Cod with a group of about seven people, which grew to a dozen after a while. Robert Rodale helped them with some money to get going. The best account we know of on the beginnings of the New Alchemists is a chapter in *What Do We Use for Lifeboats When the Ship Goes Down* (Harper & Row paperback) by My. John Todd told his interviewer:

> The goal of New Alchemy? The original purpose never changed. This rather grandiose legend which sits under our letterhead: To Restore the Lands, Protect the Seas, and Inform the Earth's Stewards. On a more practical level there are several purposes. On the short term is the backyard fish farm. The rationale was simply that if there are going to be billions and billions of people without access to transport systems, is there any way we can alleviate mass starvation? And the backyard fish farm concept was the first solution. We wanted something that could go in a vacant lot or a back alley or a rooftop or arid regions where water is precious. It's got to be contained and used and then slowly dribble the enrichment out to gardens that surround it. That's the short term.

> The longer term is to make the concept of an autonomous small-scale commutat . . . semi-autonomous communities whole-earth-system derived, in energy and food and shelter attuned to their environment, to make the whole concept so bloody appealing that a lot of those stresses and strains that are chronic will be alleviated. In other words, twenty-first-century pioneering. Not in setting up a community but . . . to provide the thinking, biological and physical, that would sustain regions or small groups of people with a fair degree of autonomy so that they would not be as subject to co-option or manipulation and could evolve to greater religious and artistic heights.

That should do for an introduction. This sort of thinking (and acting) goes a long way toward meeting some of the criticisms of the environmental and ecological movement, whose spokesmen often call for decentralization and "the return of full self-responsibility to the individual and family." Fine, the critics say, but only a powerful central government could enforce decentralization, and isn't this not only unlikely or psychologically impossible, but also a contradiction in terms for decentralists? This sort of criticism may result from looking to law for solutions. The New Alchemists are not arguing for such measures, but instead, in their way, are *already* decentralized and showing how to do it. Decentralization, moreover, may get an enormous assist from Nature in the form of a general economic collapse. The New Alchemists are hoping that, because of their efforts, more people will be ready with at least partly autonomous systems of self-support. There are other values in what they are doing—the emergence of new attitudes and feelings which grow out of an actual turnabout in life.

What *are* the New Alchemists doing on their ten acres of used-to-be useless sandy soil at Woods Hole? Now there are about twenty-seven of them, and the 1979 *Journal* (No. 5) describes and pictures the projects and accomplishments. There are sections on energy (windmills, simple and complex), land (gardening methods, worm culture, intensive vegetable production, and a general view of an agricultural landscape for the future (with a lot on trees). There are four articles on raising food fishes, three on the design of bioshelters, and an account of work done at the New Alchemy outpost in Costa Rica. And some excellent book reviews. Nancy Todd, editor of the *Journal*, calls it a "harvest" publication, which is what all useful magazines and periodicals should be. There is enough going on—enough harvesting—on these acres at Woods Hole to fill 150 pages and more, every year.

Where shall we begin? Well, Marcus Sherman, who developed a low-cost windmill called a "sailwing" for villagers in India, joined the New Alchemists and he and Earle Barnhart erected one there:

> With lumber and hardware, they built a durable prototype well able to withstand the often blustery Cape Cod climate. For a total of $300 [in 1974] they developed an 18-foot diameter, cloth sail-wing capable of pumping 250 gallons per hour in 6 mph winds. Three tapered cloth sails, supported by tubular steel masts, extended from a triangular plywood hub. . . . The windmill supplied water to a series of twenty small ponds used in our midge experiments. It was operational in high winds, although cloth sails were removed in severe storm conditions. The cotton sails were later replaced by Dacron, which is longer-lived, holds its shape better, does not absorb water during rains, and is stronger and lighter than cotton.

A more efficient model was built the following year, and improved in the years since. (Diagrams show how it works and was built.) A larger mill (40-foot tower) called Hydrowind was erected in 1975 to produce enough electricity for the operations of the Prince Edward Island Ark (a combination bioshelter and self-sufficient research lab). Technicians may be interested in this description by Joe Seale:

> To generate electricity, a hydraulic motor driven by the flow of fluid from the top of the mill turns a permanent field, brushless electrical generator. The alternating current from the generator varies in both voltage and frequency with windspeed changes and is incompatible with the fixed voltage (115 volts) fixed frequency (60 cycles per second) utility lines. To overcome this incompatibility, an electronic

> synchronous inverter transforms the wind-generated electricity to the proper voltage and frequency and combines it with the electricity from the utility. The installation obviously is not therefore designed for stand-alone operation, but instead substitutes wind power for utility power in the amounts available from the mill. When wind generation exceeds the Ark's consumption, surplus power goes out through the utility lines and becomes an input to the power grid. Under these conditions, the windmill is like the many other electrical generators linked together by the power grid, each adding its contribution to meet the overall demands of houses and industries tied to the grid.

The Hydrowind can be improved, Joe Seale says, and he tells what needs to be changed. Nancy Todd says: "He sees a need to make available in writing a body of knowledge that has been until now largely oral and, as such, scattered and lacking in organization." This is the sort of educational communication much needed in fields of technological change (at an intermediate level). Schumacher recognized this need in 1965 and began the Intermediate Technology Development Group and its publications as the means of sharing such valuable information.

What is the Prince Edward Island Ark? (There is a smaller, family-size Ark at Cape Cod.)

> The Ark is an ecologically designed bioshelter powered and heated by the wind and the sun. It houses a research laboratory, living unit, family garden and a small commercial greenhouse and fish farm. The structure is experimental, exploring new ideas in self-sufficiency, in biological systems, and in intensive food production. The ultimate goal is to create shelters that sustain and support their inhabitants.

It was built for the Province of Prince Edward Island with the support of the Canadian Ministry of State for Urban affairs. (A handsome poster diagramming and illustrating the Ark is available from New Alchemy Institute, Box 432, Woods Hole, Mass. 02543.) Commenting on the Ark, Nancy Todd says:

> In spite of Prince Edward Island being a popular tourist spot, the majority of those who come to the Ark are neither sightseers nor dilettantes in search of novelty, but people who are troubled by inflation in the cost of essentials and open to the idea of alternative methods of providing them. Coping with the interest of the public at large quickly became more than a full-time job and this did not take into account the demand from various official bodies ranging from the United Nations to representatives of governments and other organizations from many countries. . . . from the outset, the Ark was a research project—not an answer, but a compendium of questions in such areas as the practicality of solar and wind energy and the possibility of intensive, ecological food production. It represents a shift in paradigm from standard modern housing, which is an ongoing energy sink and a source of pollution to the adjacent ecosystem, to a bioshelter concept which is independent in terms of energy, processes its own wastes and is a potential source of products useful locally.

In his article on a Permanent Agricultural Landscape, Earle Barnhart speaks of the general direction of the work at New Alchemy:

> New Alchemy has developed a number of ecologically-derived food production processes for small-scale agriculture which could be used in an integrated agricultural landscape. These include intensive vegetable gardens, aquatic ecosystems for fish production, passive solar greenhouses and bioshelters for propagation and winter food production, and sail-wing windmills for irrigation. We are extending the scope of our agriculture to include fields crops, tree crops, ponds, agricultural forests and terrestrial animals into more highly-integrated landscapes. Initial experiments will consist of selection and evaluation of biota, stressing local hardiness, ease and speed of propagation and rates of growth.

Hilde Maingay writes on intensive vegetable production:

> Our goal at New Alchemy is to minimize the amount of land needed and to use fossil fuels as wisely and efficiently as possible. Such a system would be complex in terms of technique as in crop rotation, crop succession and companion planting, but simple in skills and tools.
>
> We shall have chickens, goats, geese and fish to provide eggs, milk and other forms of animal protein. We plan to concentrate on growing foods which require neither freezing nor canning for winter storage.

Solar greenhouses should prove economical for fresh vegetables. A small family structure could provide the greens for the fall, winter and spring without recourse to fossil fuels. It also provides the space to grow all the seedlings needed for a tenth of an acre garden plot.

A passage from another portion of this article shows the mood and approach:

Since the time of our first gardens, we have been addressing ourselves to the question of whether it is possible to achieve average or above-average yields without the use of chemicals and, if so, how much energy and labor would be required. In the spring of 1976, we began an experiment in small-scale food production without pesticides. The test garden plot was one-tenth of an acre, divided into twenty raised beds. . . . Over-all the garden produced the equivalent of three daily servings of vegetables for more than ten people for 365 days. . . .

To gain some background, I called the local extension service to ask about average yields of vegetables and grains, preferably on Cape Cod but otherwise as close to home as possible.

"I am sorry," the agent said, "but I cannot give you any such data. The Cape cannot produce anything but cranberries and some strawberries."

"Well," I said, "maybe you have records on crops grown here twenty years or so ago?" His reply was negative again, as he had not seen anything else growing successfully in the twenty years he had been on the job here. "What about a l-o-n-g time ago, the turn of the century or before?" I asked. And, noticeably impatient, he answered, "Lady, you don't want to know about those figures, because what they called high yields back then, we'll call a poor yield now."

If I hadn't already grown an abundance of vegetables on our land, I should have stopped any gardening or intentions of farming and gone into the construction business.

Conn Nugent, who recently joined the New Alchemists, tells why:

A lot of people who want to improve the social arrangement of things talk about "human needs." They suppose that the best way to meet human needs is to provide subsidized "human services." Education, health care, legal aid, counseling, public recreation, daycare. These things are good things, mainly.

But it has occurred to other people that reformers should concern themselves with production as well as services. Producing useful objects in a benign setting can be rewarding work and the best of therapies. I like William Morris's old notion that the greatest general good would be enjoyed by a citizenry which lives simply and tries to satisfy itself through an egalitarian arrangement of fruitful work, shared values, and fidelity to nature.

I came to New Alchemy because I believe it is designing tools for a world in which that notion might be realized. . . . I'm drawn to John Todd's words:

"It is becoming clear from the recently growing knowledge of living systems and from general systems theory that it is the structure, or morphology, of a system that determines its behavior and subsequently its fate. The coefficients or parameters within a system determine only rates or relative dominance."

The structures of the socio-economic system, in other words, warp human activity into conformity with the intentions of that system, and there are no means of changing the structures without first altering the motives. The way we relate to the natural environment around us illustrates this proposition. In his article on a permanent agricultural landscape, Earle Barnhart speaks of the consequences of the use we make of nature:

The crux of the problem is that, whereas human cultures have an unusually powerful capacity to intervene in nature, they have virtually no realization of their dependency on its continued well-being. . . . An overview of our present situation indicates that various forms of land use have become institutionally dichotomized, each with its own limited objectives and its own specialists, often contradictory to one another. For example, foresters consider corn to be the worst enemy of soil, cattle and sheep producers think trees a waste of space and large commercial farmers attribute wildlife to bad luck or faulty spraying. Agricultural and forestry specialists alike must come to see that their crops and forests have functions and outputs beyond food and fiber. Food chains and nutrient cycles exist in nature with or without the human presence. The objective of agriculture is often to maximize a particular product of the ecosystem; a result less noticed is a decrease in efficiency in other parts of the cycles.

This is practically the same as what two scientists wrote on technology assessment a few years ago. The experts are all trained to be partisans of their specialty:

> The predominant mission of each agency, as set forth in the law, determines its pattern of assessing technology. Weather modification provides an example. The Bureau of Reclamation looks for ways to increase rainfall in the dry Western states. The Department of Agriculture, mainly concerned with reducing crop losses, sponsors research in suppression of storm damage. The Federal Aviation Administration is interested in ways to dissipate fogs that hang over airports. None of these agencies considers the total effects. *(Scientific American*, February, 1970.)

These writers concluded:

> The society is ill-equipped to handle conflicting interests. It does not know how to value in a quantitative way such goals as a clean environment and the preservation of future choices. Analytical tools are primitive, and crucial knowledge is of the missing.

Isn't it time we began to have annual reports on *such* matters? Well, we are getting them. The *Journal of the New Alchemists* is an example. Its writers, who are also workers in the field, are bringing holistic understanding of both nature and man to bear on present circumstances and problems. The *Journal* publishes knowledge of vital relationships, much of it converted into programs and methods of convivial survival for mankind. A paragraph toward the end of Conn Nugent's contribution makes a suitable conclusion for this brief review:

> Somewhere down the line—in a way, I don't care whether it's thirty years or a hundred and thirty—we are going to run short of fossil fuels. We will either maintain the current structure through the intravenous of new power sources (probably nuclear) or we'll need a new structure. Unless we plan well, either eventuality will cause enormous dislocation. The poor would get it in the neck. I'm for a non-nuclear alternative and for a gentle, equitable transition.

REVIEW
THE VOLUNTARY LIFE

THE STRUCTURIST is a magazine of art and the philosophy of art founded in 1960 by Eli Bornstein (the editor), who teaches art at the University of Saskatchewan, Saskatoon, Canada. It comes out annually in a double issue, at $10—a yearbook, really. Its reason for being is well stated in No. 17/18 (1977-78):

> There is a scarcity of meaningful writing about contemporary art. The prevailing use of bewildering and pretentious language is undoubtedly symptomatic of the condition of art itself. The word *art* has been subject to recurring explosions of meaning since the turn of the century. These fragmentations account for the increasing proliferation of new names of ever-new schools and fashions of art. The earlier "isms" such as Impressionism, Cubism or Constructivism are popularly and grossly misrepresented and their limited value as historical labelling devices has in our time been badly abused. Cézanne said: "If they try to create a new school in my name, tell them they have never understood, never loved what I had done." The multitude of art "isms" founded upon Cézanne have obviously ignored his words.
>
> Names and labels may begin in all innocence as germinal ideas and as initial means of identification, and as such represent the beginnings of growth. But where these beginnings harden and "isms" emerge with self-appointed "leaders," partisan "creeds," and "disciples," we can anticipate the end of growth. Such "isms" usually produce intolerance and self-righteousness—dogmas for self-justification which become barriers to free and open inquiry. In our own time, with the many token "isms" in politics and art worn thin, we may hopefully begin to bypass such obsolete, turn-of-the-century terminology and the personality cults they fostered. . . .
>
> *The Structurist* does not adhere to or interpret any individual or group "ism." It is neither interested in promoting personalities nor fostering "schools" or "styles" of art. It is interested in a free exchange and exploration of a wide variety of ideas contributing to man's growing knowledge of the process of creation in all fields relating to art.

Every human expression begins with some sort of confinement, in order that a particular product may result, or that a release of energy be controlled and aimed. A steam engine confines and then releases steam in a way that turns wheels. A work of art focuses symbols in a way that releases feelings and ideas. The means of the focus is dealt with by technical criticism. How does a painter use his brushes? Does he draw well?

The philosophy of art is concerned with the significance of the feelings and ideas evoked by the work. *The Structurist* is almost entirely devoted to the philosophy of art. What, for example, is the meaning of a photograph? What qualities in human beings respond to the photographer's work? These become large questions, as two review-essays of Susan Sontag's 1977 book, *On Photography*, make clear. One *Structurist* contributor, Don Kerr, says:

> Alienation by photography is her most fascinating and useful theme. . . . Photography does certify experience—
>
> "Here I am at the Eiffel Tower"—but it can also help to reject experience—one travels just to take pictures and so has only a consumer's attitude to the world; the camera is a shield to ward off real contact. Photogenic seeing too is a way to miss the world, because you're always looking for your shot. Your method of seeing becomes dissociated, fragmentary. You frame the world.

Horror pictures tell another story. You watch and photograph. You don't intervene, but produce some reportorial art.

> The effect is to lower "the threshold of what is terrible." We steel ourselves to be strong, to pass the test of today's art—be cool, not queasy, show you can take it. That lessens our powers to act in life. What is the effect of more serious representations of the terrible—of photos of—Dachau, Vietnam, third world starvation?

We need to know about these terrible things, it will be said. And that is true. The photographs prove to us man's inhumanity to man. But we need, at the same time, to recognize a perhaps deeper truth:

> Photographs of atrocities in Vietnam helped greatly in turning people against war (though similar photos of Korea would not have been effective because the context of opposition to the war was not present). Yet such photographs as these, such demands for compassion, which have obviously worked, also wear out as we become familiar with them. Terror becomes banal through repetition. As we see more and more images they anæsthetize our senses, alienate us from our own best impulses.

Of course, this isn't really an attack on photography. It is criticism which shows how we use our tools. Yet the camera has certain qualities.

All you have to do is click it. Photography is a borrowing and heavily indebted art. Like all high technology, it produces Jack Homer delusions in button-pushers. Used as a target for criticism, the camera dramatizes these weaknesses. Susan Sontag's *On Photography* is a study of human nature which helps the reader to live a more examined life.

There seems a sense in which this may be the best or highest use of art. At any rate, reading the *Structurist*—which has remarkably diverse contents—leads one to this conclusion. The arts, you could say, reduce the moral pressure of self-examination, adding an element of delight and a feeling of personal discovery. If morals are to be drawn, they are your own. And moralizing is optional.

The magazine is big enough to do such things thoroughly. One contributor, Jack Kligerman, discusses the nature essays of John Burroughs. There are passages like this one:

> When writing his essays, he [Burroughs] would keep in fine balance his principles of selectivity, his interpretive structures, and the facts of nature itself: his bluebirds, chipmunks, hepaticas and so on. If he kept any part of his consciousness in check, it was his ego, or self, which he perceived as diaphanous as a translucent membrane: "But this weakness of the I in me is probably a great help to me as a writer upon nature. I do not stand in my own light. I am pure spirit, pure feeling, and get very close to bird and beast. My thin skin lets the sky and delicate influence pass." In fact, one could even say that his self was bodied forth or structured by the world he perceived.
>
> Each sentence of his nature essays, each essay, each of his books—to be sure, his whole life as an observer of nature—can be construed as an attempt to accumulate enough significant facts from life in nature as to constitute an ever-developing conscious self in awe of an ever-unfolding world. One gets from Burroughs' essay, as a result, a continual sense of timelessness in the present moment. The quickest flash of a slate-colored junco's white outer tail-feathers comes to us as a permanent and typical fact of nature. Even if today's junco is not the identical bird of last year, it nevertheless and paradoxically is still the same. Its changelessness mirrors that of nature at large, since "time" in nature moves so slowly as to be imperceptible and thus virtually non-existent. All this is contained in a junco's tail-feathers: so a basic assumption of John Burroughs' way of looking at nature might work. Moreover, his life is testimony to the belief that one could stop looking and learning only when one stopped living.

This review is followed by three essays by Burroughs, the third of which, "The Falling Leaves," has this paragraph:

> A tree does not live by its big roots—these are mainly for strength and to hold it to the ground. How they grip the rocks, fitting themselves to them, as Lowell says, like molten metal! The tree's life is in the fine hairlike rootlets that spring from the roots. Darwin says those rootlets behave as if they had minute brains in their extremities. They feel their way into the soil; they know the elements the plant wants; some select more lime, others more potash, others more magnesia. The wheat rootlets select more silica to make the stalk, the pea rootless select more lime: the pea does not need the silica. The individuality of plants and trees in this respect is most remarkable. The cells of each seem to know what particular elements they want from the soil, as of course they do.

Telling enough about these essays to make their grain and bite evident crowds out other material just as good—the melancholy plight of the reviewer who has limited space. So, as a concluding note: George Whalley, who has gone to school to Coleridge and Paul Valéry, writes at length on using poetry as a tool in education. At the end he speaks of children, saying:

> To educate the senses through poetry I would—-if I exerted any authority—see to it that children were allowed to *listen* to poetry, especially difficult and arcane poetry so long as it is strongly and subtly rhythmic; and I would have them listen with no ulterior purpose in mind, but for delight simply.
>
> Above all, I would wish all children to try to make their own poems—which many can well do until they are inundated by the crisis of self-consciousness—and so to discover how far language has a will of its own and is to be respected if we are to use language to any notable effect. At some point I would have them appreciate the peculiar nature of that other verbal harmony that we call "prose."

This has the flavor of a seriousness one can enjoy. So do the other articles.

The address of *The Structurist* is Box 378, University of Saskatchewan, Saskatoon, Canada S7NOWO.

COMMENTARY
IN BEHALF OF TREES

MORE of what Margot Hornblower says in her May 13 *Manchester Guardian* article (quoted here two week ago) is made pertinent by the content of this week's Frontiers. Summarizing a recent State Department report on the disappearance of the forests of the world, especially tropical rain forests, she said:

> Whether it is Guatemala, where 40 per cent of agricultural land has been destroyed by erosion, or India, where massive floods have occurred, or the Philippines, where timber products are now imported instead of exported—the pattern is similar around the world.
>
> Governments open the jungle to the timber companies that build roads. Hungry settlers move in along the roads, with or without official sanction. They cut the trees, burn the brush and plant crops.
>
> But the rich green of the rain forest is an illusion. The land underneath is barren after the nutrient-giving vegetation is gone. The farmers abandon the land after a year or two of cultivation exhausts the soil. Sometimes cattle operations move in for a few years. Frequently, the rains wash top soil into the rivers and the relentless tropical sun bakes the earth to a hard crust.

Ecologists predict inevitable timber and firewood shortages and the destruction of rivers and agricultural land. The third of the world's population which depends upon firewood for cooking may be without fuel by 2000.

The figures are appalling. Costa Rica is losing 150,000 acres of trees a year, and Guatemala has cut down 65 per cent of its forests since 1950. In E1 Salvador, the most over-populated country in Central America, 93 per cent of the forest is gone, and the remaining land looks like the parched terrain of the African Sahel. Two years ago the Panama Canal lacked enough water for the locks to operate, and shippers had to send their cargo around the Horn. Why? Because the waters of lake Gatun—used by the canal—had dropped too low. During the past twenty-five years 35 per cent of the Panama rain forest above the canal had been burned to make room for farms and pastures. "By the time the United States transfers the canal to Panama," the State Department report said, "the canal may have become a worthless ditch, a colossal monument to resource mismanagement."

Quite evidently, the tree-planters may turn out to be the economic saviors of the world.

The next issue of MANAS will be dated September 5.

CHILDREN
. . . and Ourselves
LEARNED FROM DRAMA

WE have been reading once again in Harold Goddard's *The Meaning of Shakespeare* (University of Chicago Press paperback, in two volumes). This leads to multiplying thoughts, as anything by Goddard always does. First is the importance of drama for children.

Children love to act, and learning to act well frees them for life from awkward self-consciousness. It departs as they realize that the play is the thing. They learn economy of movement and how to speak so that they are understood. There is an *art* of speech which is at its best when wholly unnoticed. You just hear what is said. Good speech is a form of consideration for others. Working in a play (under good direction) has the effect of making the participants think about the audience and its enjoyment. The actors learn how to forget themselves. The disciplines of effective communication are gradually and painlessly absorbed. (Not that all Shakespeare is suitable for children to do, but there are scenes well adapted to use with the young.)

If good plays are used, the beauties of language come to be sensed and understood. Developed are the sensibilities of balance in choice of words, the degrees of provocativeness in imagery, and all the other delicacies which attention to diction brings to birth. One learns how to tell a story, make a point.

As for Shakespeare, he has no better companion than Goddard's lovingly compiled commentary. After recovering from the initial embarrassment that Goddard is likely to produce in practically all his readers—he sees so much that the rest of us have missed!—reading him becomes sheer delight.

What, for example, does Goddard make of Shakespeare's play about the Trojan War? Who is its real hero? Ulysses, Achilles, Hector? In *Troilus and Cressida*, Hector and Cassandra say, "Let Helen go." They think a war to keep Helen from her rightful husband a supreme folly for Troy. Meanwhile Achilles, for hardly creditable reasons, has retired from the field.

It is a terrible, terrible war. Why must it go on? What did Shakespeare think about this? What is the point of the play? Goddard says:

> If Achilles, the bravest of the Greeks, was not inclined to fight, Hector, the flower of Troy, was even less so. And if Achilles was being pushed into the conflict by the craft of Ulysses, Hector was doing his best to keep his younger brother, Troilus, out of the fray. Such a parallelism and contrast can obviously be the result only of the author's constructive intention.
>
> Among the warriors Shakespeare has drawn in any detail, Hector is the noblest and most heroic. Othello and Antony might be cited to challenge that statement. But Othello as warrior figures in the main only retrospectively and symbolically in the play that bears his name. Long before it is over "Othello's occupation gone," as is Antony's in another sense before *Antony and Cleopatra* is over. Faulconbridge and Coriolanus are just as brave as Hector, but they lack his "sadness," as Laotse would call it. They move in another and lower world (though Coriolanus ascended from it at the very end). If there were more warriors like Hector, there would be no war. He is as alien, intrinsically, to the military world as Abraham Lincoln was. For the truth about that world, there is no one to go to like a brave but disillusioned soldier. Hector is a warrior who sees through war. The tragedy lies in his failure to live up to his vision.

After Paris asserts that heroic war with the Greeks will make it "honorable" to keep Helen, Hector replies in a memorable speech in which the full tragedy of the play becomes apparent. Goddard says:

> It is thirty-one lines long and every one of them is worthy of scrutiny, for they tell, with a kind of finality, how it is that war can continue in a world where all decent men agree in condemning it as a moral horror. They show how little you can end war merely by convincing people that war ought to be ended. They define, as no other words I can remember in Shakespeare do so succinctly (not even Hamlet's speech on blood and judgment which says much the same thing), what constitutes the freedom of the will and what the two chief enemies of that freedom are. They suggest the only sound basis for international law. And then . . .

> For what comes then we are utterly unprepared. One of the noblest and wisest, suddenly, without warning, becomes one of the most disappointing speeches in Shakespeare—the last thing we would expect of Hector. The reversal at first seems out of character. Yet it is exactly what we see around us every day, what we ourselves are forever doing, if, like the vast majority, we are reasonably decent, well-meaning persons who defer to the opinions of everybody else, especially of our own class.
>
> Why, then, if Hector does what we all do, are we so unready for it? Because art is a magic mirror. In it we have seen Hector's soul, and know, as we knew of Hamlet, that he was created for something better.

After reproaching his younger brothers, who are red hot for war, observing that their passion for pleasure and anger have made them completely deaf to the voice of "any true decision," Hector says:

> There is a law in each well-ordered nation
> To curb these raging appetites that are
> most disobedient and refractory.
> If Helen then be wife to Sparta's king,
> As it is known she is, these moral laws
> Of nature and of nations speak aloud
> To have her back return'd. Thus to persist
> In doing wrong extenuates not wrong
> But makes it much more heavy. Hector's opinion
> Is this in way of truth; yet nevertheless,
> My spritely brethren, I propend to you
> In resolution to keep Helen still,
> For 'tis a cause that hath no mean dependence
> Upon our joint and several dignities.

Hector, at the end, says, "Come on boys, let's give it to 'em good! Our *dignity* is at stake." He knows better, of course. His inner convictions are unaltered, but he goes on to his doom to keep faith with lesser men. Goddard comments: "The defect of the characters of Shakespeare's *Troilus and Cressida* was that they visited the soul by moments, ah, too rare!"

When he comes to *Measure for Measure*, which has a creaky, hackneyed plot, Goddard shows that Shakespeare sometimes makes his spokesmen bawds and condemned criminals, characters who deflate pomp and self-righteousness with the fragmenting wisdom of the depths. These scurrilous rogues, of whom the audience cannot help but become fond, "are not forever riding the moral high horse."

> They make no pretensions. They mind their own business, bad as it is, instead of telling, or compelling, other people to mind *theirs* or to act in *their* way. It is a relief to find somebody of whom that is true. . . . For everybody with power—save a few Abraham Lincoln—is, *ipso facto*, professing and pretending all day long. "I am convinced, almost instinctively," says Stendhal, "that as soon as he opens his mouth every man in power begins to lie, and so much the more when he writes." It is a strong statement, and Shakespeare would certainly have inserted an "almost" in his version of it, but there are his works, from the History Plays on, to show his substantial agreement with it. Why does Authority always lie? Because it perpetuates itself by lies and thereby saves itself by lies from the trouble of crude force: costumes and parades for the childish, decorations and degrees for the docile and gullible, orders for the goosesteppers, fine words (like "loyalty" and "cooperation") for the foolishly unselfish—to distract, to extort awe, to flatter and gratify inferiority, as the case may be. . . . the lower stratum has one virtue to which the possessors and pursuers of power, for all their pretensions, cannot pretend: namely, lack of pretension. Here is a genuine basis for envying the dispossessed. Revolutions by the downtrodden, abortive or successful, to regain their share of power have occurred throughout history. The world awaits a revolution by the powerful to gain relief from the insincerities to which their privileges and position forever condemn them. Thoreau staged a one-man revolution based on a kindred principle. If this is what it implies, *Measure for Measure* may yet be banned by the authorities. . . . But no! it is as safe as the music of Beethoven. The "authorities" will never understand it.

Measure for Measure, Goddard says, revealed three hundred years ago what has been burned into our consciousness by two world wars: "that Power lives by Authority and that Authority is always backed by two things, the physical force that tears bodies and the mental violence that mutilates brains." As Isabella says to the false duke:

> but man, proud man,
> Dress'd in a little brief authority,
> Most ignorant of what he's most assur'd
> His glassy essence, like an angry ape,
> Plays such fantastic tricks before high heaven
> As makes the angels weep. . . .

FRONTIERS

Trees—a Long-Term Solution

IN the last year of his life, E. F. Schumacher devoted what time and energy he could to the idea of tree-planting as something practically everybody can do, and which he thought would accomplish more, economically and in other ways, than any other, single, well-intentioned undertaking. In his introduction to the 1976 edition of *Forest Farming* by Douglas and Hart (Watkins, London), he briefly sketched what would happen if every able-bodied person in India would each year plant and care for a tree, for a period of five years. This, he maintained, would do more for India than any of her five-year plans. Foreign aid would not be needed, and the two thousand million trees that would result would "produce foodstuffs, fibres, building material, shade, water, almost anything a man really needs." As for fuel, the tree, he pointed out, is a contrivance for collecting solar energy "more wonderful than anything man can make." When he died, in September, 1977, Schumacher had been planning a tree-planting campaign for Britain. He intended to use the royalties on *Small Is Beautiful* to give baby trees to all those who would agree to plant and see them through to establishment.

An editorial in the February *Appropriate Technology* (quarterly issued by Intermediate Technology Publications, founded, with others, by Dr. Schumacher—9 King St., London W C2E 8HN, U.K.) notes that already a fuel crisis is overtaking the developing countries, and that more efficient wood stoves are an immediate need. But the "real, long-term solution," the editorial says, "is planting more trees."

> National afforestation programmes including village wood-lots as well as tree planting along roads and drainage ditches, and trees planted as boundaries for wind breaks and around houses could well provide fuel, food and fodder. The result could stem desertification, reduce soil erosion and help to restore the soil's fertility by adding humus from the fallen leaves.

Readers may recall that Review for March 14 described the Tree of Life movement, headed by Wendy Campbell-Purdy, now working toward establishment of a green wall of trees along the northern fringe of the Sahara to stop the desert's growth and create conditions for the growing of food. Similar news from Africa was published in the *Los Angeles Times* of March 29:

> Children's aid groups in more than 70 countries launched a campaign to sponsor tree-planting in the arid Sahel region of northern Africa in order to safeguard the future of about 13 million children who live there. The International Union of Child Protection, an umbrella organization for 170 children's charities, said that trees were a decisive factor in economic development in the Sahel region since they stored water, sheltered pastureland and halted the spread of desert sands.

The pioneer of such programs in the United States is the California Conservation Project (12601 Mulholland Drive, Beverly Hills, Calif. 90210) better known as the Tree People, who for a long season every year go out into the mountains of Southern California with volunteer crews of thousands of school children, planting smog-resistant conifers to replace the trees that have been dying. At their ten-acre headquarters (located at the intersection of Mulholland Drive and Coldwater Canyon Drive) the Tree People reach some fifteen thousand people annually—both children and adults—with classes in tree-planting and ecology, nature walks, and organic gardening, composting and alternative technology demonstrations. There are also tours to the smog-damaged forest areas where new trees are being planted by Tree People and their student helpers. An Urban Forest program is adding trees to the parks of the Los Angeles area and encouraging city residents to plant fruit and nut trees. Trees planted by the Tree People are almost all grown from seed in their Coldwater Canyon Nursery.

Tree-planting is indeed in the air. No current book on general ecology is without a section on its importance, and today, in India, the Gandhians have begun a movement to save their rapidly eroding northern lands by restoring the tree cover.

This is reported on at some length by Robert Swann, author of *The Community Land Trust* (published by the Center for Community Economic Development, Cambridge, Mass.), who returned recently from a long visit to India. Speaking of the activities of the non-violent movement there, he said:

> The most important of these developments with which we came into contact is the unique and amazingly successful "Chipko Movement," which offers nonviolent resistance to ecological damage (the destruction of tree cover in the Himalaya Mountains) but also utilizes "reverse nonviolence" in the sense of Danilo Dolci's work in Italy, through voluntary afforestation and public works to save the Himalayan slopes from destruction. This movement has nationwide significance for India in that the perennial floods which inundate northern India (the most recent in 1978) are caused in large part by the destruction of the tree cover and consequent soil erosion in the Himalayas. (Another example of policy adopted from the British which has been carried on mindlessly by the Indian bureaucracy.)

Bob Swann tells in his report of the first international conference on Trusteeship—a Gandhian conception—scheduled by the Indian Trusteeship Foundation (headed by Govindrao Deshpande) to take place in Bangalore, India, in October. He thinks that his own proposal of a "World Resources Trust Fund" might be initiated by the Conference.

Concerning tree-planting in India, he says:

> This movement, I believe, has worldwide significance because of the recognized importance of forests to the ecology and to human existence (see the recent warning by the World Bank on the present rate of deforestation, which might leave all the world with virtually no forests within less than a century, unless the pace of afforestation is greatly accelerated). It links directly with my proposal for a World Resources Trust Fund. (When I mentioned this to an assembly of young members of the Friends of the Trees organization during our trip to the village of Gopeshwar, where the Chipko movement had its beginnings, it was met with great enthusiasm.) It also links directly, or could, with our efforts to establish forest land trusts here in the U.S. and particularly in New England and Appalachia. (Appalachia has a great deal of resemblance to the problems of the Upper Himalayas.) And, incidentally, the technology of the pyrolitic converter (a device which uses external heat to make efficient fuel out of waste organic material) could have great significance to the Chipko movement, or the ecology of the region. This is because a primary problem of the villagers is the cutting of trees for lumber (mostly by contractors from the plains), depriving them of their only fuel for cooking and heating, since they depend upon "scraps" from the forest for this purpose. In theory, at least, with 85% efficiency, the converter principle could increase the energy value of their wood by three or four times.

Bob Swann concludes his report with observations on the extraordinary resilience of the peasant culture of India, where age-old reliance on the bullock, instead of gasoline-powered vehicles, has continued into the present.